RWANDA COUNTRY ECONOMIC MEMORANDUM

Pathways to Sustainable and Inclusive Growth in Rwanda

(Update on Future Drivers of Growth report)
A joint initiative by the Government of Rwanda and the World Bank Group

Republic of Rwanda

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Acknowledgments

This Country Economic Memorandum (CEM), focusing on Pathways to Sustainable and Inclusive Growth in Rwanda, was prepared jointly by the Government of Rwanda and the World Bank. The World Bank team was led by Calvin Zebaze Djiofack (Senior Economist) and Peace Aimee Niyibizi (Senior Economist), while the Government team was led by Stella Nteziryayo (Chief Economist, Ministry of Finance and Economic Planning), Leonard Rugwabiza (Economic Advisor, Ministry of Finance and Economic Planning), and Godfrey Kabera (Head of National Development Planning and Research, Ministry of Finance and Economic Planning).

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Abbreviations

AfCFTA	African Continental Free Trade Area
AI	Artificial Intelligence
ALMPs	Active Labor Market Policy
ANP	Akagera National Park
ASEAN	Association of Southeast Asian Nations
ASP	Adaptive Social Protection
BAU	Business-As-Usual
BDS	Business Development Services
BFNA	Biodiversity Financial Needs Assessment
BNR	Banque Nationale du Rwanda (National Bank of Rwanda)
BRD	Rwanda Development Bank
CAES	Customized Agriculture System
CAF	Community Adaptation Fund
CBHI	Community-Based Health Insurance
CCDR	Country Climate and Development Report
CEM	Country Economic Memorandum
CET	Common External Tariff
CFS	Climate Finance Strategy
CIT	Corporate Income Tax
COMESA	Common Market for Eastern and Southern Africa
CRM	Customer Relationship Management
CSA	Climate-Smart Agriculture
CSAF	Council on Small Agricultural Finance
DFS	Digital Financial Services
DIME	Development Impact Evaluation
DMRS	Domestic Market Recapturing Strategy
DPI	Digital Public Infrastructure
DRC	Democratic Republic of the Congo
DTRI	Digital Trade Restrictiveness Index
EAC	East Africa Community
EBM	Electronic Billing Machine
ECCAS	Economic Community of Central African States
ECD	Early Childhood Development
eCTS	Electronic Cargo Tracking System
EGF	Export Growth Fund
EICV	Integrated Household Living Conditions Survey
EMDEs	Emerging Markets and Developing Countries
ESC	Employment Service Centers
EU	European Union
FCCL	Fiscal Commitment and Contingent Liability
FDG	Future Drivers of Growth
FDI	Foreign Direct Investment
FONERWA	National Fund for Environment and Climate Change
FSSP	Forest Sector Strategy Plan
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GGCRS	Green Growth and Climate Resilience Strategy
GHG	Greenhouse Gases
GNI	Gross National Income
GoR	Government of Rwanda
GVC	Global Value Chain
IBES	Integrated Business Enterprise Survey
ICT	Information and Communication Technology
IFMIS	Integrated Financial Management Information System
IHSLC	Integrated Household Survey on Living Conditions
ILO	International Labor Organization
IMF	International Monetary Fund
IP	Industrial Policy
IPAs	Investment Promotion Agencies
KLP	Kigali Logistics Platform
KPI	Key Performance Indicators
LARS	Learning Achievement in Rwandan Schools
LFS	Labor Force Survey
LODA	Local Administrative Entities Development Agency
LTGM	Long Term Growth Model
LTSS	Long Term Savings Scheme
MAGERWA	Magasins Généraux du Rwanda
MBRP	Manufacture and Build to Recover Program
MDB	Multilateral Development Bank
MFI	Microfinance Institution
MICE	Meetings, Incentives, Conventions, and Exhibitions
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MINAFFET	Ministry of Foreign Affairs and Cooperation
MINAGRI	Ministry of Agriculture
MINALOC	Ministry of Local Government
MINECOFIN	Ministry of Finance and Economic Planning
MINEDUC	Ministry of Education
MINICOM	Ministry of Trade and Industry
MININFRA	Ministry of Infrastructure
MININVEST	Ministry of Public Investment and Privatization
MINISANTE	Ministry of Health
MiR	Made in Rwanda
MNE	Multinational Enterprise

MRA	Mutual Recognition Agreement
MRV	Monitoring, Reporting and Verification
MSME	Micro, Small and Medium Enterprise
NAEB	National Agricultural Export Board
NAIS	National Agricultural Insurance Scheme
NBS	Nature-Based Solutions
NBT	Nature-Based Tourism
NCDA	National Child Development Agency
NCSA	National Cybersecurity Authority
NDC	Nationally Determined Contribution
ND-GAIN	Notre Dame Global Adaptation Initiative
NGOs	Non-Government Organizations
NISR	National Institute of Statistics Rwanda
NNP	Nyungwe National Park
NST	National Strategy for Transformation
NTB	Non-Tariff Barrier
ODA	Official Development Assistance
OECD	Organization For Economic Cooperation and Development
ONA	One Network Area
PEFA	Public Expenditure and Financial Accountability
PER	Public Expenditure Review
PES	Public Employment Services
PFM	Public Financial Management
PIM	Public Investment Management
PPP	Public-Private Partnerships
PR(s)	Policy Reforms
PRs	Policy Recommendations
PRSF	Partial Risk Sharing Facility
PSTA	Strategic Plan for the Transformation of Agriculture
R&D	Research and Development
RAB	Rwanda Agriculture Board
RDB	Rwanda Development Board
REMA	Rwanda Environment Management Authority
RERP	Rwanda Economic Recovery Plan
RICA	Rwanda Inspectorate, Competition and Consumer Protection Authority
RP	Rwanda Polytechnic
RRA	Rwanda Revenue Authority
RSB	Rwanda Standards Board
RSSB	Rwanda Social Security Board
SACCO	savings and Credit Cooperative Organization
SADC	Southern Africa Development Community
SAIP	Sustainable Agricultural Intensification and Food Security Project
SDF	Skills Development Fund
SDG	Sustainable Development Goal
SDG	Sustainable Development Goal
SDR	Special Drawing Right
SEZ	Special Economic Zone
SLBs	Sustainability-Linked Bonds
SLLs	Sustainability-Linked Loans
SMEs	Small and Medium Enterprises
SOC	State-Owned Companies
SOE	State-Owned Enterprises
SSA	Sub-Saharan Africa
SSIT	Small Scale Irrigation Technology
STEM	Science, Technology, Engineering, and Mathematics
STRI	Services Trade Restrictiveness Index
TADAT	Tax Administration Diagnostic Assessment Tool
TFA	Trade Facilitation Agreement
TFP	Total Factor Productivity
TPOs	Trade Promotion Organizations
TVET	Technical and Vocational Education and Training
UNCTAD	United Nations Conference on Trade and Development
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations Children's Fund
US$	United States Dollars
USPs	Unsolicited Proposals
VAT	Value-Added Tax
VNP	Volcanoes National Part
VUP	Vision Umurenge Program
WBES	World Bank Enterprise Survey
WDIs	World Development Indicators
WEO	World Economic Outlook
WFP	World Food Program
WTO	World Trade Organization

Executive Summary

Rwanda has achieved impressive growth and poverty reduction over the past two decades. The share of the population below the national poverty line fell by more than 20 percentage points from 2001 to 2017, while life expectancy, access to health care, and educational attainment have improved sharply. However, while poverty continued to fall until the eve of the pandemic, the amount of poverty reduction generated by each percentage point increase in gross domestic product (GDP) per capita fell, and the pandemic and a series of external shocks have likely increased poverty rates.

The economy faces severe constraints. Job creation is insufficient while productivity remains low, reflecting infrastructure gaps, limited progress in innovation, and sub-optimal allocative efficiency. The Human Capital Index (HCI), which measures the amount of human capital that a child born today can expect to attain by age 18, places Rwanda at 160th out of 174 countries. High public debt levels, vulnerability to climate change, and the increasing pressure on natural resources will make it difficult to achieve the country's targets of becoming an upper-middle-income country by 2035 and a high-income country by 2050. Overcoming these challenges will require greater reliance on private sector investment to enhance productivity growth, raise incomes, and provide the financing to address infrastructure shortfalls.

Boosting productivity and competitiveness

Achieving rapid private sector growth will be unlikely without strengthening support for firms and far-reaching reforms to economic policies. Most firms are small and informal and operate in low-value-added sectors. Many lack appropriate inputs, technology, and finance. Regulations restrict competition, rules against anticompetitive practices are poorly enforced, the insolvency framework is complex and not fully implemented, and state-owned enterprises—with full, majority, or minority state shareholdings—operate in some markets where private sector presence is feasible. The recent publication of policies on competition, investment, and privatization provides a framework for the government to address these issues. Implementation should consider strengthening competition law enforcement, systematically identifying and removing regulatory restrictions, as well as open and transparent privatization processes, effective control of the creation of state-owned enterprises (SOEs), and competitive neutrality. Public support for firms could be improved by: (i) renewing the portfolio of support schemes after an impact evaluation of the small and medium enterprises (SME) policy mix, (ii) strengthening delivery capacity across government ministries and agencies, and (iii) creating markets for Business Development Services (BDS) to emerge. Improving collaboration across firms by investing in shared infrastructure or using matching grants to promote research and development (R&D) consortia is an inexpensive approach to reducing coordination and information failures that impede growth.

Many Rwandan firms find it difficult to hire workers with the right skills. Rwanda has one of the lowest levels of educational attainment in the region. Low post-graduation employment rates and surveys indicate the low relevance for employers of skills learned in public universities and technical and vocational training institutes. Efforts to improve skills should focus on identifying skills gaps, strengthening teachers' skills, and continuing to improve access to student financing for vulnerable students.

Micro, small and medium enterprises (MSME) are particularly underserved by financial services. MSMEs received only 15 percent of total lending by banks in 2019 but employed 71 percent of establishment workers. According to the World Bank Enterprise Survey (WBES) 2019, 31 percent of SMEs perceived access to finance as their biggest obstacle to operations, well above the average for sub Saharan African (SSA) countries (around 22 percent) and that for large firms in Rwanda (12 percent). More generally, low domestic savings and the limited share that is channeled through formal financial institutions further constrain access to formal sources of finance. Promoting financial

literacy, strengthening the framework for digital financial services, improving financial institutions' services to low-income households, supporting financial innovation, and increasing savings through the Ejo Heza and other long-term saving programs could increase the channeling of savings through formal financial institutions.

Rwanda's innovation performance has deteriorated. In 2019, Rwanda ranked 103rd out of 120 countries in terms of introducing a new or significantly improved product or service. The Government could support innovation by reducing program fragmentation, targeting programs to different stages in a firm's growth cycle, shifting resources from financial assistance to technical support, strengthening the delivery capacity of ministries and agencies, and using grant-matching consortia to fund projects.

The report outlines an agenda to strengthen information and communication technology (ICT) services in Rwanda, where network coverage has improved but broadband uptake remains low. Rwanda needs to boost digital service use among consumers and the private sector by increasing access to affordable smart devices, expanding digital skills initiatives, and improving broadband quality and affordability through network upgrades, densification, and stricter competition enforcement. Key regulatory measures include a reference interconnection offer (RIO), better spectrum management for next-gen technologies like 5G, and infrastructure sharing to lower service costs. While recent laws on personal data protection and cybersecurity have created a solid regulatory foundation, their implementation is still in progress. To achieve global standards, Rwanda must enhance regulations related to non-personal data portability and net neutrality, as current rules restrict cross-border data flows vital for digital market integration and e-commerce. This effort should be supported by regional and global collaboration on regulatory harmonization. Further public investment is needed to develop foundational digital public infrastructure, such as identification, trusted data sharing, and digital payments systems, to scale digital services safely and affordably. Additionally, improvements in the enabling framework and skills development are crucial for wider adoption of technologies like artificial intelligence (AI).

Rwanda has achieved remarkable growth in exports—but needs to grow faster to meet its development goals. Exports are vulnerable due to the concentration in a few products and markets, coupled with reliance on gold and low-complexity primary commodities subject to large price fluctuations. The similarity of export composition with East African Community (EAC) partners and low survival rates of export relationships further limit Rwanda's export potential. These challenges in part reflect the small average size of Rwandan firms and their lack of innovation and technical proficiency, as well as high trade costs associated with limited infrastructure (e.g., high electricity costs) and lingering policy impediments (e.g., some input tariffs).

Overcoming these challenges will require a combination of approaches. Rwanda's services trade, particularly digital trade, could be boosted through trade agreements to reduce foreign restrictions and strengthen trade facilitation, fulfilling Rwanda's commitments to liberalizing trade in services while strengthening commitments in some areas (e.g., the financial sector), easing restrictions on foreign workers to increase access to skills, providing for cross-border digital payments interoperability and policy improvements to streamline restrictions and harmonize standards and regulations. Efforts to simplify government procedures and disseminate information on service trade opportunities, market access requirements, and support mechanisms, coupled with the development of common principles and guidelines on services with trade partners and within the World Trade Organizations (WTO) and regional groups, would support the expansion of digital trade. Rwanda also needs to strengthen consumer protection measures and clarify rules for e-commerce and content platforms, particularly regarding products and content generated by users. Strengthening coordination with the Democratic Republic of Congo (DRC) could improve access to a market that accounts for about a third of Rwanda's exports. Finally, capacity building and active engagement with African countries and regional economic communities could help to reap the benefits of the African Continental Free Trade Agreement (AfCFTA).

Several steps are required to consolidate Rwanda's position as a logistics and transport hub for transit

trade. Improving the efficiency of trucking firms, developing warehouse facilities, eliminating charges and other impediments to transit trade, and establishing an integrated freight transport system using roads, railways, and air cargo would strengthen the transit system. Further efforts are required to harmonize taxes, fees, and charges related to air transport. Related efforts could focus on improving infrastructure, clarifying policies (e.g., on the hub's form), strengthening coordination with neighboring countries over rules and expanding support capacity, reducing charges on transit trade, and scaling up the management skills of Rwandan logistics providers.

Efforts are needed to improve the development impact of foreign direct indirect (FDI). This involves fully enforcing committed investment treaties, better integrating investment and competition policies, and strengthening intellectual property rights through the AfCFTA. Domestically, Rwanda could strengthen the firm-level investor tracking system and assess the value for money of FDI promotion efforts, including tax incentives. Expanding investments in Special Economic Zones (SEZs) and integration of SEZs into national transport and logistics infrastructure could attract more investment. SEZs could become a platform for industrial policies, fostering linkages with local suppliers and specialization along the value chain.

Boosting Inclusiveness

Rwanda's rapid structural transformation has generated substantial gains, reducing poverty and creating quality jobs for both men and women, as well as older and younger workers. However, the benefits of structural transformation have tended to accrue to more educated workers, worsening inequality. While only 15 percent of the workforce has an upper secondary or university education, they hold one-third to half of industry and services jobs. In high-value sectors like information and communications, 70 percent of jobs go to university-educated workers, who make up just 7 percent of the overall workforce. Education dramatically increases access to off-farm jobs; tertiary education makes it three times more likely, compared to those with no education. This has deepened inequality in job opportunities. Ensuring access to decent and well-paying jobs in the formal economy that provide access to social protection remains a challenge. Improving cities, including secondary cities, through infrastructure improvements to raise density, mobility and resilience would make it easier for workers to move to higher-productivity jobs and increase inclusion. Trade and investment treaties, along with infrastructure investments, should be directed at attracting FDI a key driver of formal job creation.

Sustained improvements in the social protection system would promote poverty reduction and support vulnerable households. The community-based health insurance program and the social insurance schemes are critical to protect informal sector workers and their households. Expanding the geographic reach and the linkages across active labor market policies is important to support the sustainable integration into the labor market of a broader population of vulnerable workers, particularly low-skilled ones.

Growth in agriculture is essential to meet the country's development ambitions, and the sector faces both opportunities and formidable problems. Demographic trends and rising incomes will shift demand to higher value-added products, potentially increasing high-quality jobs. However, demographic pressures and the slow transition to off-farm livelihoods is increasing the share of households with very small farm plots, and agricultural yields have plateaued or even dropped since 2013. Close to 40 percent of agricultural households use improved seeds or pesticides, and only six percent of land under crop cultivation is currently irrigated. Rwanda suffers widespread damages and losses from climate-related events, notably droughts, landslides, and flooding. There is a lack of organized, formal markets for most staple crops (except maize), markets for some crops are dominated by unprocessed products, staples suffer from poor quality, farmers are reluctant to market their crops in the face of high food insecurity, and despite the rapid growth of horticultural exports the value chain suffers from insufficient cold storage and transport, underutilization of existing facilities, inadequate logistics and bureaucratic requirements. Finally, agricultural finance is limited due to high perceived risks and transactions costs for financial institutions, and limited experience of farmers and producers with finance (and lack of sectoral knowledge in financial institutions).

Improvements in the sector will require greater government support and increased private sector investment. Steps could include integrating "Farming as a Business" as a standard component in the government extension model, encouraging private investments in agri-logistics infrastructure and cold chain development, shifting management of post-harvest assets to the private sector, and modernizing the seeds sector. An Agriculture Finance Strategy should address balancing grants programs vs. the objectives of private finance. The Government also should seek to scale up vocational training for rural support services, invest in irrigation, strengthen land market regulations and help to improve agricultural risk management. Efforts to improve equity in the sector could involve adopting a food policy strategy for local food sector development, promoting investments in market infrastructure, strengthening institutions involved in sector regulations (e.g., for food safety, employment), and reducing gender disparities in farm productivity, land size and quality, prices received for products and access to finance.

Boosting sustainability and resilience

Unsustainable exploitation of natural assets and the continuing impact of climate change pose substantial risks to development. Soil degradation and erosion, deforestation, loss of biodiversity, and limited access to and supply of clean water threaten growth and welfare. Rwanda is ranked 124 out of 182 countries in an index of vulnerability to climate change, given the heavy reliance on agriculture and nature-based tourism. Land area with high vegetation cover (forests, woodlands, grasslands, and shrublands) fell by 43 percent from 1990–15, while croplands more than doubled, exacerbating soil erosion and soil loss, as well as reducing infiltration and depleting groundwater reserves. The cumulative effect of watershed destruction, inappropriate settlements, and unsustainable agricultural practices has led to more siltation, sedimentation, pollution, and the risk of invasive aquatic weeds. In urban areas, unplanned land-use changes have resulted in increased flood risks, land degradation, and biodiversity loss.

Nature-based solutions can play an important role in maintaining natural assets and adapting to climate change. The Rwanda Country Climate and Development Report (CCDR) recommends deploying nature-based programs such as soil-conscious conservation agriculture and payment-for-ecosystem services, with the emphasis on the expansion of the network of terraces to increase soil carbon. Land management interventions proposed by government agencies could significantly reduce soil erosion and increase biomass carbon storage. Nature-based solutions also can reduce flood risks and help to improve water quality in urban areas. More broadly, integrating climate considerations in the planning and design of investments needed for urban development could augment resilience and lower the carbon footprint of cities. The Government's efforts to transition cooking in households from biomass to cleaner energy sources, which are central to maintaining forests, could benefit from private sector participation and climate finance.

Nature-based tourism (NBT) generates substantial revenues. NBT, defined as tourism to experience natural resources in a wild or undeveloped form, is estimated to account for 80 percent of the visitors entering Rwanda for leisure or conferences. NBT has played an important role in job creation, particularly increasing formal jobs in rural communities near the game parks. NBT in Rwanda remains vulnerable to poaching and illegal activities, underlining the importance of ensuring that the surrounding communities, who may have customary rights to natural resources in or around protected areas, reap some of the benefits. Private investment, as provided for through new legislation, could potentially assist with diversifying NBT offerings.

There is considerable technical potential to reduce emissions while maintaining rapid growth. Emissions could be reduced substantially through fuel switching to lower carbon sources, improvements in operational and fuel efficiency, and efforts to promote sustainable waste management measures. These initiatives also would improve the quality of growth and limit the adverse impacts of emissions on public health. Nevertheless, the government estimates that it would cost US$11 billion from 2020–30 (8.8 percent of GDP each year) to achieve Rwanda's Nationally Determined Contribution (NDC) commitments (both unconditional and conditional). The impact on emissions of the current expenditure pattern could be reduced through formalizing the application of climate disaster risk screening of public investments

and prioritizing green investments, deploying levies or repurposing existing subsidies that undermine climate resilience, and using resilience criteria to determine subnational allocations.

The report outlines key policy measures for strengthening Rwanda's resilience to climate change. The policy measures are presented based on whether they are short or medium term, high or medium priority, and high, medium or low feasibility. Policies are divided between those that enable sustainable implementation of NBS to reduce vulnerability to climate events, those that enhance the contribution of NBS to development, and those that maintain a low carbon growth path.

The narrowing of Rwanda's fiscal space threatens the sustainability of the economic program. The Central Government fiscal deficit rose sharply before the COVID-19 pandemic, and then increased further with the COVID-19 related expenditures and the revenue impact of the 2020 recession. Debt rose from 23 percent of GDP in 2006 to 66 percent in 2022. While sustainability outlook risks remain moderate, fiscal consolidation is necessary, in a way that minimizes negative spillovers on economic growth.

Fiscal consolidation should be supported by improving the efficiency of public infrastructure investment. Improvements could include consolidating projects and allocating more funding to multi-year projects, which tend to have greater development impact, as well as reducing implementation delays and stalled projects. While in some respects public investment management is of high quality, improvements could involve freeing funds tied up in poorly performing projects, performing more ex-post reviews of major projects by independent experts, improving the accuracy of estimates of state assets in financial statements, and fully implementing the integrated financial management information system (IFMIS). There also is potential for efficiency gains in health and education spending through progress in translating service delivery outputs into better performance.

Greater fiscal space and improved productive efficiency could be achieved by strengthening the management of state-owned enterprises (SOEs) and through a targeted privatization program. Some SOEs receive significant subsidies and have suffered substantial losses, while the guaranteed debt of SOEs at the end of 2022 is estimated at 3.4 percent of GDP. The government has defined a sound legal and institutional framework for SOEs and for privatization efforts, although some improvements in the laws and policies now under review would be useful. Clear and timely reporting on SOE financial, operational performance and contribution to social goals, will be necessary to define a performance management framework and set performance targets.

A larger role of private sector financing in infrastructure projects could generate efficiency gains. This could be achieved through addressing problems in substantive provisions of the law on privatization, strengthening government management of public private partnerships (PPP) s and project screening, establishing a framework to assess fiscal commitments and contingent liabilities, and providing for formal mechanisms for funding project preparation and underpinning public support to PPPs.

There is scope for increasing tax revenues and reducing expenditure. Rwanda's ratio of tax revenue to GDP in 2021 was 4 percentage points above the average of regional peers, although tax performance remains below that of some top-performing comparators. Potential improvements include raising rates on selected excise taxes and reducing tax exemptions. Key policy recommendations for expenditures include phasing-out COVID-19 and one-off special drawing right (SDR) spending, reducing budgetary rigidity, reviewing the implementation of investment projects according to the government priorities, identifying measures for additional cost-savings and efficiency gains based on the World Bank's Public Expenditure Review (PER) and including in the budget a medium-term fiscal policy framework underlying the spending rationalization strategy. Disaggregating the fiscal targets in the Medium-term Fiscal Framework, for example formulating targets for the wage bill in different areas or establishing ceilings on revenue foregone, could enhance government control of the budget. Similarly, the application of cost-benefit analyses and sunset clauses on tax expenditure provisions would also benefit from being incorporated into the fiscal sustainability framework over the medium term.

Overview

Introduction

For many years, the World Bank has had the honor and privilege of accompanying administrations with a series of diagnostics studies and policy recommendations. Building on this tradition, the Bank team has put together a joint effort with the Government of Rwanda at producing a Country Economic Memorandum (CEM) focused on pathways to high, sustainable and inclusive growth for the government. This effort is meant to facilitate a dialogue around a menu of policy options, and be informative in the spirit of knowledge exchange, rather than exhaustive. The topics were selected by the Government of Rwanda and the World Bank based on the original report "Future Drivers of Growth (FDG) in Rwanda" and recent development challenges facing the country. This Overview aims to provide an overall guiding framework to highlight and bring together some of the critical reform priorities identified in the CEM.

This study is a continuation of the "FDG: Innovation, Integration, Agglomeration, and Competition" report that was also a joint initiative of the Government of Rwanda and the World Bank. This report was officially launched in 2018 as a contribution to the formulation of the National Strategy for Transformation (NST-1), which set the framework for economic policies over the 2017/18–2023/24 period (World Bank Group; Government of Rwanda, 2020). The government is now preparing a successor strategy document, NST-2, and has requested World Bank assistance in updating that earlier report to consider the major policy challenges now facing the country. Hence, the study intends to contribute to the achievement of the menu of key reforms initiated a few years ago, while refreshing the policy agenda for accelerating Rwanda's progress in growth and poverty reduction.

The Rwanda government has ambitious long-term economic goals. Vision 2050 sets an overarching goal of reaching a gross domestic product (GDP) growth per-capita rate of more than 10 percent to reach upper-middle income status by 2035 and high-income status by 2050. To get there, the Rwandan government would build on its strong record in far reaching reforms initiated after the genocide against the Tutsi in 1994. Large scale public investment in energy, telecommunications and road transport, strengthened business regulations, trade integration, deepened decentralization with accountable service delivery and broad-based social achievements have led Rwanda to reach an average GDP per-capita growth of 5 percent per year since 2006, second only to Ethiopia in Sub-Saharan Africa (SSA).

Building on a strong and promising record, the FDG report set the country on an ambitious course. It identified four drivers and six pillars to achieve middle-income status. The four drivers of growth were innovation, integration, agglomeration, and competition; the six pillars were (1) human capital development and a knowledge-based economy, (2) regional and international trade integration, (3) urban infrastructure development, (4) enterprise development for a private sector-led economy, (5) productive and market-oriented agriculture, and (6) good governance in a capable state. Gender equality, environmental sustainability, and long-term commitment to science and technology were cross-cutting themes to support the six pillars.

This study refreshes the FDG agenda of policy reforms. After four years of implementation, progress on the agenda of FDG reforms has been broad and remarkable but a major and sustained effort is still needed to complete the agenda. In a nutshell, from the analysis of a total of 82 policy recommendations, about one third achieved significant progress; about half made some progress, and about one fifth made little to no progress. The policy recommendations with the highest average progress scores were, in order, Human Capital (2.35), Governance (2.25), Trade (2.15), Urbanization (2), Agriculture (2) and Competitiveness and Enterprise (2).[i]

The proposed upgrade aims for high, inclusive, job-enhancing, and green-oriented growth, supported by an updated and more comprehensive list of policy recommendations. It adds two new pillars to the six original ones: job creation and climate change adaptation. Growth based on structural transformation can create more and better jobs, thus both reducing unemployment and boosting shared prosperity. Moreover, sustained growth depends on the institutional capacity to foresee and adapt the economy to climate change, while addressing its risks to facilitate a smooth transition to green growth.

Continuing Rwanda's remarkable success requires accelerated efforts to rebalance its economy away from public investment greater reliance on private investment. Despite rapid growth, Rwanda's economy still confronts significant challenges. While vigorous efforts have been made to establish a regulatory framework that favors growth and massive investments have increased public services, the dominant role of public investment and constraints on competition have limited innovation and efficiency. Many households, particularly in rural areas, have received little benefit from the overall progress in development. Climate change and mounting public debt present serious challenges to sustainability. At the same time, steady improvements in health services and in education are critical to build human capital, so that Rwandans have the skills essential for innovation and technological progress. Overcoming these challenges will require greater reliance on private sector investment to enhance productivity growth, raise the incomes of poor farmers and the supply of off-farm employment in rural and urban areas, and provide the financing to address infrastructure shortfalls in the face of constraints on government expenditures and increasing climate change related shocks.

Challenges are formidable, and a bold approach is still needed. It should focus on how public policy can encourage greater private sector participation in achieving the goals of raising productivity growth, boosting inclusion, and addressing threats to sustainability. Rwanda has had the capacity to manage several exogenous shocks including COVID-19, natural disasters and the international implications of the ongoing conflict in Ukraine. Nevertheless, simultaneous action on various fronts and an acceleration of the past economic trends will be crucial to keep Rwanda on its path to prosperity.

This overview is structured as follows. Chapter 1 reviews Rwanda's growth experience and presents scenarios for growth potential over the next 25 years. The next chapter considers policies to promote private sector productivity and competitiveness, based on firm-level surveys and industry-level analyses, and Chapter 3 discusses international trade and integration. Chapter 4 reviews trends in structural transformation and inclusiveness of job opportunities, followed by a chapter on measures to increase productivity and incomes in the agricultural sector, on which the bulk of poor households depend. Chapter 6 addresses the impact of climate change and the ongoing deterioration in Rwanda's natural assets, and Chapter 7 considers policies to improve the sustainability of fiscal policy.

Sources of growth in Rwanda: Diagnostic of growth fundamentals

Rwanda's impressive growth over the last two decades has achieved substantial reductions in poverty and improvements in living conditions. GDP has increased by 7 percent a year since 2010, the share of the population below the national poverty line fell by more than 20 percentage points from 2001 to 2017, and life expectancy, access to health care, and educational attainment have improved sharply. Investment, particularly rapid increases in public investment, has been the main driver of growth (Figure 0.1b). Large infrastructure investments have yielded significant improvements in access to and quality of basic services (for example, the share of the Rwandan population with access to electricity rose from 6.1 percent in 2000 to 80.1 percent in 2024 (56.2 percent grid and 23.9 percent off-grid), and investment in the meetings, incentives, conventions, and exhibitions (MICE) sub-sector has boosted tourism revenues and jobs.

Despite these achievements, the Rwandan economy faces challenges that could limit development progress. . While poverty continued to fall until the pandemic, the amount of poverty reduction generated by each percentage point increase in

GDP per capita fell from 0.36 between 2005/06 and 2010/11 to just 0.24 between 2010/11 and 2016/17.

Rwanda's past growth has neither generated sufficient jobs nor resulted in rapid gains in productivity. Rwanda's unemployment rate stagnated at about 12 percent over 2000–18, higher than in most peer countries, and the share of those employed in the population aged 15 or more has fallen to about half. Total factor productivity (TFP) growth has increased by only about one percent a year since 2000, and TFP growth made a negative contribution to GDP growth from 2010–22. Perhaps the most important determinant of low TFP growth is limited human capital accumulation. The Human Capital Index, which measures the amount of human capital that a child born today can expect to attain by age 18, places Rwanda at 160th out of 174 countries, reflecting low learning outcomes and high rates of stunting.

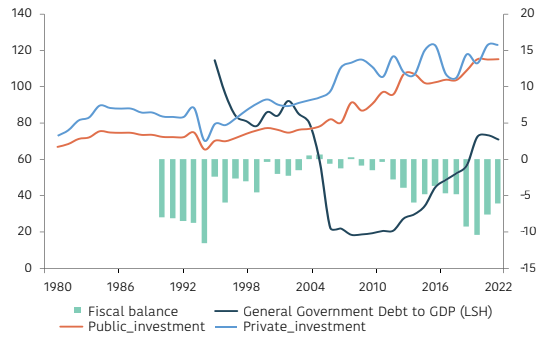
Rwanda confronts significant challenges to the sustainability of growth. Large public investments have boosted fiscal deficits and pose a challenge to medium- and long-term fiscal sustainability. Public debt rose from 20.4 percent of GDP in 2010 to 66.7 percent in 2022 (Figure 0.1a), and Rwanda's risk of external debt distress was downgraded from low to moderate in the 2020 IMF/World Bank debt sustainability analysis (DSA). Rwanda's dependence on agriculture and tourism makes it particularly vulnerable to climate change, due to increased frequency of droughts and floods, as well as an accelerated degradation of the country's natural capital. On the other hand, Rwanda also faces an important opportunity for more rapid trade growth through the African Continental Free Trade Area (AfCFTA), a free trade area, increasing the importance of investments in trade facilitation to reduce trade costs.

The government has adopted ambitious targets for long-term growth that would require accelerated reform efforts. Vision 2050 aims for Rwanda to become an upper middle-income country by 2035 and a high-income country by 2050, so that by 2050 income per capita would be almost 16 times larger than today's level. The rate of GDP growth necessary to meet these goals (14.7 percent a year to reach middle-income status by 2035 or 12.2 percent a year to reach high-income status by 2050) would be much more rapid than Rwanda's growth over the past couple of decades. Some of the gains made in recent years have been lost due to external factors including the COVID-19 pandemic, the war in Ukraine, and repeated climate shocks.

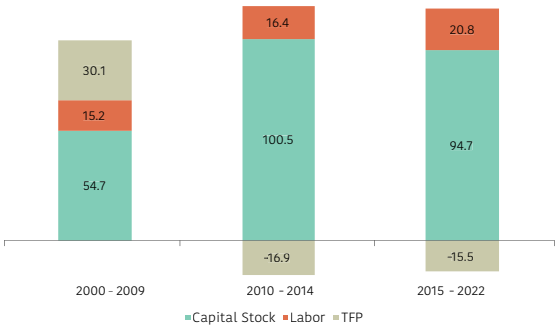
A key policy priority for long term growth should be to keep improving human capital development. No country can boost private sector prosperity without proper accumulation of human capital. From the previous FDG agenda, two priorities are increasing human and financial resources for stunting programs and moving along the ladder from the past focus on Basic Education to a renewed one on Secondary and Tertiary education reform. This would require strengthening accountability and learning skills, while reviewing the efficiency of the large increase in education spending during the pandemic. Three new priority areas include (i) improving basic education, (ii) developing skills for gainful employment and inclusion, and (iii) strengthening health

Figure 0.1: Rwanda's key drivers of economic growth

a) Increases in public investment have driven rising deficits and debt, 1980–2022.



b) Investment is the main driver of growth, 2000–22.

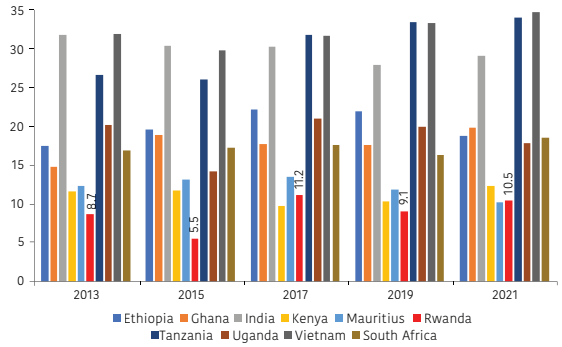


Source: Calculations based on World Development Indicators (WDIs)

outcomes. The first area mainly includes the need for strengthening the two-tiered Early childhood development (ECD) service provision modalities for increased enrollment, regular training of 24,000 uncertified teachers in foundational skills, and the provision of incentives to teachers' training and supervision in the use of English- and technology-based education. The second area includes the setting up of a long-due evaluation system for the performance of schools and technical and vocational education and training (TVET), designed in coordination with employers and firms, and an update of the labor market information system (LMIS) to identify critical skills to be addressed by TVET training programs. This would allow proper filling up of skill gaps and labor market opportunities. Scholarships and loans to access affordable laptops and the internet as part of social protection programs for poor, vulnerable and rural students should also be scaled up. The third area mainly supports the gradual increase of the health sector budget by two percentage points of the general budget to enhance the country's readiness for any potential health crises.

One reason for the limited role of private investments in Rwanda is the low level of domestic savings, and the small share that is channeled through formal financial institutions. Gross domestic savings equaled 10.5 percent of GDP in 2021, lower than in most regional comparators (Figure 0.2). Despite some increased access to commercial banks, the bulk of Rwandan savers rely on either informal savings products or non-bank financial institutions. Moreover, the use of pensions and insurance is very low, and retail bonds accounted for only 8.9 percent of government securities in 2020, and this share fell during the COVID-19 epidemic. Approaches to increasing domestic savings through formal institutions could focus on the strengthening of the Ejo Heza scheme. This would imply issuing new regulations to i) expand target groups beyond cooperatives such as through identifying other potential aggregators and enhancing efforts targeting urban dwellers whose uptake is lower; ii) revisit incentives by allowing short-term access to funds which is stringent in the current design; and iii) adjust the minimum savings level to qualify for matching incentives, which is Rwf18,000 for now. Reforms to increase domestic savings should leverage the expansion of digital financial services (DFS) to boost mobile savings by supporting the integration of non-banks into the payment system and allowing non-bank e-money issuers to pay interest on e-money accounts, as is currently the case in Kenya, Tanzania, and Ghana. Finally, there is a need to reduce the high costs for remittances, leveraging the East Africa Payment (comparison) System and engaging the Rwandan diaspora in capital markets. Several countries (Senegal, Brazil, the Philippines, and Indonesia) have issued diaspora bonds to tap into savings from abroad (this needs a clear strategy with many channels available, such as mobile apps or the ability to purchase without a local bank account).

Figure 0.2: Rwanda's gross domestic savings as percent of GDP is low



Source: calculation based on WDI

The following chapters provide deep dive analyses on how Rwanda could rebalance its economy away from public investment toward greater reliance on private investment to address three major challenges: i) boosting productivity and competitiveness; ii) boosting inclusiveness; and iii) boosting sustainability and resilience.

Boosting productivity and competitiveness

Private sector development: reforms to enhance competition, skills, savings, innovation, and ICT services

Achieving rapid private sector growth is unlikely without far-reaching reforms to economic policies. The rapid growth in the number of firms over the past decade and the increase in firms participating in international trade provide evidence of a dynamic private sector. However, these positive signs hide important weaknesses. The vast majority of firms are in the informal sector and quite small, many with less than 3 employees, and 87 percent of

workers are in the informal sector. Most of these small firms operate in low value-added sectors, particularly wholesale and retail trade. Severe problems hamper firm operations, including lack of appropriate inputs, technology, and finance, driving down capacity utilization.

Despite improvements in the investment climate, private firms continue to face considerable challenges. The government has made substantial progress in improving the investment climate. Nevertheless, further progress in strengthening the regulatory framework is essential to boost private sector growth. The main constraints cited in surveys of private firms include limited access to finance (particularly for small firms), high tax rates, and difficulty in finding workers with the necessary skills. On the positive side, the share of firms mentioning poor electricity services as a major obstacle fell from 35 percent in 2006 to less than 5 percent in 2019, reflecting the major government investments in electricity infrastructure. The critical areas in need of faster progress include competition, capabilities, access to finance, information and communication technologies (ICT) services, and innovation.

Competition

Enhanced competition is essential for rapid private sector growth, but the competition landscape in Rwanda suffers from three important problems. First, regulations that restrict competition and failure to effectively enforce rules against anticompetitive practices impair the functioning of markets and play an important role in worsening resource allocation and firm productivity. Second, the framework governing firm insolvency is complex and has not been fully implemented, which results in low recovery rates, limits risk taking and contributes to resource misallocation. Third, over half of state-owned enterprises operate in markets that could be served efficiently by private sector firms, raising concerns that privileged access to resources by state-owned enterprises (SOEs) or rules that support SOEs could starve more dynamic private firms. The government has made efforts to privatize SOEs, reduce government shares in private enterprises and attract foreign direct investment (FDI), although progress in some areas has been slow. Measures to increase private sector participation would involve updating the legal framework on competition, also reinforcing the institutional capacity of Rwanda Institute for Conservation Agriculture (RICA); and issuing new regulations reforming the insolvency regime and the procedures for divestiture or liquidation of SOEs.

Firm capabilities and sector policies

Small and medium-sized enterprises' (SMEs) upgrading policies are aimed at empowering firms to produce higher-quality products and services more efficiently and support their growth trajectories towards higher-value added activities and new markets. SMEs may lack market knowledge or linkages, adequate technology, know-how, access to networks or knowledge of existing regulations. Efforts to address firm capability shortages in these areas can contribute towards the correction of resource misallocation while helping businesses navigate a business environment characterized by high costs of production, which gives little bandwidth to firms to invest in innovation and quality. The upgrading of the SMEs support mechanisms should be preceded by an institutional mapping and functional analysis of all firm-level support mechanisms across government agencies (management training, matching grants or grants for research and development (R&D) consortia within existing clusters or networks, etc.).

Sector policies designed in collaboration with the private sector can accelerate productivity gains at the firm and sector level. The productive development of firms is often impeded by coordination and information failures across or within sectors. Sector development policies can inform interventions that seek to address firm-level capabilities and access to markets and offer an opportunity to tailor interventions and programs to address sector/cluster-specific challenges in an integrated fashion. government agencies can induce collaboration among firms by convening FDI sector/clusters stakeholders in carrying on an update and prioritization exercise of Rwanda Development Board (RDB) sector screening and approving pilot sector competitive initiatives at the sector/cluster level, which can help the government gain capabilities through learning by doing. An example is encouraging collective productive inputs in the form of strategic investments such as shared infrastructure, workforce development or rolling out matching grants to promote R&D consortia. Conducting strategic industrial policies

for the development of competitive strategic sectors requires strong institutional leadership and coordination capabilities.

Skills

Many Rwandan firms find it difficult to hire workers with the right skills. Rwanda has one of the lowest levels of educational attainment in the region: almost half of all workers have not completed any formal education, and 30 percent have completed only primary education. Gross tertiary enrollment is 7 percent, below the averages for sub-Saharan Africa and low-income countries. Employment rates post-graduation are only around 40-60 percent for public universities, compared to 90-95 percent for the top private universities, and employer satisfaction with the relevance of skills of graduates from TVET schools is estimated at only 60 percent These issues may in part reflect a failure of skill development programs to adjust to changes in the demand for skills, including sectoral shifts in demand.

Avenues for skill reform supporting private sector development should focus more on matching, quality, relevance, and equity of labor. First, Rwanda should institutionalize mechanisms like Sector Skills Councils (SSCs) for identification of skills gaps and labor market opportunities and strengthen formal channels for interaction between academia and the private sector employers. Second, the quality and relevance of technical and vocational education and training could improve significantly through enhancing the management and support of TVET teaching staff's technical, pedagogical and digital competences; upgrading of teaching and learning conditions for all programs in priority economic sectors; and stepping up mentorship to boost the labor market attractiveness of science and mathematics related subjects.

Access to finance for financially deprived firms

Micro, small, and medium enterprises (MSMEs) are particularly underserved by financial services. MSMEs received only 15 percent of total lending by banks in 2019, with micro-firms receiving only 1 percent (World Bank, 2021). Yet, MSMEs represent over 99 percent of total establishments and employ 71 percent of establishment workers in Rwanda. Overwhelmed by MSMEs and informality, the agriculture sector, a national priority sector accounting for 25 percent of GDP in 2022, received only 1 percent of total bank loans in the same period (National Bank of Rwanda (NBR), 2023). An agenda to improve financial access to MSMEs should include a program of regular trainings in financial literacy and business management skills; completion of the first phase of the program that support the automation of the operations of Umurenge SACCOs that provides support to the digitalization and consolidation of community savings and credit cooperatives, while consolidating Umurenge SACCOs into District-SACCOS; and harmonized requirements for financial institutions to define and collect data on which they base lending decisions on MSMEs.

Innovation and ICT Services

Rwanda's innovation performance has deteriorated. The share of firms engaging in innovation activities fell dramatically from 2011 to 2019, when Rwanda ranked 103rd out of 120 countries in terms of introducing a new or significantly improved product or service. Poor innovation performance in part reflects low managerial and technological adoption capabilities. Programs to improve innovation and management practices have generated high returns in other countries and could be scaled up in Rwanda. Moreover, Rwanda receives mixed reviews on the ability to take advantage of the opportunities offered by advances in information, communication, and telecommunications (ICT) services. Rwanda has achieved a significant expansion of network coverage (3G and 4G broadband network coverage rates stand at 93 and 97 percent, respectively) and is ranked first in Africa in terms of average broadband download speed. However, only 29 percent of Rwandans had a mobile broadband connection in 2022, less than half the rate in South Africa and Kenya, and Internet access in urban areas is more than five times that in rural areas.

The report outlines an agenda for strengthening the use of ICT services in Rwanda, divided into six areas. First, usage could be increased through improving digital capacity and network upgrades. Second, strengthening of personal data protection legislation and the cybercrime and cybersecurity framework could bring Rwanda's strong regulatory frameworks for data safeguards and enablers closer to the global frontier. At the same time, the regulatory framework should be strengthened to

facilitate the portability of non-personal data and guarantee net neutrality (under the non-personal data dimension). Third, supporting interoperable systems and startups would scale up digital payments and deepen financial inclusion. Fourth, removing current restrictions on cross-border data flows that inhibit further digital market integration would expand cross-border e-commerce. Fifth, developing innovation and ISO certification would foster export diversification. Finally, introducing production targets would improve managerial practices. Key measures involve, among others, issuing a decree fully liberalizing the 4G and 5G markets and implementing related provisions in the new broadband policy; allocating more resources to data infrastructure needed to expand digital public services and open data initiatives, and to strengthen the operational capacity for managing data risks, including cybersecurity and data protection; developing and scaling up an interoperable digital payment system; issuing new regulations and establishing business support and financial services for secure web based e-commerce; creating a coordination body of institutions of innovations, and a program on Opportunities and Knowledge Sharing on Production Targets. Monitored SME growth acceleration programs could identify high potential SMEs, and incentives could be more clearly linked to the productivity performance of beneficiary firms and focused on export promotion.

Growth and resilience through trade: New post-pandemic policies to drive exports

Rwanda has achieved remarkable growth in exports, but exports need to grow faster to meet its development goals. Exports of goods and services increased by 14 percent a year in real terms from 2010-19, surpassing SSA with 2 percent export growth and outperforming regional comparator economies within the East Africa Community (EAC). Export growth slowed in the second half of the decade and was then depressed by the COVID-19 pandemic. While export growth has since picked up, it remains well below the needed double-digit year-on-year export growth rate to achieve Rwanda's aspiration of becoming an upper-middle class country by 2035 and a high-income country by 2050.

Rwanda's future export growth remains vulnerable to external shocks, most notably climate change. The key to resilience is diversification. However, the country's export portfolio is concentrated on a few products and markets, relying recently on gold exports and low-complexity primary commodities subject to large price fluctuations. Similarity of export composition with regional EAC partners and low survival rates of export relationships further limit Rwanda's export potential. These challenges in part reflect the small average size of Rwandan firms and their lack of innovation and technical proficiency, as well as high trade costs associated with limited infrastructure (e.g., high electricity costs) and lingering policy impediments (e.g., some input tariffs). The analysis outlines policy recommendations aimed at improving Rwanda's export performance and resilience, focusing on diversification, services and digital exports trade, regional integration, emergence as a regional logistics hub, and FDI and green growth.

Diversification and product complexity

Increases in firm-level competitiveness are needed to diversify markets and induce a shift away from primary commodities and towards higher complexity products. The review of traditional strategies combined with the design of non-traditional digital export marketing strategies to improve market access, identification of high-potential nascent export products, and establishment of an Exporter Support Program (ESP) would help to boost diversification. The creation of a public-private sector dialogue on skills development programs of the Rwandan workforce is essential to producing higher complexity goods more efficiently.

Services exports and digital trade

Rwanda's services trade, particularly digital trade, should be leveraged to hasten the transition from low to high skill-intensive services. Policy improvements could make it easier for firms to trade in services. Easing restrictions on the visa entry and work permits of foreign workers, facilitating recognition of foreign professional qualifications, recognizing licenses and standards obtained in other EAC countries and regional countries unilaterally and establishing a regional mechanism to support cross-border digital payments interoperability could improve firms' efficiency. Promoting the adoption

of regional standards for digital trade, the creation of a single digital trade integration and the creation of One Network Area with AfCFTA, EAC, and ECCAS could help to lower restrictions on services trade. Complementary administrative efforts could involve simplifying government procedures, create a Trade Promotion Agency for e-commerce and digital services that would set clear rules and provide information on service trade opportunities through public information platforms, and identifying remaining red tape and bureaucratic hurdles of government programs. Joining the World Trade Organizations (WTO0 Joint Statement Initiatives on domestic regulation, investment facilitation for development and e-commerce would entail learning from established best practices worldwide. Finally, updating the 2020 law relating to electronic messages and e-commerce transactions would expand safe harbor provisions related to intellectual property rights and strengthen consumer protection.

Regional integration

Rwanda can improve the role of regional integration in supporting exports through more intensive discussions with the Democratic Republic of Congo (DRC). Strengthening the dialogue with the DRC, which accounts for about a third of Rwanda's exports (Figure 0.3), on trade regulations and promoting information exchanges and intra-EAC data and negotiations could improve Rwanda's access to this critical market. To do this, strengthening the EAC secretariat in charge of enforcing minimum regional assessment procedures for standards would help. Rwanda also should cooperate with the DRC in trade infrastructure investments, including in temporary storage and repackaging facilities, single-window modern border facilities, and trade logistics (along with steps to ensure the full and expedited compliance with the WTO's Trade Facilitation Agreement). New investments in storage facilities at the DRC border would cover a wider range of goods (beyond oil).

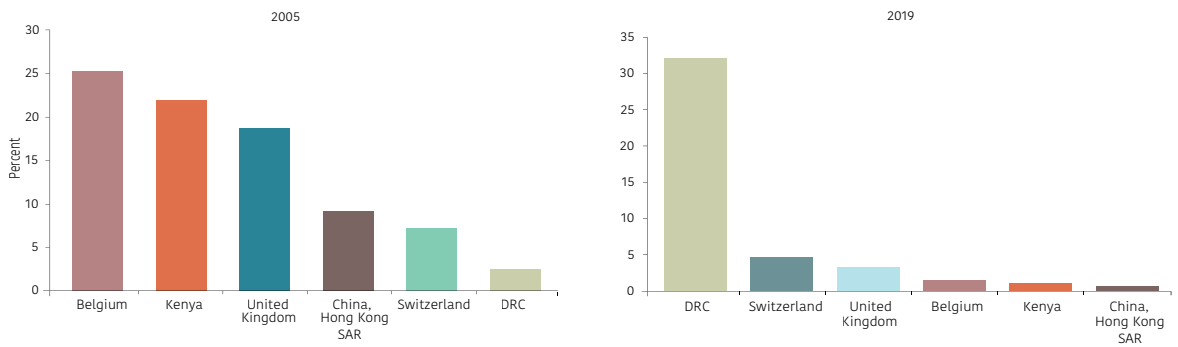
Harnessing the benefits of the AfCFTA will also require active engagement by Rwanda. The government could consider, among other things, developing a national trade facilitation strategy, based on the implementation of the AfCFTA's annex, strengthening the capacity of relevant government agencies and non-state actors engaging actively with AfCFTA economies, and institutionalizing data collection and exchange to monitor and evaluate the impact of Rwanda's integration into the AfCFTA. Reforming the common external tariff (CET) on the basis of a study reviewing the tariff system and prioritizing key inputs for Rwanda's economy would benefit its producers through lower tariffs on inputs.

The national logistic and regional logistics hub and SEZ

Several steps are required to consolidate Rwanda's position as an infrastructure hub for transit trade. The efficiency of trucking firms could be increased through targeted incentives to attract further investment. Two areas of intervention are the integration of multimodal transport into the national logistic infrastructure and investments in regional logistic infrastructure. The former involves approving budget allocations to key investments in both the Southern corridor and the Northern corridor as an alternative to the Central corridor. Rwanda's National Logistics and Distribution Services Strategy provides a useful framework for

Figure 0.3: Rwanda's exports market is increasingly concentrated on DRC

(Percent) *(Percent)*



Source: Calculations Based on COMTRADE

developing an efficient logistics system. It also involves ensuring an efficient integration of the Bugesera industrial park, Bugesera airport and Kigali Logistics Platform (KLP) to road, air and eventually rail. The latter could approve budget allocations for final infrastructure investments required by the creation of a Regional Logistics Hub (RLH) and the integration of SEZ into the national logistic infrastructure. While the open skies agreement has made great progress in establishing an appropriate legal framework for air cargo, further efforts are required to harmonize taxes, fees and charges related to air transport, and to strengthen RwandAir's financial sustainability. Finally, establishing a regional hub for transit trade would require clarifying policies (e.g., on the hub's form) and strengthening the harmonization of transport regulations with neighboring countries (e.g., vehicle specifications, axle load limits, and cross-border taxes).

Foreign investment and green growth

Continued efforts are needed to improve the development impact of FDI. Important steps include ensuring that committed investment treaties, such as the Economic Partnership Agreement between the EAC and the European Union, as well as AfCFTA, are effective and able to achieve greater integration in investment and competition policy, as well as in intellectual property rights. Domestically, Rwanda could establish and use efficiently an FDI tracking system to improve the effectiveness of FDI with proper monitoring and transparency, as well as link tax and industrial policy incentives to the productivity and export performance of beneficiary FDI firms, while making such incentives time-bound. Moreover, new regulations are needed to attract green FDI. A dedicated program of the Rwandan investment promotion agency (IPA) can be helpful to attract low-carbon FDI.

Boosting inclusiveness

Structural transformation, labor productivity, and inclusiveness

Structural transformation in Rwanda accelerated over the past two decades, with substantial labor reallocation out of agriculture. Estimates combining the Integrated Household Survey on Living Conditions (EICV) data in earlier years and the more recent Labor Force Survey (LFS) data suggest that the agriculture share of employment fell by 24 percentage points between 2000 and 2022. As workers moved out of agriculture, employment in industry expanded to nearly 12 percent, while employment in services increased to 24 percent in 2022 (Figure 0.4). Modeled ILO estimates and recent LFS data suggest an even deeper transformation. This rate of structural transformation in Rwanda has been faster than many of its peers in Africa and comparable to the historic record of Asian economies.

Structural transformation in Rwanda has been led by the services sector—similar to African comparator countries and distinct from Asian economies. Unlike Asian economies that have undergone a discrete industrialization phase, the services sector has provided more job opportunities to workers outside of agriculture in many African countries, including Rwanda.

Rwanda's structural transformation has been fueled by four long-term drivers: productivity growth, formal enterprise creation, foreign direct investments, and urbanization. First, productivity changes across sectors have led to significant labor reallocation towards employment opportunities characterized by higher value-added per worker. Second, the number of formal business establishments has been increasing in recent years. Kigali in particular has seen a concentration of investments and formal job creation. Third, FDI has been a crucial driver of formal employment growth. More than just creating jobs, FDI flows have created higher-quality jobs and have created jobs indirectly by increasing demand for other goods and services. However, FDI flows have declined in recent years and Rwanda has struggled to attract sustainable investments. Finally, rural–urban migration has been a significant driver of growth and economic transformation in Rwanda, with the share of the urban population increasing from 18.4 percent in 2016 to 27.9 percent in 2022. Nevertheless, the pace and extent of rural–urban migration, though rising, still lags behind Rwanda's African peers.

Figure 0.4: Rwanda: Structural transformation 2000–22
(Sector share of total employment; in percent)

Source: Calculations based on NISR integrated Household Survey on Living Conditions (EICV) reports and labor force survey (LFS) microdata.

Note: All estimates are based on the definition of employment that includes subsistence agriculture.

Structural transformation has translated into substantial gains for Rwandan households, reducing poverty, creating quality jobs for both men and women as well as older and younger workers. Up until the eve of the pandemic, Rwanda was moving much closer to its target number of decent and productive jobs.[ii] Data since 2017 show that decent and productive jobs—proxied by the NISR as off-farm or non-agricultural work—increased steadily during the pre-pandemic period. By 2019, decent jobs had reached nearly two-thirds of total employment, a broad-based increase across all age groups, for younger and older workers alike, and for both men and women.

Although the service sector has been the major driver of structural transformation in Rwanda, the manufacturing sector has played a critical role in inclusiveness by creating jobs for women, those living outside Kigali, and both skilled and unskilled workers. Manufacturing FDI, in particular, has had important inclusive impacts: it has created jobs both directly and indirectly, by spurring increased local demand for non-manufacturing goods and services, more than any other FDI sector. Notably, manufacturing accounts for the vast majority of total jobs created through FDI. As such, the recalibration of Rwanda's growth model in 2021 and the renewed support for the manufacturing sector and other strategic, tradable sectors is welcome and can make a substantial contribution to Rwanda's pathway towards greater productivity and better jobs. Manufacturing in Rwanda is mainly engaged in low-technology, low-skilled activities, and although the level of complexity of exported manufacturing goods has grown slightly over the last decade, this has been mostly in favor of labor-intensive goods. Because manufacturing provides the largest potential linkages and spillovers, further integration of Rwandan manufacturing into regional value chains (RVCs) and global value chains (GVCs) can boost long-term productivity, resilience and job creation. The development of value-added services is critical to boost growth in manufacturing.

However, the benefits of structural transformation have tended to accrue to more educated workers, exacerbating inequality of opportunity in the country. Although for Rwanda as a whole, those with upper secondary or university education represent only about 15 percent of all employed workers, they represent about a third to over half of those who have found employment in industry and services. Of the sub-sectors in services with the highest value-added per worker, for example, the majority of employment opportunities have benefited those with a university education (70 percent in the case of the information and communications sector). This is despite the university-educated accounting for only about 7 percent of all employed workers.

Poverty reduction has declined in recent years, exacerbated by external crises, leaving a high share of the population living in poverty. The COVID-19 pandemic and a series of external shocks have almost certainly increased poverty rates, undoing some of the important gains in the standards of living. It is estimated that the COVID-19 pandemic might have led to 5.1 percentage-point increase in the headcount poverty rate (more than 550,000 people) in 2021, compared to the no-COVID scenario. A recent analysis of job creation by sector suggests that only agriculture consistently created employment opportunities during the pandemic, potentially reflecting coping strategies during a period of economic hardship. As of 2022, agriculture accounted for more than half of employment in the country, while industry's share hovered around 15 percent, a substantial reversal in the structural transformation trend. As a result, both the number and share of decent and productive (i.e., off-farm) jobs have fallen since the eve of the pandemic.

Effective urbanization can help drive structural transformation. At the national level, the government should implement Rwanda's Spatial Data Framework (SDF) and establish a Spatial Data Information System (SDIS) to enable data-driven urban planning. Regionally, the government can develop satellite and secondary cities, strengthen local governance with city management offices funded by local revenue, and enhance connectivity through a study of inter-city links, easing pressure on Kigali and improving market access, productivity, and service delivery. At the city level, priorities should include densification, upgrading informal settlements, and ensuring climate-resilient urbanization. This involves enforcing land expropriation laws, creating transparent land rights management, adopting urban planning policies that minimize disaster risks, and investing in resilient infrastructure like drainage and flood management. Improved planning at One-Stop Centers and a national strategy for service delivery in urban areas are also crucial to enhance livability.

Additional reforms are required to improve RDB's overall effectiveness in attracting FDI and in reforming the institutional and legal framework for inclusive and green FDI. These are as follows:

- First, the government should revise legal incentives to encourage firms to hire more women and youth or to set up operations in less developed regions of the country. Examples include incentives for women-led startups, training programs tailored for women and youth, and measures that encourage investors to offer support services like childcare and flexible work conditions to reduce barriers to participation. Sectors prioritized by the law, such as tourism and skills development, offer strong opportunities for women, youth, and investment in poorer districts.
- Second, bolstering dialogue between the government (RDB), investors, and home country governments through the production of regular monitoring reports of working, health and safety conditions is another channel for enhancing the sustainability and inclusivity of FDI. The effectiveness of this channel in enhancing inclusivity will depend in part on policies in source countries.
- Third, the inclusiveness of FDI could be increased by investment promotion measures targeting activities that are more likely to create jobs for women and to benefit youth, such as manufacturing in the poorer districts. In addition, creating SEZs in the poorer districts of Rwanda, and offering higher quality infrastructure and human capital inputs, could alleviate the lopsided concentration of FDI and improve foreign investment's capacity to create inclusive growth. The first step is to assess the factors that underlie successful FDI projects in poorer regions as well as the constraints to such investment.
- Finally, the linkages with domestic firms could be increased by encouraging supplier development programs to expand the number and capacity of qualified local enterprises that can contract with foreign affiliates as well as supplier databases to help investors identify potential subcontractors. A World Bank note summarizing supplier development programs around the world recommends combining incentives to source domestically with interventions to reduce information barriers among the local suppliers and to invest in their capacity. The latter seem to work better if they involve foreign investors, as they are clearly more aware of their needs.

Improving the social protection system, including programs for the informal sector, is essential for reducing poverty and supporting vulnerable households. First, the urgency of a well-functioning adaptive social protection (ASP) system has increased due to pandemic-related setbacks and vulnerabilities. The future system should be flexible, able to expand coverage and support during crises. Accelerating efforts to build a dynamic social registry is vital for effective targeting and ASP implementation. Second, closing the coverage gap requires a time-bound plan for universal coverage, promoting resilience, opportunity, and equity. A lifecycle approach should be followed, focusing on key financial security needs during critical life stages. The recent approval of individual lifecycle grants, such as child, disability, and old-age grants, is a positive step that should be regularly reviewed. Third, the new National Strategy for Sustainable Graduation, delivered through a Multisectoral Plan,

aims to address stagnating poverty reduction. It involves a comprehensive package of interventions based on household assessments, with strong monitoring and evaluation systems to ensure effectiveness. Success will require coordinated efforts across sectors and clear action plans. Lastly, addressing social protection gaps will require stable and predictable funding. Reliance on unpredictable external financing is unsustainable, necessitating an evaluation of administrative costs and a shift toward more predictable domestic financing options.

Expanding and strengthening Public Employment Services (PES) is essential. PES have the potential to provide essential job search and labor market intermediation assistance, yet they remain vastly underutilized. Expanding the geographic reach of employment services centers beyond Huye, Kigali, and Musanze will be crucial for offering job search assistance, career counseling, and employment training to a broader population of affected workers, particularly low-skilled ones. Less than 5 percent of all unemployed workers use employment service centers (ESCs) and less than 2 percent of new graduates find employment through PES. A recent ILO assessment also outlines the need to issue and implement a legal and policy framework for PES within the scope of Active Labor Market Policies (ALMPs).

A prosperous agri-food sector as a driver of growth and inclusiveness

Strong growth in the agricultural sector—a major source of economic activity, employment and domestic consumption of foodstuffs—is essential to meet the government's development ambitions. There is considerable potential for growth in both traditional crops and high value products such as horticulture. Demographic trends such as population growth, urbanization and income increases are expected to drive a sharp increase in food demand, while the composition of demand is expected to shift from cereals and beans to more livestock-sourced products, horticulture, and processed foods and beverages. This shift will provide an important opportunity to increase the production of high value products and jobs along the value chain and in the food service sector. Further, Rwanda has strong food trade links with regional partners, who account for a dominant share of the country's food exports and imports. Capturing these opportunities will be key to realizing the growth necessary in the sector to realize the Government's own growth objectives and path towards a middle-income economy.

At the same time, the agricultural sector faces significant challenges that must be considered in the strategic vision for the sector. Rwanda is one of the most densely populated countries in Africa. The share of households with very small farm plots is rising, and access to farmland has deteriorated markedly due to demographic pressure and slow transition from farm to off farm livelihoods. Under projected population growth and changes in dietary patterns, food demand over the next two decades is estimated to be more than twice that of Rwanda's production capacity, necessitating about 34,000 km2 of arable land compared to Rwanda's 12,400 km2 even under quite optimistic yield growth assumptions. Maximizing farmers' returns on their land and taking advantage of Rwanda's comparative and competitive advantages will be of essence, while also recognizing food imports as a central component of a comprehensive food security approach for Rwanda.

Agricultural productivity is limited, and the uptake of improved technology is low in Rwanda, but farmers with access to organized markets are an exception. At the national level, agricultural yields have plateaued or even dropped since 2013. Productivity levels for certain crops and livestock remain below regional averages and well below the levels of top regional performers. This is largely a result of low adoption of improved technology. Little more than a third of agricultural households use improved seeds or pesticides, and only 12 percent of households in rural areas have access to the internet. Despite significant investments, the area under irrigation is only 14 percent of irrigable land potential, and hillside irrigation is often underutilized. However, farmers with access to organized markets—whether working through associations or as individual entrepreneurs—tend to be an exception to this and important investments in land use and technology with visible results on both productivity and incomes are observed. Such farmers often have better access to inputs and private extension services through off takers. The emergence of high-value markets has also resulted

in, for example, investments in greenhouse farming, which provides a protected environment that can increase yields and more frequent harvests, and in investments in small-scale, water use efficient irrigation technology to produce high-value crops. These investments have often been supported by the Government and donor funded programs from which valuable lessons can be drawn.

Improving the position of women is necessary to reach the agricultural sector's growth potential. While Rwanda is widely recognized for its commitment to gender equality, gender disparities persist. For example, female-managed farms are 12 percent less productive than male farms, fewer women than men cultivate on land that is protected against soil erosion and on irrigated land, there are large discrepancies between men and women in their access to finance, female-managed farms are on average 10.5 percent smaller in land, and female farmers receive lower prices for their produce at markets. As women make up more than half of those employed in the agriculture sector, the gender productivity gap will have to be bridged for the agricultural sector to reach its potential.

Climate change impacts, land degradation, and groundwater management are core challenges for the agri-food sector. Rwanda suffers widespread damages and losses from climate-related events, notably droughts, landslides, and flooding; damages to capital and assets from flooding could equal 0.36 percent of agricultural capital each year from 2036 to 2065. Most crops are grown on steep slopes that are prone to erosion during the rainy season, and the government has devoted considerable resources to irrigation, the construction of wide terraces and agroforestry development, and in building the capacity of farmers to adopt best practices in land use and soil protection. Irrigation and sustainable land practices form a substantial portion of the budget the government anticipates meeting Rwanda's Nationally Determined Contribution (NDC) submitted to the United Nations Framework Convention on Climate Change (UNFCCC). Nevertheless, extreme weather events in 2022 and 2023 (droughts and floods) had significant impacts on Rwanda's production of key staples and have resulted in dramatic increases in domestic food prices.

Some disparate and some common issues affect production in different agricultural value chains. Most staple crops, except for maize, lack organized and formal premium markets. Local procurement by the two main processing facilities for maize has increased, but only meets half their needs, while the markets for Irish potatoes and beans are dominated by unprocessed products. The supply of staples is impaired by poor quality (many farmers have difficulty in post-harvesting handling of staples, while the quality of domestically produced rice is usually not sufficient to compete successfully with imports) and by farmers' need to hold back production to ensure food security in the face of frequent droughts. The horticulture value chain has grown rapidly over the last years, largely to export markets. The ongoing rapid development of the hospitality industry in urban areas and the expected increased demand for agriculture commodities from the school feeding program provide more organized market opportunities for producers. However, high post-harvest losses due to insufficient cold storage and transport, coupled with inadequate logistics in supply chains and bureaucratic requirements, pose significant challenges to the value chains.

Lack of agricultural finance remains a major constraint on agricultural production. High risks (in part due to lack of data), high transactions costs, limited experience of farmers and producers with finance, lack of knowledge on the sector in lending organizations, limited availability of medium- to long-term liquidity, and fiscal disincentives (e.g., high cost of registering mortgages to use land as collateral) severely constrain the supply of finance for agricultural operations. Most loans from microfinance institutions (MFIs) and community savings and credit cooperatives (SACCOs) for agriculture production are short-term, and their capacity and products seem to be limited. Other lenders include traders, processors, investment funds, and specialized lenders for agriculture SMEs, although data on many of these activities are not available. Guarantee schemes for agricultural finance also exist, although the portfolio of guarantees has been declining in recent years. Finally, some progress has been made in increasing the availability of agricultural insurance, but a more broad-based uptake and greater private sector participation is needed.

Strengthening government programs that support private sector growth and inclusiveness is crucial for poverty reduction, but their share of the budget remains low and misaligned with government priorities. Overall, the agricultural budget is 3.9 percent of the total Government budget. This can be compared with the sector's total contribution to GDP of 25 percent, to exports of 37 percent and to employment of 67.5 percent. While investments constitute the bulk of the budget (rather than recurrent spending, which tends to have lower returns in the sector), spending is often not in line with strategic priorities. For example, research and extension services can generate high returns, but public investment in agricultural research accounts for only 1.3 percent of the total agriculture budget and less than 1 percent has been allocated to the extension program in the 2023–24 budget. A strong and well-organized public extension system is needed, especially in food staples of lesser interest to the private sector. Progress is being made through the Farmer Field School approach and the Customized Agriculture Extension System (CAES) to connect the private sector, higher learning institutions, non-governmental organizations (NGOs), and development partners in agriculture extension activities. Digital platforms to manage the supply chain and disseminate extension messages are still inadequate, as are skills programs, such as incubation centers.

Nevertheless, for Rwanda to achieve its income goals, private sector investments in the agri-food sector—both on and off-farm—must increase significantly among farmers and entrepreneurs along the supply chains. This means the Government taking on primarily an enabling role, predominately as a regulator and investor in public goods, with only very targeted social protection interventions towards the poorest. For private goods investments, potential market failures in the sector should be based on evidence and with clear exit strategies, to not crowd out the private sector.

In the current context, the following is recommended for private sector led growth, job creation, and an equitable food environment in the agri-food sector: Promote farming as a business and facilitate market access. One of the key messages in this report is that farmers with reliable buyers and stable markets invest more in their farms and achieve higher yields than average in Rwanda. However, many farmers lack the skills and tools for entrepreneurship, and market failures limit private investment. To address this, the government should integrate 'Farming as a Business' into the Government Extension Model; conduct a study to enable and incentivize private investments in agri-logistics infrastructure and cold chain development; establish a technical department to research consumer market preferences; modernize the seed sector by transferring management of post-harvest assets to the private sector; and identify and eliminate logistics bottlenecks, build trust in Rwandan products, and approve incentives for expanding agricultural exports in regional markets. Finally, to enhance private sector investments, government strategies must be consistent. The fifth Strategic Plan for the Transformation of Agriculture (PSTA-5) should clearly separate private sector investments from social protection policies to avoid contradictions.

Improve farm productivity. This report's assessment indicates that boosting on-farm productivity requires significant private investment in advanced technology and agricultural practices, which in turn depends on farmers' access to finance. This highlights the need to finalize and adopt a comprehensive Agriculture Finance Strategy that outlines a long-term approach to balance grant programs with the goals of private financing in the sector. The strategy should incorporate lessons learned from small-scale farmer support programs, such as grants and mechanization, by evaluating their returns on investment and sustainability, and suggesting improvements for better outcomes. Additionally, the government should enhance data quality and availability on farm production, access to agricultural finance, and weather conditions. Beyond finance and grant programs for on-farm investments, the government should scale up vocational training for rural services (e.g., cold chain and solar technology) and establish start-up programs to deliver these services.

Mitigate the weather shocks to agricultural productivity. Introducing climate-resilient agricultural practices is essential, such as transferring climate-smart agriculture (CSA) information through digital channels (e.g., digital green extension systems) and gathering farmer data to improve credit scoring mechanisms. Enhancing

agricultural risk management is critical to prevent frequent events like droughts and floods from hindering growth.

As a first step, the Ministry of Agriculture (MINAGRI) should conduct a new Agriculture and Food Security Risk (AFSR) assessment to understand the specific impacts of different risks on various supply chains. It should also adopt an Agriculture and Food Security Risk Management Framework that addresses the sector's prioritized risks. These measures would support the adoption of agricultural insurance with new products and institutional strengthening.

Promote an Equitable Agri-Food Sector. For Rwanda to achieve long-term growth, the agri-food sector must support healthy diets, foster a sustainable environment, and raise incomes to help farmers and workers reach the middle class. As demographic changes reshape the food system in the coming decades, the government should lay the groundwork for equitable local food sector development to seize emerging opportunities. This involves adopting a Food Policy Strategy (FPS) that supports local food sector development, including in rural areas and smaller towns, and encouraging investment in market infrastructure for local consumption. It also requires building institutional infrastructure for regulatory aspects like food safety and employment standards.

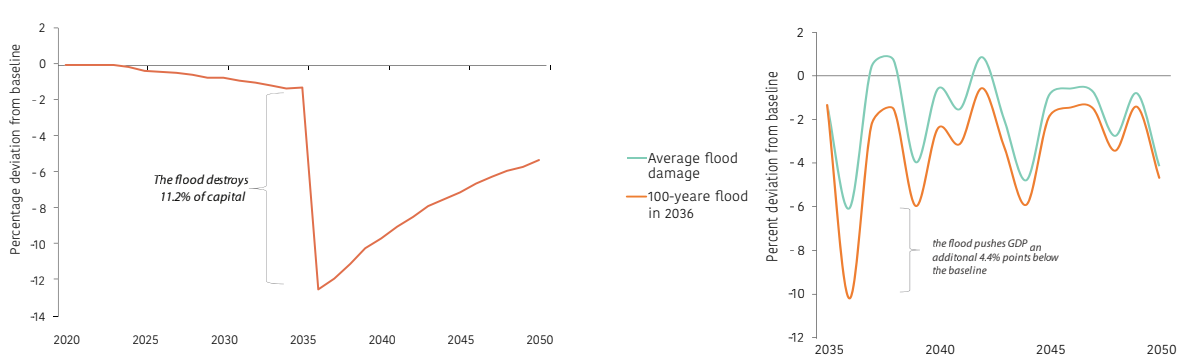
Boosting sustainability and resilience

Climate change and natural assets: policy options to increase resilience to climate change related shocks using Rwanda's natural assets.

The continuing impact of climate change poses substantial risks to growth and inclusive development in Rwanda. Rwanda is ranked 124 out of 185 countries in an index of vulnerability to climate change, given the heavy reliance of the economy on climate-sensitive sectors such as agriculture and nature-based tourism. Climate change is expected to have a broad range of adverse effects on Rwanda. The number of days with a maximum temperature exceeding 25°C and the frequency of large precipitation events is expected to rise. The more common occurrence of rare climate disasters could have serious implications for output and capital assets (Figure 0.5 provides an example of the damage and losses from a 1-in-100-year flood under an average climate scenario). Rapid growth is expected to boost water demand sharply, likely resulting in water shortages.

While Rwanda could embark on a low-carbon development path, attention to reducing the country's vulnerability to climate risks should be prioritized as ignoring climate could result in Rwanda's GDP falling by 5–7 percent below baseline in multiple years by 2050. The Rwanda Country Climate and Development Report (CCDR) finds that the biggest risk to economic output in Rwanda are weather shocks to agricultural productivity and the reduced labor productivity caused by the increased incidence of diseases, both communicable and non-communicable that is associated with rising temperatures. Measures that smooth out the impact of climate variability would reduce the adverse impacts of climate change on climate vulnerable sectors such as agriculture.

Figure 0.5: Damages and losses from a single 1-in-100-year flood can be substantial



Source: Calculations based on World Bank Group (2022)

Effectively addressing climate change requires mainstreaming climate considerations and actions across sectors and mobilizing financing from diverse sources in order to lower the country's vulnerability to climate shocks. The Rwanda CCDR highlights, among other things, the need for climate-smart urbanization, soil-conscious conservation agriculture, improvement in water supply infrastructure and water demand side interventions, use of forests for productive purpose and generation of ecosystem services (including nature-based tourism). Such actions would have sectoral benefits while also contributing to broader resilience in the economy.

Reducing the conversion of natural habitats is essential for strengthening resilience in Rwanda's urban development and agricultural transformation—two key sectors for structural and economic growth. Croplands in Rwanda have more than doubled between 1990–2015, at the expense of natural vegetation cover (forests, woodlands, grasslands, and shrublands). The reduced vegetation cover has resulted in an increase in water runoff and river flows, exacerbating soil erosion and soil loss. Reduced vegetation also has decreased infiltration and depleted groundwater reserves (a natural form of water storage that is vital for long-term resilience). The cumulative effect of watershed destruction, inappropriate settlements, and unsustainable agricultural practices has led to siltation, sedimentation, pollution, and the risk of invasive aquatic weeds. About 6 million tons of crops, valued at US$76 million (Rwf76 billion) are lost each year due to erosion. Similarly, in urban areas, unplanned land-use changes have resulted in increased flood risks, land degradation, biodiversity loss, and an increase in the vulnerability of people in urban centers. Urbanization increases impervious surface area, thereby elevating the risk of flash floods. Damages from infrequent but severe floods would amplify short-run economic losses. The Rwanda CCDR estimated that a major flood with a 100-year return period could destroy 11.2 percent of capital in a climate future that exceeds the 1.5°C target.

Sustainable land and natural asset management can boost Rwanda's resilience to climate change by supporting both ecosystem services and productive uses. Nature-based solutions (NBS) play a key role in adapting to climate change and reducing greenhouse gas emissions. The Rwanda CCDR recommends initiatives like soil-conscious conservation agriculture, payment-for-ecosystem services, and expanding terrace networks to reduce soil erosion and increase soil carbon. Rwandan agencies have proposed various land management interventions to significantly reduce soil erosion and increase biomass carbon storage. Currently, 74 percent of Rwanda's emissions stem from livestock, agriculture, and land use change. Strategies such as conservation agriculture, improved animal husbandry, and soil and water conservation can reduce greenhouse gas (GHG) emissions while enhancing resilience to climate shocks. For instance, preserving forestlands can prevent soil erosion and protect biodiversity, while reducing fuelwood and charcoal use can lower indoor air pollution and lessen deforestation pressures, thereby cutting emissions.

Nature based solutions can reduce flood risks and help to improve water quality in urban areas. Integrating climate considerations in the planning and design of investments needed for urban development (e.g., in solid waste management, mobility, industrial zones, housing, and sanitation) could augment the resilience and lower the carbon footprint of cities and lower the cost of adaptation through retrofitting poorly designed and climate risk prone structures. The Government should prioritize zoning to prevent settlements in flood-prone areas. Nature based solutions, such as landscape restoration, can contribute to climate resilience and growth through their impact on biodiversity habitat. The extensive habitat transformation that has already occurred in Rwanda is reflected in the low overall average habitat quality score for the country of 0.16, although a few "islands" of higher-quality habitat remain inside protected areas. Landscape restoration efforts could improve habitat quality by 9 percent relative to current conditions by 2050. Nevertheless, the overall habitat score would only increase to 0.18, reflecting the dominance of farmland relative to natural habitats.

Nature-based tourism generates substantial portion of Rwanda's tourism revenues. Nature-based tourism (NBT), defined as tourism to experience natural resources in a wild or undeveloped form, is estimated to account for 80 percent of the visitors entering Rwanda for leisure or conferences and has

played an important role in job creation, particularly increasing formal jobs in rural communities near the game parks. NBT in Rwanda remains vulnerable to poaching and illegal activities, underlining the importance of ensuring that the surrounding communities, who may have customary rights to natural resources in or around protected areas, reap some of the benefits. Private investment, including through public-private partnerships as provided for in new legislation, could assist with diversifying NBT offerings.

There is considerable technical potential to reduce GHG emissions while maintaining rapid growth. GHG emissions could be reduced substantially through fuel switching to lower carbon sources (e.g., from peat, diesel and gasoline to renewables), improvements in operational and fuel efficiency (particularly in transport), and efforts to promote sustainable waste management measures. In addition to meeting GHG emissions targets, these initiatives would improve the quality of growth and limit the adverse impacts of GHGs on public health.

Rwanda should strive to meet its NDC commitments without compromising growth. Rwanda's 2020 NDC is to reduce 4.6 million tons of carbon dioxide equivalent (MtCO2e) by 2030, or a 38 percent reduction against the projected BAU emissions in the same year of 12.1 MtCO2e. This will involve lowering emissions from agriculture, forests, livestock and land use change. It will also be important, in sectors that are expected to grow (such as energy, transport), to enable low-carbon growth through promoting private sector engagement. The Government estimates that it would cost US$11 billion from 2020-30 to achieve Rwanda's NDC commitments (both unconditional and conditional). This is equivalent to spending 8.8 percent of GDP in each year, which would represent an enormous share of government revenues or investment spending. There is some potential for improving the impact on emissions of the current expenditure pattern through climate disaster risk screening of public investments, increasing data on a project's environmental impacts, prioritizing green investments, deploying levies or repurposing existing subsidies that undermine climate resilience, or including resilience criteria to determine subnational allocations. Nevertheless, identifying additional sources of financing is crucial to sustainably meet Rwanda's commitments.

One of the major impediments to the adoption and scale-up of green technologies is the lack of finance for such investments. Rwanda has recognized the need for suitable financing mechanisms and facilities to acquire and transfer green technologies. A wide variety of financial instruments are used for climate finance, including non-debt instruments (e.g., grants from organizations dedicated to addressing climate change, wildlife conservation bonds, local biodiversity offsets or carbon taxes) and debt instruments (e.g., concessional loans, use of proceeds bonds—green or social bonds—and sustainability linked bonds). A top priority is to finalize and adopt the national climate finance strategy including: (i) a taxonomy of climate finance; (ii) a process of project selection for both public and private investments; (iii) a climate finance information system to monitor financing of climate and environmental protection projects; and (iv) a regulatory framework for climate-focused financial instruments.

Mobilizing non-debt financing is crucial to maintain Rwanda's limited fiscal space. Rwanda should continue accessing climate finance sources such as the Green Climate Fund (GCF), Global Environment Facility (GEF), and Adaptation Fund. It should also use grant financing to de-risk investments and attract private financing for climate action, structuring larger funding streams into a long-term, multi-year, multi-phase program. This programmatic approach can drive systemic change at national and sub-national levels, enhance efficiency, and promote integrated cross-sector coordination.

Policies to increase the use of natural assets for climate action

Incentivizing the implementation of NBS and ensuring they can be sustained will require a multipronged approach. It includes identifying and prioritizing sites for NBS and effectively complementing them with physical measures where necessary; reducing the threat of degrading the natural assets that are part of NBS; and monetizing the provisioning and regulatory services of the NBS, to ensure they are sustainable. Restoration hotspots

should be the priority locations for implementing NBS, such as forest landscape restoration, and monitor its effectiveness. Efforts in rural areas to improve agricultural productivity and in urban areas to improve urban planning with green measures (e.g., linking restoration of wetlands with efforts to integrate urban stormwater and drainage) could lower threats to NBS. Supporting access to markets for the goods and services that can be generated from NBS (e.g., wood, carbon, wildlife habitat, etc.) reinforced by necessary incentives could accelerate the application of NBS.

Appropriate policies can ensure that nature-based solutions (NBS) contribute to growth. For instance, regulations for urban wetland restoration can enhance flood prevention while creating ecotourism and recreation opportunities. Similarly, restoring forest landscapes can support sustainable uses, such as wood and non-wood products and eco-tourism. Policies promoting collaborative management of ecotourism sites and implementing the ministerial order for National Parks can clarify private sector roles, encouraging private financing for NBS. Forest restoration efforts can attract private investment by increasing awareness of the financial potential of forest and agroforest systems, including carbon sequestration. The carbon framework and payment-for-ecosystem services schemes will be key to unlocking this potential.

Interventions are required to address the projected gap between the demand for water and the available supply. The expansion of physical storage facilities would facilitate access to water during shortages. Efforts to reduce the demand for water should include reducing nonrevenue water through improved infrastructure and metering, institutional strengthening, introduction of efficient domestic water-use technologies, and applying block-rate tariffs. These efforts will require an educational program about their impact so that water users understand their importance.

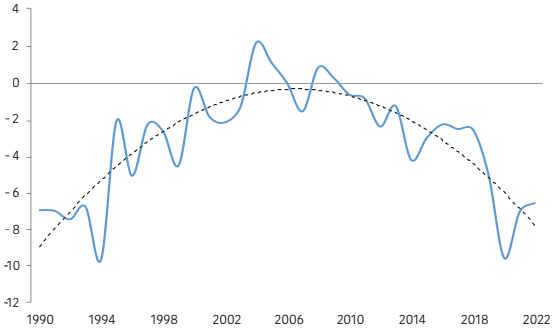
Policies should also prioritize access to water and sanitation for the poor. A review and effective implementation of sustainable water management policies is essential. Options include reducing or eliminating value-added tax (VAT) on clean water in rural areas and supporting clean water businesses to scale innovative solutions for underserved regions. Additionally, identifying and funding key public investments or public-private partnerships (PPPs) for flood control and water storage is crucial. The recent 'Build Operate and Transfer' agreement between the Government of Rwanda and a Dubai-based firm for water facility management could be replicated through similar PPPs.

Fiscal Sustainability: Securing fiscal space to close the infrastructure gap, improve the living standards of the population, and increase resilience to climate change related shocks

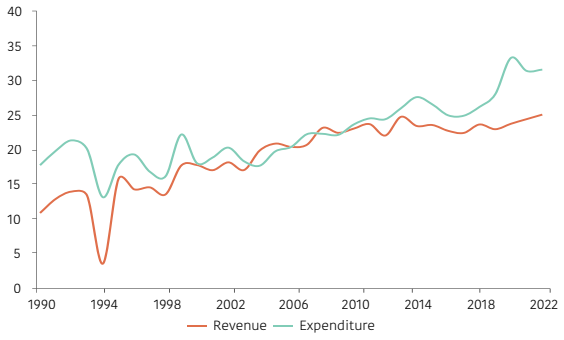
Rwanda's fiscal space has narrowed. The Central Government fiscal deficit rose sharply before the COVID-19 pandemic, as total expenditures outpaced revenues (Figure 0.6). Primary expenditures rose by five percentage points of GDP from the late 2000s to 2019, while revenues increased by a little over 3 percentage points of GDP. The deficit jumped sharply with the increases in expenditures to cushion the impact of the COVID-19 pandemic, along with the revenue impact of the 2020 recession, reaching 7 percent of GDP in 2022. These trends drove a sharp rise in public debt, from 23 percent of

Figure 0.6: The central government fiscal deficit rose sharply before the pandemic, 1990–2019

Overall balance (% GDP)



Revenues and expenditures (% GDP)



Source: Calculation based on MINECOFIN and NISR datasets.

GDP in 2006 after receiving debt reduction under the Heavily Indebted Poor Countries Initiative to 66 percent in 2022. The rise in debt boosted interest payments, which rose by 1.7 percentage points of GDP from the late 2000s to 2022. Despite the recent worsening in the fiscal position and the steep increase in public debt, sustainability outlook risks remain moderate.

Improving tax administration efficiency

There is potential to further boost tax revenues. In 2021, Rwanda's tax-to-GDP ratio was 4 percentage points above the regional average, but still lower than top performers like South Africa. Recent efforts have included a new income tax, property tax, and stronger VAT administration. Potential measures include reducing tax exemptions, which cost 3.2 percent of GDP according to the 2019 tax expenditure report; recalculating the optimal income tax deduction threshold supported by electronic billing machine (EBM) receipts; and establishing a fiscal regime to fairly capture mineral wealth and deposit it into a Sovereign Wealth Fund.

A major emphasis should be made on the improvement of tax administration efficiency. A menu of possible key measures to adopt involve: (i) extending MSMEs usage of free EBM software, this reducing their fixed and variable costs of tax compliance; (ii) carry on regular online and presential training to taxpayers on updated legal tax requirements; (ii) institutionalize a regular use of EBM and corporate income tax (CIT) data to report on non-compliant large firms; and (iv) conduct a study exploring alternative policies to increase compliance through EBM technology and supply chain incentives.

Improving public investment efficiency

Rwanda's challenge is to reduce fiscal expenditures while still achieving key development goals, like closing the infrastructure gap and improving living standards. The fiscal consolidation process should aim to limit negative impacts on economic growth.

Efficiency gains in public investment are essential to support growth in a constrained fiscal environment. Rwanda has achieved significant improvement in the quality of infrastructure services through massive public investment. The challenge now is to further expand infrastructure services while limiting the public investment program to sustainable levels. Public investment efficiency appears to be lower than in most regional peers, both on the basis of the amount of overall growth generated by the quantity of public investment and measurements of selected infrastructure services relative to funds spent.

Several aspects of public investment management are of high quality in Rwanda. These include strong institutions, comprehensive frameworks for public investment, a legal framework aligned with results-based performance, a bidding process that has become closer to international standards (although capacity in procurement agencies remains a challenge), budget thresholds to guide the intensity of project review, guidelines for project implementation which are relatively rare (more standardization is also required), and efforts to encourage wide participation in the planning and budget process.

Improving public investment management is crucial for optimizing the use of public funds, requiring enhancements in both allocative and technical efficiency. Current inefficiencies stem from issues in project appraisal, implementation delays, and stalled projects, as well as the prevalence of low-performing micro and small projects without effective fund reallocation. Audit reports emphasize the need to protect funding for high-return projects and strengthen implementation. To address these issues, measures should include introducing appraisal directives that incorporate risks and mitigation plans, establishing a project ranking system based on thorough feasibility studies, and consolidating micro and small projects while prioritizing multi-year projects with greater impact. Further improvements involve attracting skilled professionals through career development and regular compensation reviews, implementing training for project and contract management, conducting independent ex-post reviews, and fully operationalizing the integrated financial management system (IFMIS). Publishing detailed monthly reports that focus on outcome-based indicators for national and subnational projects (Imihigo) can also enhance transparency and accountability.

There is potential for efficiency gains in health spending. While cross-country comparisons indicate that Rwanda is relatively efficient at translating inputs into health services, the country is less efficient in translating service delivery outputs into better performance. A need for greater emphasis on service quality and population health interventions is warranted. Improvements in strategy and administration could generate further efficiency gains. These include, among others, the design and implementation of a public financial management (PFM) health sector reform roadmap, an IFMIS deployment to district hospitals matched with qualified staff system utilization, a regular training program to qualified staff in hospitals in accounting and reporting of various financing sources, and the production of IFMIS reports allowing summaries of spending per different units and categories, and per key items (wage bill, drugs use, medical supplies, etc.).

Improving PPP and SOEs governance is essential to raise fiscal space and reduce fiscal risks

Greater fiscal space and improved efficiency can be achieved by strengthening Rwanda's PPP framework, managing state-owned enterprises (SOEs) more effectively, and pursuing an extensive privatization program. Rwanda has a large portfolio of SOEs and government stakes in private companies, but its PPP framework needs improvement to attract more private financing. On the SOEs front, there is limited data to assess their financial status accurately, emphasizing the need for regular, reliable financial reporting from each SOE. Currently, some SOEs receive substantial subsidies and have experienced significant losses, with guaranteed debt reaching 3.4 percent of GDP at the end of 2022. The government has begun defining a sound legal and institutional framework for SOEs and privatization.

Upgrading the PPP framework is a first step to mobilize private financing. First, the government should address gaps and inconsistencies in the legal and regulatory framework governing PPPs, recognizing PPPs within the Organic Budget Law and ensuring alignment between the PPP Act and PPP guidelines, and upgrading the PPP project cycle. These amendments should also cover the new role of Ministry of Finance and Economic Planning (MINECOFIN) from the assessment and management of fiscal commitment and contingent liabilities (FCCLs), the grounds of admission of USP, and the guidelines enabling use of government support mechanisms. Second, MINECOFIN needs to issue new regulations introducing a new methodology for PPP projects selection, also including climate change considerations on the preparation of high-quality feasibility studies. Third, MINECOFIN will need to carry out regular seminars for PPP managers and staff on PPP management. Fourth, MINECOFIN should adopt and monitor a small number of carefully selected PPP projects. Fifth, MINECOFIN should implement a media campaign toward the public and civil society on the potential benefits of PPPs.

Getting SOEs back on a financially sustainable path is the second step to mobilizing private capital. Creditworthy SOEs can access commercial loans or bond markets on the basis of their own balance sheet, although given the difficult macroeconomic environment, some form of credit enhancement may be necessary (see the CI-Energies example in Box 0.1). Commercial debt on the balance sheet of SOEs would also likely be consolidated with the debt of the government in sustainability analysis, which would not help the government overcome its fiscal constraints.

To improve the monitoring and management of Rwanda's SOE portfolio, several measures are needed. First, the Government of Rwanda should adopt the draft Presidential Order on the legal and regulatory framework for SOEs to encompass the entire SOE landscape and clarify institutional roles in SOE management, especially following the closure of the Ministry of Public Investments and Privatization (MININVEST). Clear guidance is needed on the responsibilities of MINECOFIN and sectoral policy ministries. Second, the government should strengthen institutional capacity for SOE oversight. MINECOFIN should conduct regular training for staff involved in SOE management, monitoring, evaluation, and corporate finance. Third, MINECOFIN should develop a performance management system for SOEs, using suitable ICT solutions, and prepare an annual aggregate report on the SOE portfolio's performance. Lastly, the government should enhance financial reporting and transparency. At the portfolio level, MINECOFIN

Box 0.1: CI-Energies – Refinancing operation to pave the way for private sector investment

The State-owned enterprise CI-Energies is the single buyer of electricity in Cote d'Ivoire. Following external shocks in 2014–16, the appreciation of the US dollar vs. the local currency XOF, and the increase in oil price, CI-Energies had fallen behind on its payments to independent power producers (IPPs) and gas suppliers.

The World Bank worked with CI-Energies and the Government of Cote d'Ivoire to place the electricity sector on a financially sustainable path. Once the Bank team was confident the electricity sector was on track, International Development Association (IDA) supported CI-Energies with a EUR 180 million guarantee (US$198 million) to raise EUR 300 million (US$330 million) from a commercial bank at competitive terms. CI-Energies also raised in parallel the equivalent of US$160 million in local currency. This long-term financing coupled with strong support from the government—but no sovereign guarantee—was successful in restoring trust in the long-term financial sustainability in the energy sector in Cote d'Ivoire. The World Bank-supported refinancing operation closed in May 2019.

In July 2019, International Finance Corporation (IFC) successfully arranged a US$290 million debt package for the much-needed US$365 million expansion of the Azito IPP in Cote d'Ivoire, which will add 253 megawatt of power generation capacity. This expansion had been in preparation for years but was stuck because of the arrears situation in the sector. MIGA also provided its Breach of Contract cover for one of the sponsors (Globeleq).

should produce an annual report detailing the economic and financial performance of the overall SOE portfolio and key enterprises. At the individual SOE level, audited financial statements, board appointment processes, financial objectives, and board remuneration policies should be made public.

Mobilization of private sector financing would be key to close infrastructure gaps and preserve fiscal space

Fiscal space and efficiency gains in capital expenditure programs might be achieved through a larger role of private sector financing in infrastructure projects. Rwanda has performed well compared to regional peers in attracting private investment in infrastructure; most FDI is focused on infrastructure, and strong government commitment has supported the delivery of a large PPP pipeline. Nevertheless, further reforms are necessary for the private sector to provide the estimated 55 percent of infrastructure investment required to meet Rwanda's development goals. Key steps should include addressing problems in substantive provisions of the Act, strengthening government management of PPPs and project screening, establishing a framework to assess fiscal commitments and contingent liabilities, and providing formal mechanisms for funding project preparation and underpinning public support to PPPs. Some adjustments also would be useful in Rwanda's strong legal and regulatory framework for FDI (Rwanda ranks second in investment climate for FDI in Sub-Saharan Africa, after Mauritius), including further efforts at investor promotion, and increasing the efficiency of investments, assisted by regulatory impact assessments and consultations on new regulations.

Rwanda should continue to rationalize the use of public funding for commercially viable projects to expand its fiscal space. Monetizing existing public infrastructure assets could be a source of funding for new infrastructure projects. The first step would be to identify existing public assets that could be offered for private sector participation, for example by selling ownership shares. Rwanda should also allocate its limited concessional resources to projects or sectors that are not commercially viable but that yield large social and economic benefits.

Mobilization of domestic private sector financing, including long-term finance

Deepening access to long-term finance is crucial. Rwanda's local project finance market is small. Efforts to increase the universe of investors in PPPs could include easing unnecessary regulatory hurdles hindering local currency infrastructure financing by banks, revising the Rwanda Social Security Board (RSSB) Law and/or Investment Policy to allow investment in infrastructure, and designing innovative financing mechanisms that can crowd-in domestic and regional funds and other investors (e.g., further issuances of infrastructure bonds,

the government taking a more active yet minor role in project finance). It also will be important for the government, and RDB especially, to coordinate closely with the multilateral development banks (MDBs) and development finance institutions (DFIs), who have played important roles in financing Rwandan PPP projects.

Risk sharing facilities could unlock financing from the local banking sector. Local commercial banks may not be equipped to adequately evaluate the risks associated with private projects and, therefore, may not be comfortable lending to such projects. Risk sharing facilities that absorb a percentage of the losses on loans made to private projects could be provided by MDBs such as International Development Association (IDA) on a funded basis (a loan is disbursed and set aside as collateral for the local commercial banks) or on an unfunded basis (a guarantee is provided by the MDB to the benefit of local banks or through a local financial intermediary such as the Banque Rwandaise de Dévelopement. The latter structure would not result in any increase in direct liabilities. Partial risk sharing facilities have been successfully implemented in India in the energy efficiency sector (Box 0.2), and a facility is being prepared in Cote d'Ivoire to finance the renewal of a fleet of trucks by local commercial banks.

Conclusion: Implementing to succeed

Strong leadership, a clear vision, and sustained implementation based on lessons learned are essential for driving economic reforms. The recent success of FDG reforms has been due to strong political will and broad consensus for tough policy decisions. Key lessons from similar reforms elsewhere emphasize the need for effective regulations, robust coordination, flexibility to adapt to shocks, use of results indicators for monitoring, and technical assistance to enhance institutional capacity. Once the new NST-2 strategy is adopted, making a strong start and appointing a capable implementation team will be crucial.

Moreover, four additional lessons from the implementation of recent FDG reforms can be extracted from Rwanda's own successful experiences.

- An institutional restructuring of key ministries may become essential for success. This was the case of MINECOFIN's 2021 restructuring to strengthen the Public Investment Management System; the 2019 creation of the National Agricultural Insurance Scheme (NAIS)'s subsidized mechanism; and the 2020 setting of the TVET Board ensuing the 2019 RDB's National Skills and Employment Strategy.

Box 0.2: India – Partial risk sharing facility

To unlock financing for the Energy Services Companies (ESCO) market in India, the World Bank designed the Partial Risk Sharing Facility (PRSF) for Energy Efficiency Project in 2015 in collaboration with India's Bureau of Energy Efficiency (BEE) and other partners. The PRSF applies the World Bank's global experience, lessons learned, and best practices to demonstrate innovative financing and implementation mechanisms that can tap into the significant private sector potential in India. The PRSF Facility of $37 million (provided by CTF and GEF), managed by the Small Industrial Development Bank of India (SIDBI), provides partial credit guarantees to sub-projects implemented by ESCOs.

PRSF sub-projects range from energy-efficient variable speed drives in industries to sustainable cooling systems in buildings and LED streetlights in cities—which together cut 95,000 tons of CO2 emissions annually. PRSF has demonstrated the de-risking and leverage effect of a guaranteed instrument by mobilizing private capital over 3.35 times.

It has also paved the way for commercial banks to take a more serious look at ESCOs as borrowers by building the capacity of ESCOs and banks, and standardizing tools and templates through technical assistance to achieve ESCO market transformation at scale. By demonstrating that energy efficiency projects with ESCO participation can be successful, PRSF has provided a critical piece of India's energy efficiency market puzzle.

- Dedicated human and financial resources are critical to the success of well-selected initiatives. Both supports were relevant for the success of the Integrated Early Childhood Development, nutrition and water, sanitation and hygiene (WASH, 2018–24) strategy; the 2022 abolition/reduction of school fees and progress on Tertiary Education relying on a significant increase in the percentage of scholarships given to science, technology, engineering, and mathematics (STEM) and higher education (including grants from foreign universities like Carnegie Mellon).
- Adoption of multi-year targets positively contributes to introducing a performance-based culture in the public sector. The experience with Imihigo has been positive in gradually adopting performance contracts as part of the Sector Strategic Plans and the annual assessment of ministries' performance.
- Policies to attract pioneer foreign firms may prove decisive for the successful launching of some regional logistic hub initiatives. This has been the case with Kigali's Logistic Platform, run by DP World, operational since 2019. Its example is being followed by other logistic operators like Bollore Logistics and Magasins Généraux du Rwanda s.a. (MAGERWA), whereas major international operators like as MAERSK and GCM (shipping lines) have started operations.

Last but not least, a few lessons from pending reforms or failed FDG reform point to key difficulties that should be handled when implementing reforms.

- Private entrepreneurs tend to avoid policy reforms that foster a culture of financial transparency, likely for tax avoidance purposes, which raises the cost of credit and contributes to lower domestic savings. Examples include difficulties in building a pipeline of credible (firms) issuers of non-government bonds, and the resistance of commercial farmers and SMEs grouped in cooperatives to complete reports required to obtain banking credits. In response, fiscal incentives to create a culture of business transparency might be needed.
- Significant human skill gaps may prevent/delay the implementation of more complex reforms. The lack of qualified professionals prevented carrying on (i) the planned regularization of urban plots into grids; and (ii) urban land valuation. This requires previous institutional capacity development efforts.
- Isolated fiscal reforms do better when integrated into a comprehensive tax reform. The elimination of the exemption of the VAT on service exports had a dead start (except for Business Process Outsourcing tax exemptions, which were approved on a case-by-case basis.
- Strong resistance to reform from SOEs requires a comprehensive rather than a piecemeal approach, accompanied by strong political support. The Government could start by addressing SOEs that represent the higher fiscal burden and major sources of fiscal risks.
- Under the best of circumstances, regional agreements achieve progress gradually and only if political tensions among countries are minimized. Disappointments have included the failure of the long-awaited reform of the CET to lower tariffs on inputs and the creation of an additional tariff category that increased overall protection, as well as the failed proposal for a regional energy market. In contrast, small but promising achievements have been obtained in the expansion of the regional trade for Rwandan food products through strong engagement in the EAC and COMESA agricultural markets.

Above all, sustained implementation matters. There is no substitute for political will to take and sustain bold decisions, but the key to success remains implementation. It does no good, and probably some harm, to take half-hearted steps that are then partly reversed when facing obstacles. Complex and intertwined reforms will need concerted actions by multiple official entities across several years. A cross-sectoral reading of the chapters and their policy recommendations would facilitate collective thinking on the complexity of the issues—and highlight the political space and technical requirements for strong and coherent government action.

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Notes

[i] Laterite evaluated multiple areas including individual PRs. Significant progress scored as 3, Some progress as 2 and Little or no progress as 1. Averages progress scores above 2 indicate that there was a larger number of recommendations with significant progress than those with little or no progress. Conversely, a score below 2 implies the opposite.

[ii] World Bank (2023) Recent developments of the labor market in Rwanda (Washington: The World Bank).

PART 1:
GROWTH DIAGNOSTICS

Rwanda has achieved extremely rapid income growth, largely driven by increased investment, which has resulted in impressive poverty reduction and improvements in living conditions. Despite rapid growth, the Rwandan economy suffers from serious problems that could limit development progress. Rwanda's impressive growth performance, driven mainly by strong public investment, hasn't generated enough jobs or sufficiently increased productivity, and the benefits of growth in terms of poverty reduction have weakened. The heavy reliance on public investment cannot be maintained in the future, given fiscal constraints. Rwanda has considerable scope to improve on its remarkable growth performance through reforms to increase productivity, build human capital and encourage greater private investment.

CHAPTER 1
SOURCES OF GROWTH IN RWANDA: DIAGNOSTIC OF GROWTH FUNDAMENTALS

1.1. Development achievements

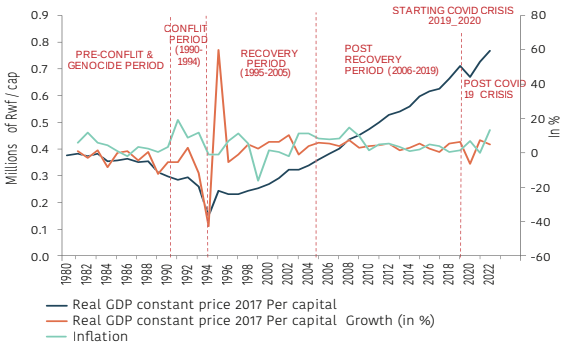
Rwanda has achieved rapid income growth, largely driven by increased investment, which has resulted in impressive poverty reduction and improvements in living conditions.

Rwanda has faced significant challenges but has demonstrated the ability to recover. After more than a decade and a half of sluggish growth in the 1980s, and in a context of political instability that culminated in the genocide against the Tutsis in 1994, Rwanda turned into one of the fastest-growing economies in Africa (Figure 1.1a). Gross Domestic Product (GDP) per capita rose by almost 5 percent a year between 2006 and 2019, outperforming all other African countries, except Ethiopia (Figure 1.1c). Rwanda's economic development strategy is distinctive among comparators in the emphasis that has been put on services, as set out in Vision 2020 and the National Strategy for Transformation (NST-1). Value added in industry (propelled by construction) and services (driven by information and communication technology (ICT), trade and transport) has increased by 9 and 10 percent a year, respectively, since 2006, and agriculture (led by crops and livestock) has grown at 5.4 percent.

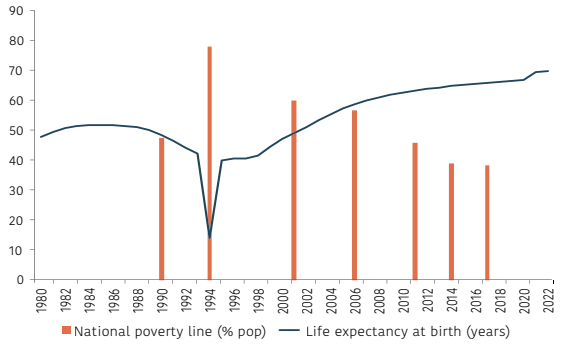
Impressive growth allowed substantial poverty reduction and improvements in living conditions. The share of the population below the national poverty line fell from 59 percent in 2001 to 38 percent in 2017 (Figure 1.1b). The expansion of health services contributed to substantial improvements in life expectancy and reductions in maternal mortality. The life expectancy of Rwandese at birth increased from 40 years in 1995 to 69.6 years in 2022, exceeding the pre-genocide high of 52 years achieved in 1985. By comparison, the average life expectancy in Sub-Saharan Africa (SSA) increased by only 10 years (from 50 in 1995 to 60 in 2021). Access to prenatal care is virtually universal, and skilled health staff attend over 90 percent of births. Significant progress has been made in increasing enrolment in education, particularly at the primary level.

Figure 1.1: Regular progress in macro-poverty results for Rwanda since 2006

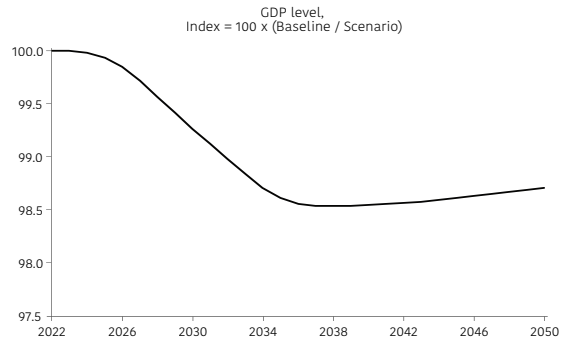
a) GDP per capita and consumer price index trends



b) Life expectancy at birth and national poverty rate



c) Rwanda vs comparators: Annual GDP growth rate (%, period average).



Source: Calculations based on World Development Indicators (WDIs) and National Institute of Statistics of Rwanda (NISR).

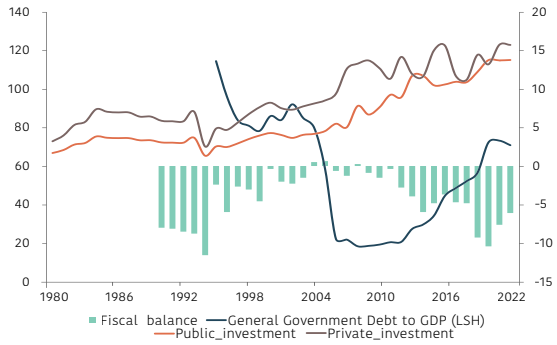
Growth has been predominantly powered by investment. Total investment has been the second largest contributor to GDP after private consumption, growing from an average of 27.9 percent of GDP in 2000–09 to 32.9 percent in 2010–14 then to 42.1 percent in 2015–22 (Figure 1.2a). Capital accumulation contributed 94.7 percent of the annual average growth of Rwanda in 2015–22, slightly declining from its contribution of 100.5 percent in 2010–14. This is a dramatic change from the 2000s, when the contribution of capital stock was less than 55 percent. Labor has become the second contributing driver of Rwanda's economic growth since approximately 2010, with an almost stable share between 15 and 21 percent of annual average growth (Figure 1.2b). The total factor productivity (TFP) contribution to growth has lost significant ground, becoming a drag on growth.

Public investment largely drove capital accumulation and growth in Rwanda. Public investment has been growing very solidly since 2005–06, fueling Rwanda's stellar growth performance (Figure 1.2a). From its level of 5.0 percent of GDP in 2000–09, public investment increased faster than private investment, boasting an annual growth rate of 6.7 percent in 2010–21, compared to an annual increase in private investment of 2.6 percent over this period. Prompted by large public investments prioritized in sectors at the heart of Vision 2020 and government development priorities in NST-1,[1] the share of capital expenditure in total primary expenditure averaged 42.5 percent in Rwanda between 2014/2015 and 2019/2020, falling to 36.8 percent in 2022/2023. The SSA average is still lower, with capital expenditure accounting for 26 percent of total primary expenditure.

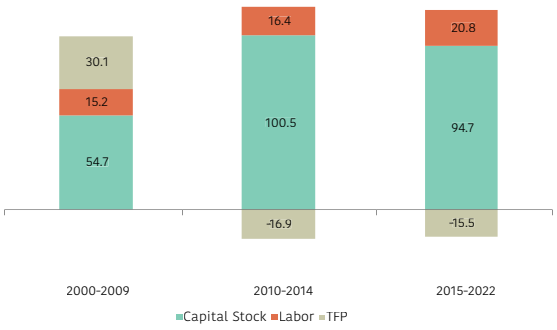
The strong focus of public investment on infrastructure has yielded significant improvements in access to and quality of infrastructure services. Rwanda's rating for the quality of infrastructure (road, communication, energy, water and sanitation, water transport, air transport, rail transport, and other transport) in the Global Competitiveness

Figure 1.2: Rwanda's key drivers of economic growth

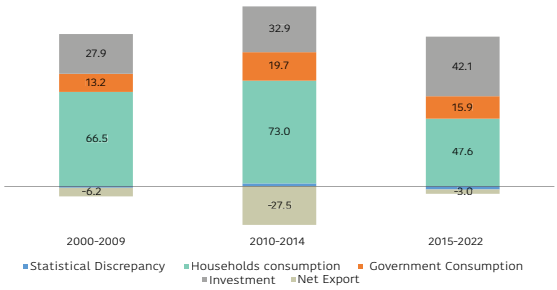
a) Rwanda's public investment, private investment, and debt to GDP, 1980–2022.



b) Factors contributions to economic growth in Rwanda, 2000–22.



c) Contribution to real GDP



d) Contribution to real value-added, 2000–22

Source: Calculations based on WDI

Index (GCI) improved from 37 in 2010 to 52 in 2019, compared to an average of 45 for SSA. For example, Rwanda's power generation installed capacity rose to 238.4 megawatt (MW) in 2021, tripling the 2010 level. The share of the Rwandan population with access to electricity rose from 6.1 percent in 2000 to to 80.1 percent in 2024 (56.2 percent grid and 23.9 percent off-grid), and the share of the rural population with electricity access increased from 0.6 percent in 2003 to 40.1 percent in 2022.

Tourism infrastructure has been key to macroeconomic stability through its positive impact on the foreign exchange market, also targeted by public investment. The development of the meetings, incentives, conferences, and events (MICE) sector led to an 11 percent per year increase in tourism earnings in 2009–19, generating more than 20 percent of total export earnings. As the leading foreign exchange earner prior to the COVID-19, the tourism sector is expected to continue to expand and diversify in parallel to any high growth potential service export sectors and products the Government will envision as critical new drivers of growth for the country. As shown in Figure 1.3, fast recovery and expansion of the sector is a clear objective to sustain for the Government, which will certainly need complementary fresh and healthy financial resources from the non-state sector to support fast-growing productivity gains.

The slowing population growth creates a "demographic dividend" that will generate faster growth in workers in the 15–64 age group, and lower dependency rates. Population growth is projected to slow from around 2.3 percent currently to about 1.4 percent over the next 30 years, as Rwanda goes through a demographic transition with lower fertility rates. Other things equal, this 1 percentage point slowdown in population growth will slow GDP growth by around half a percentage point in the medium term and 0.8 percentage points by 2050. However, this trend could also generate a demographic dividend with a positive effect on growth. Specifically, for the next 15 years, the ratio of the working age-to-total population rate is expected to grow by around 0.5 percentage points per year, before decelerating sharply in the 2040s. The demographic dividend is expected to boost GDP and GDP per capita growth by around 0.3 percentage points through the end of 2040.[2]

1.2. Development challenges

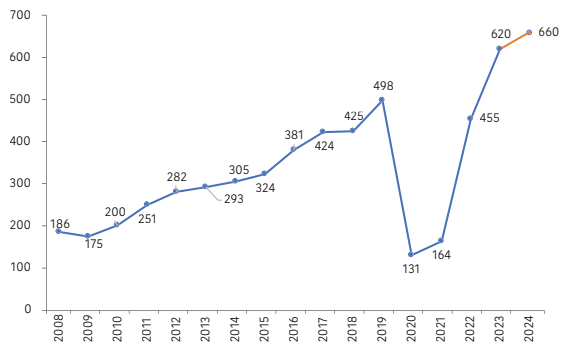
Despite rapid growth, the Rwandan economy faces serious challenges that could limit development progress. Rwanda's impressive growth performance has not generated enough jobs or sufficiently increased productivity, and the benefits in terms of poverty reduction have weakened. The heavy reliance on public investment cannot be maintained in the future, given fiscal constraints.

Productivity challenges

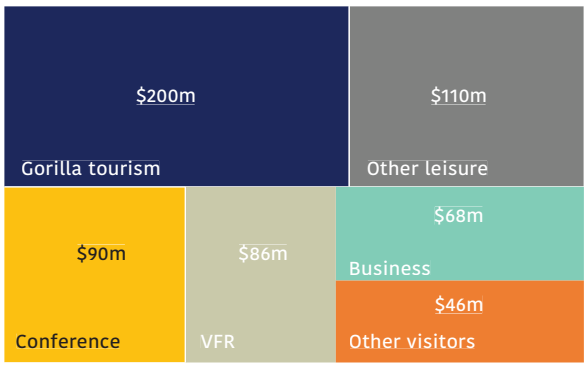
Heavy reliance on public investment has been accompanied by a declining contribution of total factor productivity (TFP), which remains very low. TFP represents the efficiency with which factors of production are used. Evidence shows that TFP is key to long term economic growth.

Figure 1.3: Optimism in future tourisms revenues, signaling the sector's key role for Vision 2050

a) Revenue forecast in tourism.



a) Revenue forecast in tourism.



Source: Calculations based on Rwanda Development Board estimates.

Differences in TFP are the most important determinant of differences in incomes across countries, and of long run economic growth (Hall & Jones, 1999; Jones, 2016). A one percent increase in TFP growth boosts GDP growth one-for-one in the short run and more than one-for-one in the long term, as physical capital is crowded in. In the post-Genocide period, policies favorable to trade development, deepening of the financial sector, and formation of human capital increased productivity (Coulibaly, Ezemenari, & Duffy, 2008), and the contribution of TFP to growth was 30 percentage points during 2000–09. However, TFP's contribution plummeted to -17 percentage points during 2010–14 and continued to be negative at -16 percentage points during 2015–22 (Figure 1.2b). Rwanda compared well with regional peers in terms of TFP contribution to growth, but TFP's growth contribution was well below that of the highly successful, and richer, Asian countries (Figure 1.4a).

Future TFP growth may have been further reduced by the pandemic's adverse effect on human capital, through reducing access to education and disrupting the delivery of essential health care services, such as immunizations (World Bank, 2021). At the height of the COVID-19 pandemic lockdown, an estimated 3.5 million students have been out of school, and statistics indicate that the share of students in total employment increased from 3.4 percent in February 2020 to 8.8 percent in August 2020.

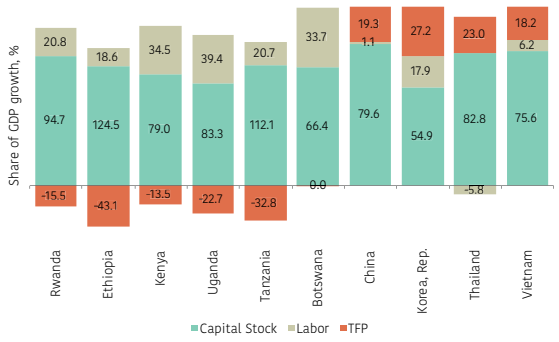
The slowdown of TFP during a decade when Rwanda made impressive progress on key development indicators could be explained by specific features of Rwanda's development model. The decline in TFP occurred in a period when Rwanda continued to be a top reformer in establishing an appropriate environment for business (Chapter 2), achieved an impressive improvement in infrastructure services (Chapters 2 and 7), was a champion of foreign direct investment (FDI) and trade openness (Chapter 3), and experienced a structural transformation with labor moving significantly from agriculture to non-agriculture sectors (Chapter 4), all of which are considered as key determinants of technology adoption and allocative efficiency. This apparent paradox is in part because although resources have moved broadly from agriculture to other sectors with higher labor productivity, the allocative efficiency within sectors has been suboptimal in Rwanda (Chapter 5). Growth has been led by non-tradable services and the public sector has dominated investment, limiting competitive pressures, and therefore innovation (Chapter 2), in important sectors of the economy. In addition, low educational attainment, limited skills training and low managerial capability (Chapter 2) mean that firms struggle to absorb and use new technologies despite trade openness.

Human capital challenges

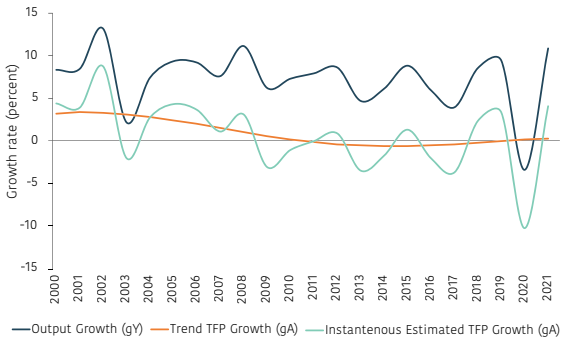
Despite improved access to education and health services, human capital remains low. The human capital index (HCI) places Rwanda 160th out of 174 countries. A child born in Rwanda just before the pandemic will be 38 percent as productive

Figure 1.4: Fast weakening of total factor productivity in Rwanda over time and compared to peers.

a) Rwanda vs comparators: Contribution to growth, 2015–22



b) Rwanda: Productivity annual growth rates/1

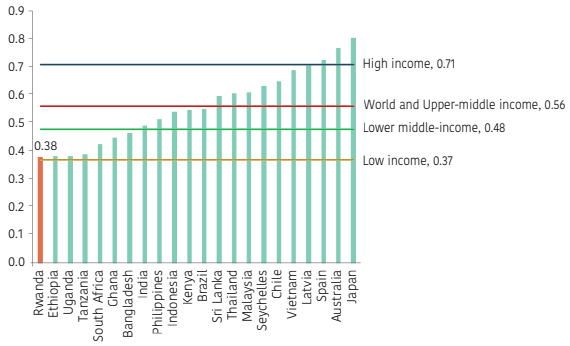


Source: Calculations based on WDIs
Note: /1 Instantaneous TFP is calculated as a Solow residual. Trend TFP is HP-filtered Instantaneous TFP. The HP filter is calculated until year 2100 and smoothed at 100.

when she grows up as she could be if she enjoyed complete education and full health. This is lower than the average for the SSA (40 percent) and is close in rank to its East African neighbors Tanzania, Uganda, and Burundi (Figure 1.5). Low human capital can be an important constraint on growth since human capital complements physical capital in the production process and is a key input to technological innovation. When defined as the value of individuals' experience and skills in driving the productivity of an economy, cross-country differences in human capital have explained 10–30 percent of per capita GDP variation (Hsieh & Klenow, 2010).

The poor performance in the HCI is driven by lagging learning adjusted years of schooling and high stunting prevalence. Both the probability of a child surviving the first five days (97 percent) and a 15-year-old surviving to at least 60 years of age (81 percent) are high, given Rwanda's level of income. However, Rwandan children receive on average only 3.9 learning-adjusted years of schooling, almost half a year less than in neighboring countries. Only about 67 percent of children are not stunted, which is below the 68 percent average of low-income countries in SSA and on par with much poorer countries such as Malawi and the Central African Republic.

Figure 1.5: Human capital index scores for selected countries, 2020



Source: Calculations based on HCI database

Addressing malnutrition is a priority investment. Human capital indicators are deeply interdependent, with progress in nutrition playing a pivotal role in health and education. A well-nourished child is less vulnerable to health shocks and has greater cognitive capacity. Conversely, investments in health and education will yield lower returns if malnourished. For example, a study by the World Food Program (WFP) estimates that 13 percent of all repetitions in Rwanda were associated with undernutrition (World Food Program (WFP), 2013). Every US$1 invested in early childhood is estimated to return US$6–US$17, with potential benefits including better health, improved cognitive development and schooling outcomes, and, eventually, increased wages and productivity; and has the potential to stop the intergenerational transmission of poverty and malnutrition. At a stunting rate of 33 percent in 2020, investments in nutrition are therefore of utmost economic priority. This requires a data driven and well-coordinated approach by agencies across many sectors, including health, education, agriculture, water, and local government under the stewardship of National Child Development Agency (NCDA). Public financial management systems need to become sensitive to nutrition needs to ensure priority investments are budgeted for across sectors, funds for priority investments are released in a timely manner, interventions executed and monitored, and spending data is triangulated with outcome information to help reorient spending according to evidence.

Prioritizing learning in education requires investments in quality. Children in Rwanda miss out on the equivalent of almost half a year of education compared to their neighbors due to low quality of education. The 2021 Learning Achievement in Rwandan Schools (LARS) showed that only 10 percent of grade 3 students reached basic proficiency level in English and 16 percent achieved basic proficiency in mathematics, when the assessment was conducted in English. English, as the medium of instruction, is challenging for both students and teachers. Scores for proficiency of the assessments improved considerably to 69 percent in literacy and 61 percent in mathematics when the language of instruction was in Kinyarwanda. Other issues that contribute to poor quality in education include limited pedagogical capacity, overcrowded classrooms, and relatedly double shifting for teachers. Investments in quality education and learning should therefore be prioritized.

Rwanda has made good progress across many

health indicators but needs to be prepared for a changing disease burden. Rwanda performs better than most of its SSA peers in managing its communicable disease burden and has made significant improvements in the delivery of reproductive, maternal and child health services. However, the population composition is changing and the disease burden from non-communicable disease is growing in importance. It means that the health system needs to evolve in response to the actual and prospective burden of disease. This will require institutional reforms, reprioritizing budget allocations within the sector, a more prominent role for Rwanda Social Security Board (RSSB) as a purchasing agency and investments in pandemic preparedness and response.

Equity in access to education and health services is critical. There are increasing returns to scale when investing in programs meant to improve access to quality education and health services for population sub-groups with a low baseline. Despite progress in recent years, there continues to be inequity in access to quality education and health services. Access for low-income, rural, and uneducated households remain low despite progress in recent years. Similarly, important gender gaps remain. To make effective use of limited resources, including for these sub-groups of the population for which economic growth has generated limited benefits, targeting these population segments will yield the highest return in addition to serving basic human needs.

Jobs creation and inclusiveness challenges

Despite overall improvements in living standards, some groups of the population have benefitted less than others. Low-income, rural, and less educated households have experienced slower improvements in key areas like education and health compared to other groups, indicating the need for more targeted efforts to ensure broader inclusivity. There are increasing returns to scale when investing in access to quality education and health services to population sub-groups with a low baseline, so targeting these households will yield the highest return in addition to serving basic human needs.

The relationship between poverty reduction and growth has weakened over time (World Bank, 2020). Between 2005/06–2010/11, the poverty headcount rate fell by an average of 2.4 percentage points per year as GDP per capita increased by 6.2 percent a year. By contrast, between 2010/11–2016/17 the fall in the poverty headcount rate averaged 1.3 percentage points per year, even though per capita GDP growth slowed only mildly, averaging 4.7 percent a year. Thus, the reduction in the headcount poverty rate corresponding to each percentage point increase in GDP per capita—the growth semi-elasticity of poverty reduction—fell from 0.36 between 2005/06 and 2010/11 to 0.24 between 2010/11 and 2016/17.

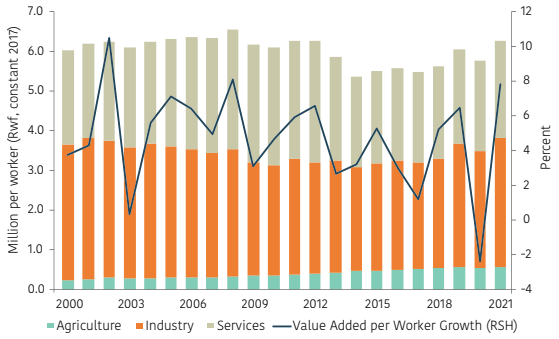
Increasing productivity in agriculture would boost the income of poor workers. Since over 90 percent of the poor live in rural areas (Table 1.1), strengthening the agricultural sector, both in terms of smallholder production and as a source of labor demand, is critical to poverty reduction. Before the pandemic, labor productivity in the agricultural sector was only about 18.5 percent that of industry and only about 24.1 percent that of services in 2019 (Figure 1.6). Increasing agricultural productivity (Chapter 5) through increasing demand for Rwandan production, raising skill levels, improving access to inputs, and increasing agricultural households' access to regional and international markets through enhanced competitiveness (Chapter 3) should generate significant income gains for poor workers. Rwanda' growth performance, driven mainly by

TABLE 1.1: Headcount poverty rates by urban/rural population

	2010/11 (%)	2016/17 (%)	Change	Distribution of poor in 2016/17 (%)
Urban	16.7	15.8	-0.9	7.4
Rural	50.9	43.1	-7.9	92.6
Total	45.8	38.2	-7.6	

Source: World Bank (2020)

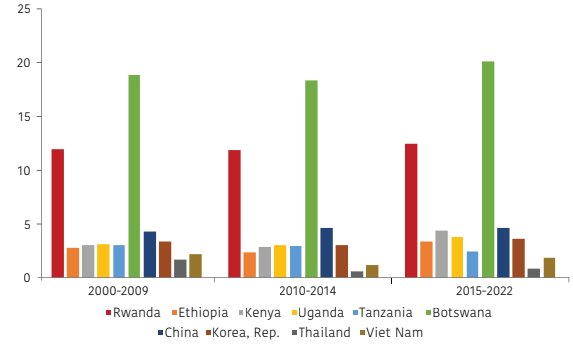
Figure 1.6: Sectoral productivity in Rwanda: Strikingly low agriculture productivity



Source: Calculations based on WDIs.

Figure 1.7: Rwanda vs comparators: Unemployment rate

(percent, period average)



Source: Calculations based on International Labor Organization (ILO) database.

public investment, has not generated enough jobs. Rwanda's unemployment rate has stagnated at about 12 percent over 2000–18, before starting to increase in 2019 (Figure 1.7). Rwanda has a higher unemployment rate than peer countries (except Botswana), including the EAC countries with whom it shares similarities in terms of high rates of subsistence farming, informal employment, and almost no formal job search mechanisms. Moreover, the share of those employed in the population aged 15 or more has fallen, reaching a low point in the period 2015–22 at 49.9 percent (according to the ILO modeled estimate) or 52.6 percent (according to the national estimate), significantly below most regional peers (Figure 1.8).

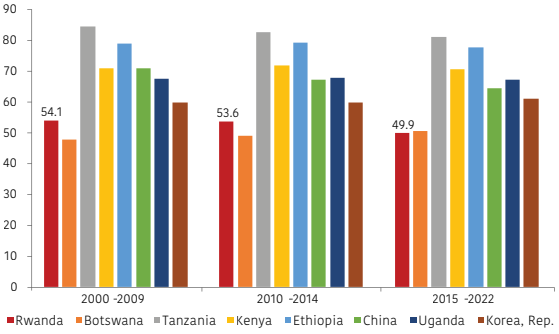
Fiscal sustainability challenges and limited role of the private sector

Rwanda's growth performance, driven by public investment, poses a challenge to medium- and long-term fiscal sustainability that has been exacerbated by the effects of the COVID-19 pandemic. Public debt rose from 20.4 percent of GDP in 2010 to 73.6 percent in 2021 with the pandemic, before declining to 66.7 percent in 2022 (see Chapter 7). Rwanda's risk of external debt distress was downgraded from low to moderate in the 2020 IMF/World Bank debt sustainability analysis (DSA, [International Monetary Fund (IMF); World Bank, 2020). The rising public and publicly guaranteed debt levels reflect the weakened investment–growth nexus in Rwanda, underlining the need to improve public investment efficiency and increase the role of private sector (Chapter 2).

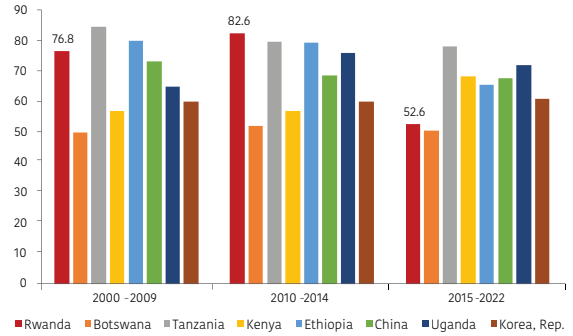
Private investment has failed to increase at the pace of public investment. Private investment increased from 12.7 percent of GDP in 2007 to 15.8 percent of GDP in 2022, while public investment rose from 5.0 percent of GDP to 13.8 percent of GDP over this period. Rwanda's private investment lagged regional peers in 2022, including Uganda (16.9 percent of GDP) and Tanzania (24.3 percent of GDP). In a context of slow productivity growth

Figure 1.8: Increasingly poor employment results compared to peer countries

a) Employment to population ratio, 15+, total (%) (modeled ILO estimate)



b) Employment to population ratio, 15+, total (%) (national estimate).



Source: Calculations based on WDIs

and depleted fiscal space (Chapter 7), private investment would need to further increase to support growth in a complementary manner of public investments mainly well-targeted to non-business-oriented activities.

However, the potential for more rapid private sector investment growth is linked to the domestic savings capacity, which is very limited. Rwanda has specifically targeted savings mobilization as a key growth factor for economic development. Nevertheless, both gross domestic and gross national savings (Figure 1.9a) have remained at modest levels since 2010 (Chapter 2). In 2021, gross domestic savings amounted to 10.5 percent of GDP, far lower than aspirational peers, such as high growth economies from east Asia (Figure 1.9b). Rwanda also lags neighboring East African countries, such as Kenya, Uganda, and Tanzania.

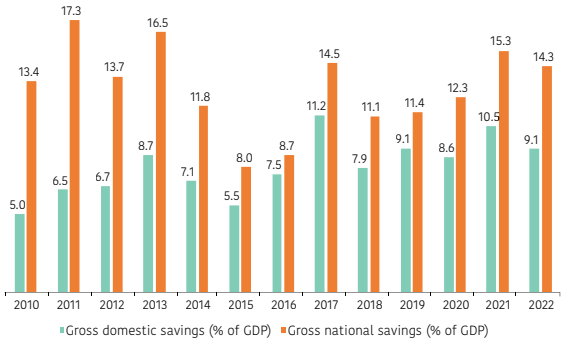
Climate change challenges

Climate change threatens to derail Rwanda's development through major climate shocks and the long-term degradation of the country's natural capital. Rwanda vulnerability to climate change shocks accentuates productivity and inclusiveness challenges. The impact of climate change risks could be consequential for Rwanda's economy in both the short and long-term. Rwanda is vulnerable to climate variability because of the structure of its economy and the degradation of its natural asset base. Floods and droughts have increased in Rwanda over a 30-year period and Rwanda's Meteorology Agency attributes the unusual rainfall patterns to climate change. The 2018 floods were estimated to have generated damages and losses of approximately US$237 million, with the cost of recovery and reconstruction estimated at US$336 million. The impact on physical assets comprised 57 percent of the total. This resulted in the disruption of infrastructure-linked services. In terms of soil erosion, an estimated area of 1,080,168 hectares (45 percent of Rwanda's land area) is at risk of topsoil loss. About 6 million tons of crops are lost each year due to erosion, valued at US$76 million (Rwf 76 billion). Topsoil loss is estimated to be 25 tons per hectare per year. Soil erosion has increased by 54 percent since 1990 (National Institute of Statistics of Rwanda (NISR), 2019). Considering the structure of Rwanda's economy, in the long-term climate change is likely to increase variability in crop yields and agricultural production, cause severe flood damage to physical capital, reduce labor productivity, and impact demand for tourism. The Rwanda CCDR estimates that if climate risks materialize, Rwanda's GDP levels can drop by 5-7 percent below baseline in multiple years by 2050. During a year of severe floods (e.g., a 1-in-100-year flood), such extreme events are predicted to reduce GDP by an additional 4.4 percentage points below the baseline scenario during the flood year (World Bank Group, 2022). Climate change is also expected to slow the pace of structural transformation in Rwanda, compromising future economic growth and poverty reduction.

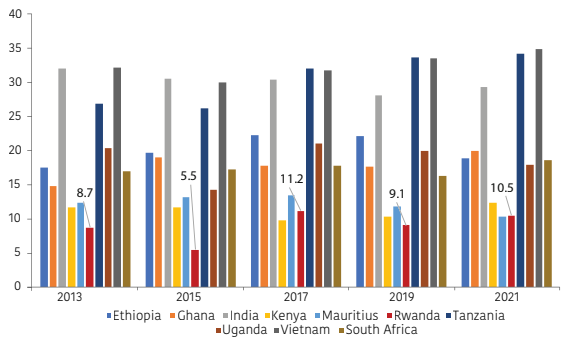
Climate change poses risks for Rwanda's financial sector, primarily through the banks' exposure to disasters linked to natural hazards. As of June 2021, the financial sector assets were equivalent to 69.8

Figure 1.9: Gross domestic savings and gross national savings as percent of GDP

a) Savings mobilization efforts to continue more strongly given current low relative levels.



b) Gross Domestic Savings as Percent of GDP – Country Comparison.



Source: Calculations based on WDIs and BNR datasets

percent of GDP. The banks account for 66.9 percent of the assets, and microfinance institutions (MFIs) and savings and credit cooperative organizations (SACCOs) account for 5.6 percent. Mortgages for physical assets constituted 33 percent of total lending at the end of June 2021 and are likely to be exposed to physical risks from natural hazards, although the risks are difficult to quantify with the available data. Other climate-sensitive sectors of the economy, such as agriculture, water, and energy, are a relatively small share of the total bank lending portfolio, and transition risks are possibly limited.

The main climate change challenge for Rwanda's financial system is to ensure the system continues to develop in a manner that is aligned with the vision of a low-carbon, green, sustainable economy. Rwanda's Green Growth and Climate Resilience Strategy (GGCRS) notes that one of the major impediments to the adoption and scale-up of green technologies is the lack of adequate/ affordable finance for such investments (Ministry of Environment, 2021). Rwanda has recognized the need for suitable financing mechanisms and facilities to acquire, use and transfer green technologies. This inevitably requires Rwanda to undertake an ambitious low carbon and climate resilient pathway by ensuring that all sectors of the existing economic model are as efficient and optimized as possible. Therefore, Rwanda must transition from short term project to programmatic approach/ platform financing. This underpins speed and scale through enhanced partnerships for leveraging additional and innovative finance from climate funds, the private sector, enhanced domestic climate finance, and other innovative financing mechanisms crucial to demonstrate impact and sustainability of climate action.

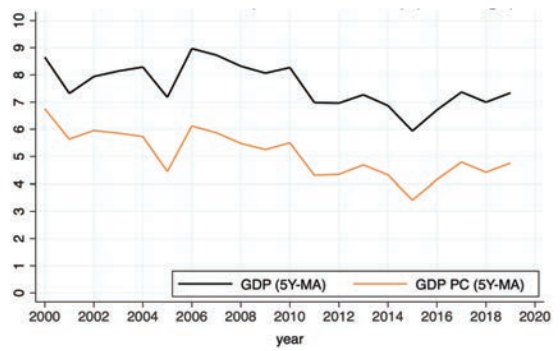
1.3. Rwanda's long term growth outlook

Rwanda has considerable scope to improve on its remarkable growth performance through reforms to increase productivity, build human capital and encourage greater private investment.

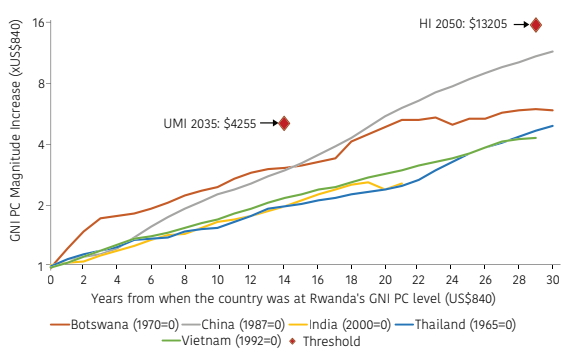
Rwanda's growth success in the early 2000s spurred greater growth ambitions, with Vision 2050 (published in 2020) picturing Rwanda achieving high income status by 2050 (US$13205 per capita), and with an intermediate target of becoming an upper middle-income (UMI) country by 2035 (US$4255 per capita). Specifically, achieving both UMI status in 2035 would require a 2022–35 average GDP growth of 14.7 percent (GDP per capita growth of 12.3 percent), and achieving high-income status by 2050 would require a 2036-50 average GDP growth of 9.8 percent (per capita GDP growth of 8 percent). This means that by 2035 income per capita would be five times as large as in 2021 to reach the intermediate target, and by 2050 it would have to be almost 16 times as large (Figure 1.10b). Assuming Rwanda achieves only high-income status in 2050, this would require a 2022–50 average GDP growth of 12.2 percent (per capita GDP growth of 10.1 percent). In comparison, GDP has increased by 7 percent a year since 2010 (Figure 1.10).

Figure 1.10: Growth path of Rwanda compared to aspirational peers: New final and intermediate targets difficult to achieve, but inspiring

a) Real annual growth -- GDP and GDP CP (% change)



b) Growth path (GNI PC) magnitude comparison



Source: Damonte and Pennings (2023).

Rwanda's impressive efforts to achieve its development objectives have been hindered by global poly-crisis, including the COVID-19 pandemic, repeated climate related shocks, and the recent increase in global inflation. In 2020, COVID-19 has pushed Rwanda's economy into its first contraction since 1994. GDP dropped by 3.4 percent in 2020, compared to a projected expansion of 8 percent before the COVID-19 outbreak. Both COVID-19 and high inflation crisis in 2022, due to the combined effect of Ukraine crisis and climate related shock, have likely contributed to exacerbate Rwandan challenges of productivity and inclusiveness (Chapter 5). The cost of the Rwanda Economic Recovery Plan (RERP) initiated to mitigate the economic impacts of COVID-19, estimated at US$900 million over the two fiscal years 2019/20 and 2020/21 (which is equivalent to about 4.4 percent of GDP on average per year), led to a further deterioration in Rwanda's debt position depleting precious fiscal space needed for long term development priorities.

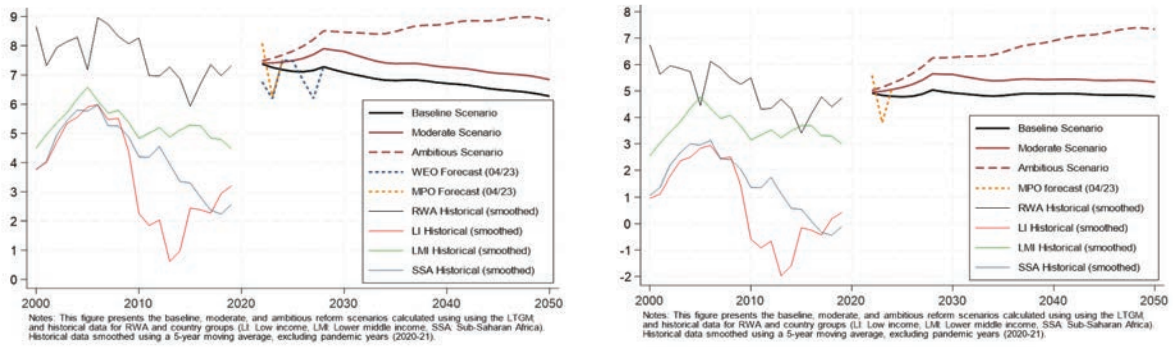
Achieving Rwandan growth targets would require accelerated reform efforts to attain much more rapid growth rates compared to other top-performing countries. Achieving the GoR's high growth ambition and significantly reducing the number of the poor would require implementing an ambitious reform agenda, beyond that envisioned in the National Strategy for Transformation 2016/17–2023/24 (NST-1). The x-axis in the figure denotes the number of years from when each country was at Rwanda's development level (normalized as year 0), and the y-axis denotes the income at that time, normalized as a multiple of the income in year zero. The two orange diamonds in this figure denote the targeted income thresholds, with the x axis representing the time to that target (from 2021, the latest data, to the time the target should be achieved) and y axis representing the income multiple to achieve that target. As one can see, all of those fast-growing countries would have missed both targets by a wide margin.

With policy reforms and targeted investments that significantly enhance productivity, human capital, and private sector investment, Rwanda could achieve faster growth than the baseline. Using the World Bank Long-Term Growth Model Public Capital extension (LTGM-PC), this study has simulated a business-as-usual (baseline) and two reform scenarios—moderate and ambitious—which are described in Box 1.1. The LTGM-PC is a Solow-Swan style neoclassical growth model where output is produced using labor, public capital, private capital, human capital and labor (see the Annex for a description). The baseline reflects a continuation of present trends in most growth fundamentals, as well as some modest reforms (as a typical country might achieve). The moderate scenario is a slightly more optimistic variant of the baseline concerning assumptions about future TFP growth, investment rates and human capital accumulation, and results in growth rates about 0.5 percentage points above the baseline. The ambitious scenario represents the most optimistic assumptions about the three growth fundamentals that reflect not only a strong pace of reform, but also a fair dose of good luck (such as the absence of negative shocks or implementation delays). Growth in the ambitious scenario accelerates over the next 5 years to a sustained pace from 2028 of 8.5-9 percent, around 2 percentage points above the moderate scenario, leaving per capita incomes 6.7 times greater than currently after 30 years. This ambitious scenario would generate more rapid growth than Botswana did from when it was at Rwanda's level of development. Results of the two scenarios are as follows:

- The growth path for the moderate reform scenario is shown in Figure 1.11a,b. GDP growth accelerates to 7.9 percent by 2028, which is 0.6 percentage points faster than the baseline. GDP continues to grow faster than the baseline all the way to 2050, raising growth to 6.8 percent by 2050. The demographic assumptions are the same as in the baseline, resulting in GDP per capita growth in 2050 of 5.3 percent rather than the 4.8 percent rate in the baseline. Gross national income (GNI) per capita after 30 years would be 4.8 times today's level, which is similar to the performance of Thailand in the 30 years following its being at Rwanda's level of per capita income.

Figure 1.11: The growth paths of the three GDP growth scenarios of Rwanda are strong

a) Real GDP annual growth (% change) *b) Real GDP PC annual growth (% change)*



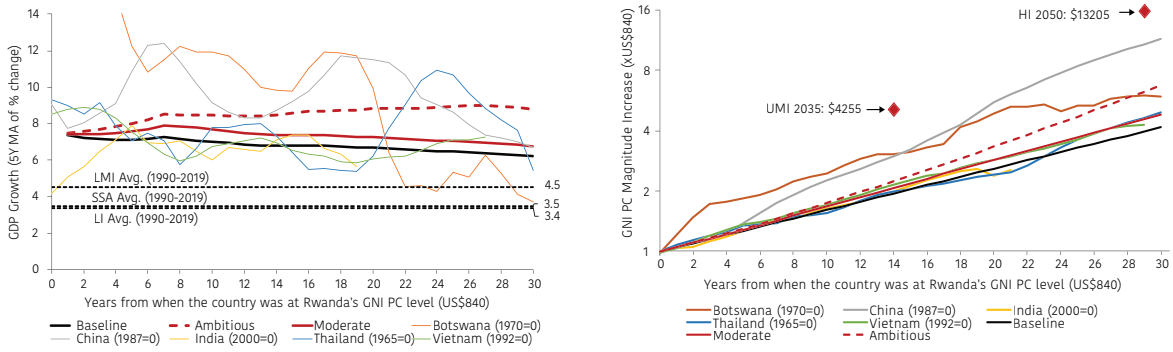
Source: Damonte and Pennings (2023).

- Potential GDP growth under the ambitious reform scenario accelerates from around 7.5 percent today to 8.5 percent by 2028 and around 8.9 percent by 2050 (Figure 1.11a). This is substantially above the rates of growth Rwanda experienced in the 2000s (of about 8 percent) and is close to the fastest 5-year average of growth achieved post-2000. By 2050 it is also around 2.6 percentage points above the growth in the baseline, and 2 percentage points above that in the moderate reform scenario. In per capita terms, growth accelerates to around 6.3 percent by 2028 and then steadily to 7.3 percent by 2050. This is above the fastest 5-year average growth that Rwanda has experienced since 2000 (Figure 1.11b), and thus is pushing the boundaries of realism. In terms of levels, GNI per capita after 30 years in the ambitious reform scenario would be 6.7 times today's level, which is more than Botswana achieved in the 30 years after it was at Rwanda's level of development (Figure 1.12b). Nonetheless, Rwanda's per capita income would still be lower than in China.

The simulations suggest many of the policies in Rwanda's development plan will contribute to growth, though each has its own dynamics. Rwanda is particularly short of private capital, as evidenced by a low private capital-to-output ratio—around half to two-thirds of lower-middle income and peers, respectively (Devadas and Pennings 2018)—and correspondingly a high marginal product of private capital (which is much higher than the marginal product of public capital). Hence the model suggests that Rwanda's planned rebalancing of investment towards the private sector will support growth going forward. However, this boost to growth is larger in the short term than the long term, as the marginal product of private capital falls over time with higher private investment. Low rates of private

Figure 1.12: Rwanda's growth objectives would require pushing the boundaries of realism

a) Growth path (GDP) comparison *b) Growth path (GNI PC) magnitude comparison*



Source: Damonte and Pennings (2023)

Box 1.1: Two scenarios for rapid growth

The moderate reform scenario relies on growth parameters that are fairly similar to the history of the country, with a few exceptions. Here, TFP growth follows a similar path to the historical trend, but instead of increasing to 1.8 percent by 2028, TFP growth is marginally faster at 2 percent (Figure 1.14).[18] The 2 percent TFP growth is between the 75th and 90th percentile over 20 years for SSA and low-income/lower-middle income countries (LIC/LMIC; Table 1.4). We assume slightly higher investment rates, which increase to 30 percent by 2029 (rather than being constant at 28 percent, Figure 1.13). These are around the 90th percentile of SSA and LI countries over 2000–19 and correspond to the 20 years average across miracle economies in the years after they were at Rwanda's level of development (Table 1.2 and 1.3). All of the increase in investment is assumed to be private. We also assume that Rwanda's average years of schooling increases to 10 by 2050 for the 20–24 age cohort (up from 9.3 years), which results in human capital growth of the workforce that is 1.2 percent by 2050 (rather than 1.06 percent in the baseline).[19]

The ambitious reform scenario is designed to represent a set of the most optimistic growth assumptions that are still reasonable. They represent not only a strong pace of reform, but also a fair dose of good luck. Here, TFP growth follows a similar path to the baseline, but instead of increasing to 1.8 percent by 2028, TFP growth is substantially faster at 2.5 percent (Figure 1.14). This 2.5 percent TFP growth is between 90th percentile of LIC and LMIC over 20 years, and above the 90th percentile for countries in SSA (Table 1.4). Note this is still well below 6 percent TFP growth required for the aspirational growth in the Future Drivers of Growth study (page 10). The ambitious reform scenario assumes substantially higher investment rates, based on Rwanda's Vision 2050 document, which reach 35 percent by 2050. This is above the 90th percentile in SSA, LIC and LMIC (Table 1.2). But perhaps more importantly, it is also relatively rare among the growth miracle economies discussed earlier. Starting from when they were at Rwanda's level of development, the average investment rate of that group was only 30-32 percent over a 20-30 year horizon (Table 1.3). Note that this is well below the 40 percent investment rate in 2035 required for the aspirational growth scenario in the Future Drivers of Growth study (p10).

We also assume rapid progress in improving human capital in the ambitious reform scenario. However, this only has a limited effect on average growth rates, given that human capital is (mostly) formed in children, and it takes one or two decades until those children join the workforce. We assume that reforms follow the same time path as in the baseline, with the 0–4 cohort in 2020 receiving 1/3 of the effect of reforms ("treatment"), the 0–4 cohort in 2025 receiving 2/3 treatment and the 0–4 cohort in 2030 receiving full treatment. Specifically, we assume that average pre-tertiary educational attainment of the 20–24 cohort increases from 6.4 years currently to 11 years (similar to that of India), education quality increases from 0.57 to 0.7 (similar to that of Uruguay, defined as Harmonized Learning Outcomes/625), adult survival rates increase from 0.81 to 0.9 (similar to Estonia), and not stunted rates increase from 0.5 to 0.9 (similar to Mexico) (all definitions are the same as the HCI, though referring to the 20–24 age cohort). This target for the years of schooling is similar to that in Vision 2050, though for the ambitious scenario it is defined for the age group 20–24 (rather than being a mean). Combined, all the reforms to education and health almost double human capital growth of the workforce from 1.1 percent to 1.9 percent by 2050.

TABLE 1.2: Rwanda to consider targeting at least 90th top performers in investment rates, for Vision 2050 goals

Average total Investment (% of GDP – 2000/19)						
Group	Percentile					Obs.
	10th	25th	50th	75th	90th	
SSA	13.49	16.96	20.99	26.54	30.68	41
LI	13.24	15.15	19.26	23.14	29.94	21
LMI	15.86	19.30	23.82	28.42	33.63	49

Source: Calculation based on WDI

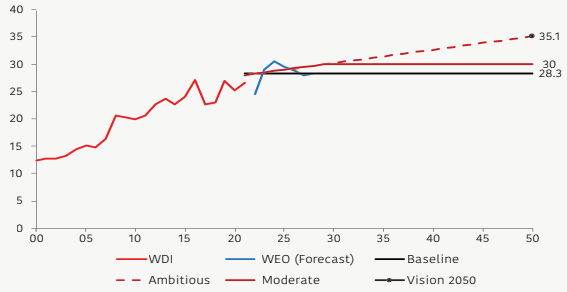
TABLE 1.4: Top growth performing countries (90th) rely on strong TFP growth

Average total Investment (% of GDP – 2000/19)						
Group	Percentile					Obs.
	10th	25th	50th	75th	90th	
SSA	–0.76	–.34	0.87	1.72	2.29	27
LI & LMI	–0.50	0.26	1.04	1.73	2.81	38

Source: Calculations based on PWT10.0

Figure 1.13: By 2050, Rwanda's investment rates moderately higher than ow-middle income average in 2000–19

Total investment (% of GDP)



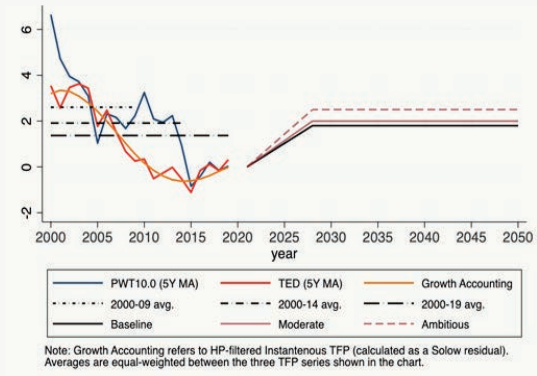
Source: Damonte and Pennings (2023)

TABLE 1.3: Average total investment

Average total investment (% of GDP)					
Country	Starting year	Interval (years)			
		1–5	1–20	1–20	1–30
BWA	1971	38.83	33.94	31.37	29.90
CHN	1989	28.54	30.50	33.57	36.80
IND	2004	33.51	33.38	.	.
THA	1969	22.87	23.46	25.55	29.52
VNM	1995	26.23	28.57	30.01	.
Average		30.01	29.97	30.13	32.07

Source: Calculation based on WDI

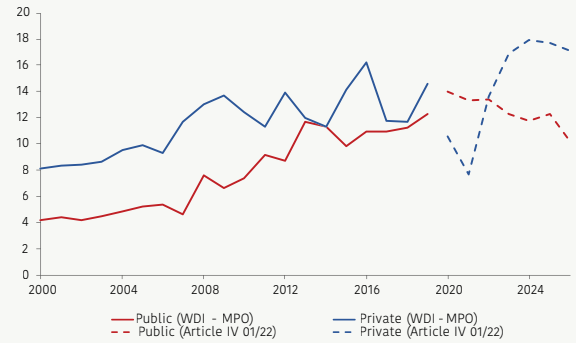
Figure 1.14: Gains in TFP growth for Rwanda



Source: Damonte and Pennings (2023)

Figure 1.15: Impressive private investment rates in the future, but at the expense of too fast a decline in public investment rates

Public & private investment (% of GDP)



Source: Damonte and Pennings (2023)

investment are common for many low-income countries (Devadas & Pennings, 2018), as private investment is sensitive to the state of the business environment, the quality of institutions (especially legal institutions), access to credit, savings rates, and general financial development—all of which are often at low levels in low-income countries. Reforms in these areas will be key for supporting the higher rates of private investment envisioned in the baseline and the two alternative scenarios.

Improvement in human capital development can also support growth but has larger effects in the long run than in the short run. The reason is that improvements in the education quantity or education quality (or health) of today's children will only increase the productivity of the workforce in 10-15 years when those children start working. As such, the reforms in the baseline and scenarios generate the largest boost to human capital growth of the workforce in the 2040s (Figure 1.16b). Nonetheless, this is still an important area for reform, as human capital is critical to long-term growth and Rwanda's World Bank Human Capital Index score of 0.38 is low. Among the human capital boosting reforms proposed in this report, increasing the employability of the youth should be tirelessly pursued through improving the quality and relevance of technical and vocational education and training (TVET) and degree programs.

The most important growth driver is TFP, which represents the efficiency with which factors of production are used to produce output. The current low level of productivity—especially in agriculture— means there is substantial upside potential to productivity, and so high rates of TFP growth driven by structural transformation are possible. Nonetheless, as the economy develops, the "easy" gains from structural transformation and urbanization will fade, and so Rwanda will have to ensure that capital and labor are more efficiently allocated across sectors, and across firms. Continued growth in TFP and human capital also helps keep the physical capital-to-output ratio down, and so makes physical investment more effective for boosting growth.

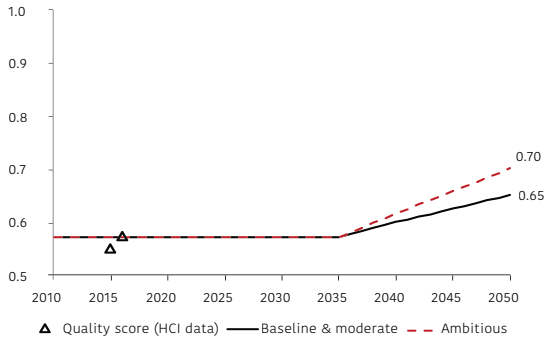
1.4. Structure of the report

This report, requested by the GoR, aims to inform a successor strategy to NST-1 in 2024 to achieve the GoR's development goals, the same way the Future Drivers of Growth report (referred to here as FDG) informed NST-1.

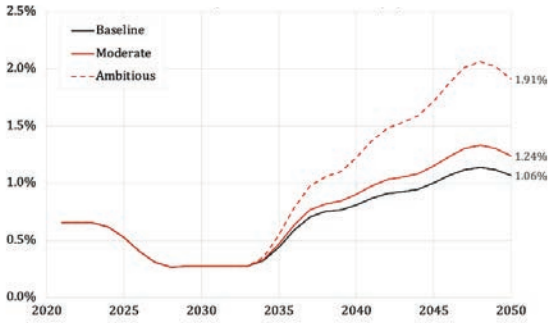
The challenges facing Rwanda, despite a strong growth performance, point the way to policy reforms to accelerate growth. Despite rapid growth Rwanda's economy confronts significant challenges. While vigorous efforts have been made to establish a legal/ regulatory framework that supports growth and massive investments have increased public services, limitations remain on the level of competition, innovation, and allocative efficiency. Many households, particularly in rural areas, have received little benefit from the overall progress in development. Climate change and mounting public debt present serious threats to fiscal sustainability. Overcoming these challenges will require greater reliance on private sector investment to enhance productivity growth, raise the incomes of poor

Figure 1.16: Expected delay in impact of human capital growth in Rwanda's growth path scenarios

a) Quality score, Harmonized Learning Outcome (HLO)/625 (cohort 20–24).



b) Human capital per worker growth rate.



Source: World Bank staff estimates

farmers and the supply of off-farm employment in rural and urban areas, and provide the financing to address infrastructure shortfalls in the face of constraints on government expenditures.

This report focuses on how public policy can encourage greater private sector participation in achieving the goals of raising productivity growth, boosting inclusion, and addressing threats to sustainability:

- Increasing productivity will require improving opportunities for private firms through strengthening competition and the effectiveness of public services. While Rwanda has made great strides to improve the business environment, there remains considerable potential to increase the ability of Rwandan firms to compete. Policies to promote competition and improve support for firm innovation and growth are discussed in Chapter 2. Chapter 3 discusses policies to increase scale economies, promote specialization and gain access to critical inputs and technology through boosting trade and FDI.
- Growth and development will depend on reducing barriers to inclusion. The key to raising the incomes of the poor is to increase the productivity of agriculture, on which the bulk of poor people depend for their income, and to accelerate the structural transformation to generate more off-farm jobs. Chapter 4 reviews the rapid pace of structural transformation in Rwanda and the levels of productivity and employment. Well-designed urban planning, policies to attract FDI, and social protection policies will be critical to generate new opportunities for productive and inclusive employment. Chapter 5 considers policies to accelerate agricultural productivity through raising skill levels, improving access to inputs, increasing resilience to climate change, and expanding agricultural households' access to markets.
- Rwanda faces two important threats to the sustainability of its long-term growth plans. Chapter 6 reviews the short- and long-term damages that can be expected from climate change and the current pace of unsustainable exploitation of Rwanda's natural capital. Policies should focus on restoring natural assets in both urban and rural areas, maintaining protected areas, intensifying climate-resistant agricultural practices and mobilizing private investment to meet Rwanda's climate commitments. Chapter 7 discusses the threat to fiscal sustainability presented by Rwanda's heavy reliance on public investment financed by rising public debt. Increasing the efficiency of public investment and mobilizing more private investment in infrastructure will be essential to support rapid growth while containing the fiscal deficit.

Annex 1.1. Matrix of key policy recommendations: Sources of growth in Rwanda

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
1.1.1	**Policy Area 1: Boost Domestic Savings Mobilization in Rwanda to Accelerate Private Investment.**				
	Priority Area 1: Strengthening Ejo Heza Scheme				
	Ejo Heza: Allow short-term access to a portion of funds saved in the scheme	RSSB, MINECO-FIN	HP	ST	LF
	Ejo Heza: Increase the minimum savings level to be eligible for government incentives:	RSSB, MINECO-FIN	MP	MT	LF
	Ejo Heza: Scale up coverage through mandates and aggregators	RSSB, MINECO-FIN	HP	MT	HF
	Ejo Heza: Improve and ramp up communication and mobilization to reach new subscribers	RSSB, MINECO-FIN	HP	ST	HP
	Priority Area 2: Scaling up Digitalization in Savings.				
	Ramp up digital and financial literacy initiatives around savings	MINECOFIN	HP	ST	HF
	Create an enabling environment for digitally enabled savings, insurance and pension products		MP	ST	HF
	Priority Area 3: Developing Innovative Savings Products.				
	Enable innovation through regulatory reform and mechanisms such as sandboxes		HP	ST	HF
	Engage Rwandan diaspora to subscribe to government retail bonds		MT	MT	HF
	Update licensing requirements to encourage the development of more appropriate savings products		MT	MT	HF
	Priority Area 4: Savings Groups Mobilization.				
	Accelerate the digitization of savings groups and linking of savings groups to formal financial institutions		HP	ST	HF
1.1.2	**Policy Area 2: Improve Basic Education**				
	Priority Area 1: Strengthen Mechanisms for Early Childhood Education.				
	Strengthen the two-tiered ECD provision modalities (pre-primary classes, center-based, home-based, and community-based) service provisions through multi-sectoral collaboration	MINEDUC, NCDA	HP	ST	MF
	Expand access to ECD across all modalities and improve learning environments	MINEDUC, NCDA	HP	MT	LF
	Formalize teacher training and ongoing coaching for pre-primary teachers and service providers	MINEDUC	HP	MT	MF
	Priority Area 2: Accelerate Foundational Literacy and Numeracy in Early Grades.				
	Approve the Foundational Learning Strategy to facilitate implementation by Government agencies and partners	MINEDUC	HP	MT	LF
	Strengthen uncertified teacher training by making it practical and strong focus on foundational skills instruction	MINEDUC	HP	ST	HF
	Shift teacher allocations policies to place experience and high-quality education in lower primary grades	MINEDUC	MP	MT	LF
	Integrate remedial education into the school week	MINEDUC	HP	ST	HP
	Curriculum revision to ensure adequate focus on foundational literacy and numeracy instruction in lower primary grades	MINEDUC	MP	MT	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT).
Feasibility: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
	Priority Area 3: Improve Retention and School Completion.				
	Strengthen teacher training and continuous development program for secondary teachers especially in STEM subjects	MINEDUC	HP	MT	MF
	Expand access to secondary education and address gender imbalance	MINEDUC	MP	MT	MF
1.1.3	**Policy Area 3: Develop Skills for Gainful Employment and Inclusion**				
	Priority Area 1: Address Skills Mismatches with Labor Market/ Industry.				
	Institutionalize mechanisms for identification of skills gaps and labor market opportunities.	RDB and CSO	HP	MT	HF
	Strengthen formal channels (such as sector skills councils for priority economic sectors) for interaction between academia and the private sector/ employers	UR, RP, RTB, in collaboration with RDB and-CSO	HP	MT	HF
	Priority Area 2: Improve the Quality and Relevance of TVET and Degree Programs.				
	Strengthening of teaching staff's technical, pedagogical competences, and digital skills.	UR, RP, RTB	HP	ST	HF
	Recruitment of adequate qualified staff, including technicians for workshops/Labs	MINECOFIN, MINEDUC	HP	MT	MF
	Upgrading of teaching and learning conditions for all programs in priority economic sectors (facilities, equipment, digital resources, and internet connectivity-expand LAN).	MINECOFIN, MINEDUC	HP	MT	MF
	Adequately implement the Work-Place Based Learning Policy (internships & apprenticeships)	UR, RP, RTB	HP	ST	HF
	Step up mentorship support labor market attractiveness of science and mathematics related subjects, especially among female students in secondary schools	MINEDUC, HEC	HP	ST	HF
	Priority Area 3: Access and Equity, and Work Transitions.				
	Increase access students' scholarships and loans, including access to affordable laptops and internet for poor and vulnerable students.	BRD	HP	MT	HF
	Establish gradual governments' direct funding to the Skills Development Fund (SDF) for various windows, including SDF funding for out of school youths, upskilling/upgrading of existing workers micro and small enterprises in the informal (and formal) sectors, and support for graduates pursuing entrepreneurship.	MINECOFIN, MINEDUC	HP	LT	HF
	Priority Area 4: Unleashing the Potential of the University of Rwanda.				
	Implement key recommendations and milestones, in the assessment report of the University of Rwanda (July 2023) on five core elements of the institution's performance (size and configuration of the University of Rwanda. Innovations in Curriculum, Pedagogy, and Assessment. Research Capacity Building. Governance and Management; and Financial Sustainability)	MINECOFIN, MINEDUC, UR	HP	LT	HF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
1.1.4	**Policy Area 4: Strengthening Health Outcomes.**				
	Priority Area 1: Foster Efficiency Across the Health Budget Cycle.				
	Increase gradually the budget allocation for health by 2 percentage points of the general government budget.				
	Expand fiscal space for health to expand insurance coverage, invest in human resources or quality of care.		HP	MT	HF
	Monitor closely performance to ensure additional resources are used effectively.		MT	HP	HF
	Address pressing quality of care issues, including workforce gaps.				
	Explore what drives quality of care issues through for instance maternal death audit.		ST	HP	HF
	Invest accordingly to ensure access is matched with adequate quality across population income groups.		ST	HP	HF
	Consider reallocating funding from vertical disease programs (HIV/AIDS and malaria) to RSSB/CBHI benefits package based on claims analysis.		MT	HP	MF
	Encourage partners to relax co-financing requirements for vertical disease interventions, to the extent possible.		MT	HP	MF
	Take action to reduce the health workforce gap.				
	Invest in health workforce education.		MT	HP	LF
	Create the necessary budgetary space to hire.		MT	HP	LF
	Ensure that nurses who have been trained are given the opportunity to work in the sector.		MT	HP	LF
	Priority Area 2: Improve Equity.				
	Equity concerns should be addressed.				
	Subsidize insurance coverage of the near poor.		MT	HP	HF
	Implement a more equitable workforce establishment plan.		MT	HP	HF
	Reflect equity considerations in the proposed capitation payment reform.		MT	HP	HF
	Work with districts to identify adequate and equitable district health budget allocations, taking into consideration population and need.				
	Work with districts to identify adequate and equitable district health budget allocations.		MT	HP	HF
	Take into consideration population and need in district health budget allocations.		MT	HP	HF

Annex 1.2. Description of the LTGM-public capital extension

This annex provides a brief overview of the LTGM Public Capital Extension (LTGM-PC; Pennings and Devadas 2018), with the calibration of key parameters/ initial conditions listed in Table 1.5 (beyond those discussed in Box 1.1). Like the standard LTGM, the LTGM-PC is a neoclassical (supply side) model of potential growth. However, unlike the standard LTGM, the LTGM-PC allows for a decomposition of physical capital into public and private portions. More specifically, GDP (Y_t) is given by a simple Cobb-Douglas production function:

$$\text{Eq. A1 } Y_t = A_t (K_t^G)^{\phi} (K_t^P)^{1-\beta-\phi} (h_t L_t)^{\beta}$$

where A_t is the total factor productivity (TFP), K_t^G and K_t^P denote public and private capital stocks, and ϕ $h_t L_t$ is the usefulness of public capital for production.[ii] h_t is effective labor used in production, which is decomposed into L_t, human capital per worker, and $L_t = \varrho_t \omega_t N_t$, The labor force is further decomposed into ϱ_t where ω_t is the participation rate, ω_t is the working-age population to total population ratio, and N_t β is total population. The parameter $K_{t+1}^G = (1-\delta_G)K_t^G + I_t^G$ is the labor share. The stock of public capital follows I_t^G, where δ_G denotes public investment and δ_G is the depreciation rate. An analogous expression determines $11 N_t$ by N_t.

To understand the drivers of growth, GDP growth can be expressed as follows (using a log-linear approximation, where g_{t+1}^X denotes the annual growth rate of variable X in period $t+1$):

$$\text{Eq. A2 } g_{t+1}^{GDP} \approx g_{t+1}^A + \beta\left(g_{t+1}^h + g_{t+1}^{\varrho} + g_{t+1}^{\omega} + g_{t+1}^N\right) + (1-\beta-\phi)\left[\frac{I_t^P}{Y_t}/\frac{K_t^P}{Y_t} - \delta^G\right] + \phi\left[\frac{I_t^G}{Y_t}/\frac{K_t^G}{Y_t} - \delta^P\right]$$

In the short and medium terms, TFP growth has the largest effect on growth: a 1 percentage point increase in TFP growth (g_{t+1}^A) leads to an exact 1 percentage point increase in GDP growth. A 1 percentage point increase in the growth of human capital, labor force participation, and working-age population $(g_{t+1}^h, g_{t+1}^{\varrho}, g_{t+1}^{\omega})$ increase GDP growth by β percentage points. Population growth (g_{t+1}^N) also increases GDP growth by β percentage points, though reduces GDP per capita growth.

The effect of an increase in the public investment rate (I_t^G/Y_t) depends on both the usefulness of public capital for production (ϕ), as well as the scarcity of public capital, as measured by the public capital-to-output ratio (K_t^G/Y_t). For example, if ϕ = 0.1, a large 2 percentage point of GDP increase in the public investment rate raises short-run growth by 0.2 percentage points per year if $K_t^G/Y_t = 1$ (close to our initial calibration for Rwanda) but only 0.1 percentage point if $K_t^G/Y_t = 2$. This means that a growth, driven by public investment, which causes public capital to accumulate faster than GDP will quickly become less effective, unless it is accompanied by other reforms to boost productivity, human capital or participation to mitigate the increase in K_t^G/Y. The effect of an increase in the private investment share of GDP is analogous but will depend on the private investment share of income adjusted for congestion $(1-\beta-\phi)$, as well as the scarcity of private capital, as measured by the private capital-to-output ratio (K_t^P/Y_t). In our initial calibration, Rwanda is short of private capital, with K_t^P/Y_t =0.86, much lower than peer countries.[iii] Combined with $1-\beta-\phi$ =0.35 increase in private investment provides a massive 2 percentage points increase in growth. However, this effect quickly diminishes as K_t^P/Y_t rises due to higher rates of private investment.

In the long-run, the private capital-to-output ratio and public capital-to-output ratios are roughly constant, and so $g_t^{GDP} \approx (1/\beta)\, g_t^A + g_t^h + g_t^{\varrho} + g_t^{\omega} + g_t^N$.[v] This mean than the effect of all non-capital drivers of growth is amplified because they induce further capital accumulation. As a rule of thumb, a 1 percentage point increase in TFP growth would boost GDP per capita growth by $1/\beta$ percentage points, and there would be a one-to-one effect of g_{t+1}^h, g_{t+1}^{ϱ} g_{t+1}^N, or g_{t+1}^{ω}. Note however, that capital adjustment is very slow, and takes several decades to converge. However, the long-run effects are a useful upper bound, and the effects of drivers of growth throughout our three-decade simulation period (2021–50) will fall in between the "direct short-run" and "long-run effect".

TABLE A1.1: Selected LTGM parameters, initial conditions and common assumptions

	Aggregate	Public	Private	Source
Labor Share (β)	0.55			PWT 10.0 SSA average (adjusted)
Public Capital Elasticity in Production function (ϕ)		0.1		Bom and Ligthart (2014) (meta-analysis)
Depreciation Rate (δ)	0.046	0.020	0.081	PWT 10.0
Capital-to-output ratio	2	1.14	0.86	Perpetual Inventory Method (K/Y=2 in 1965)
Population (growth)	2.4% →1.4% (2050)			UN Population Division (2022)
Working age to total population ratio (growth)	0.7% → 0.1%(2050)			UN Population Division (2022)

Source: World Bank (2020)

Annex 1.3. Description of the LTGM-human capital extension

The LTGM human capital extension (LTGM-HC) seeks to provide a detailed analysis of the effect of changes in the different components of the World Bank Human Capital Index (HCI)—schooling quantity, schooling quality (test scores) and health—on the productivity of the workforce h_t. Unlike the HCI, the LTGM-HC focuses on dynamics by embodying human capital in individual age cohorts, and tracing how those cohorts move in and out of the workforce. The resulting time series for the human capital of the workforce, h_t (measured in productivity units) is then fed into the LTGM or LTGM-PC to estimate the effect on economic growth. Specifically, the human capital of cohort of age a at time it takes the same form as the HCI (without child mortality):

Eq. A3 $h_t^a = He^{\phi(LAYS_t - 14) + \gamma(health_t - 1)}$

where $LAYS_t = quality_t \times EYS_t$ (LAYS are Learning-adjusted years of schooling and EYS are Expected years of schooling) and $health_t$ is a measure that depends on Adult Survival Rates and/or stunting rates. The human capital of the workforce 20-64 used in production h_t is given by the weighted average of the human capital of individual age cohorts, where $\omega_{a,t}$ is the share of the workforce of that age at time t:

Eq. A4 $h_t = \sum_{a \in \{20,64\}} \omega_{a,t} \, h_t^a$

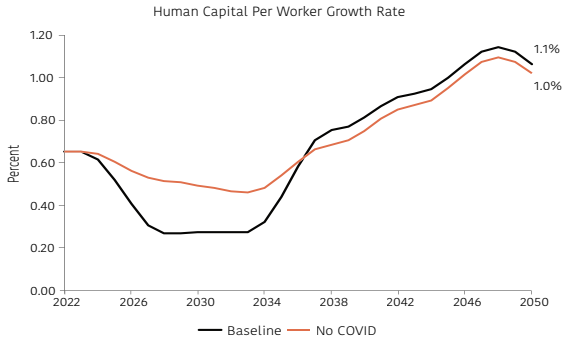
Note that the LTGM-HC is currently in *beta* version, and so is not available yet on the LTGM website.

Annex 1.4. Effect of COVID-19: school closures on long-run growth in Rwanda

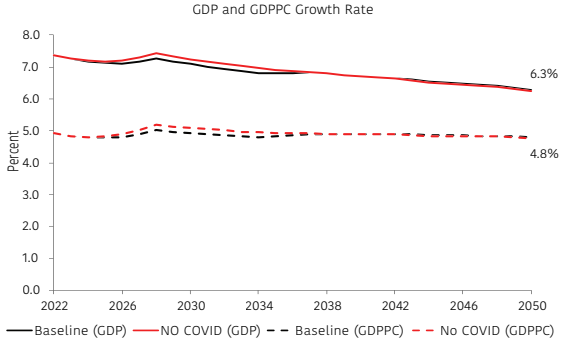
The baseline and moderate/ambitious scenarios in this study incorporate the effect of school closures during COVID-19 on human capital and long run economic growth. First, we utilize data from UNECSCO that suggests that during the pandemic, schools were closed for 0.88 years in Rwanda on average. Consequently, we assume that the 5-9 and 10-14 age cohorts in 2020 lose 0.88 years of schooling: instead of receiving 6.85 years as suggested by the HCI, they receive 5.97.[26] This leads to a drop in human capital growth of around 0.2-0.25 percentage points in the late 2020s and early 2030s when the affected cohorts join the workforce (Figure A1.1; calculated using the LTGM-HC), relative to a counterfactual with no COVID-19 school closures. This then results in a fall in GDP (and GDPPC) growth by around 0.15 percentage points during the same period (Figure A1.1-B; calculated using the LTGM-PC). While the reduction in growth is small, it accumulates over time. Consequently, by 2035 the level of GDP is persistently about 1.5 percentage points lower than what it would have been without the COVID-19 school closures (Figure A1.1-C).

Figure A1.1: Results of the growth baseline of Rwanda: Strong push needed to approach the new goals

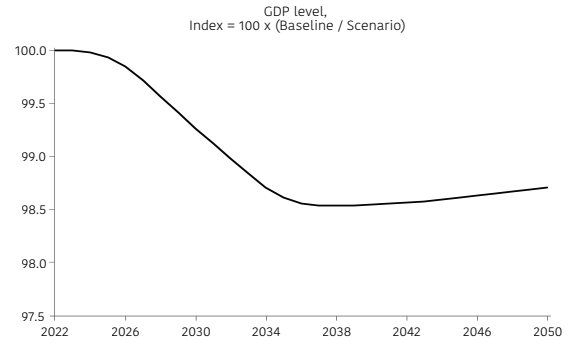
A. Human Capital per Worker growth rate



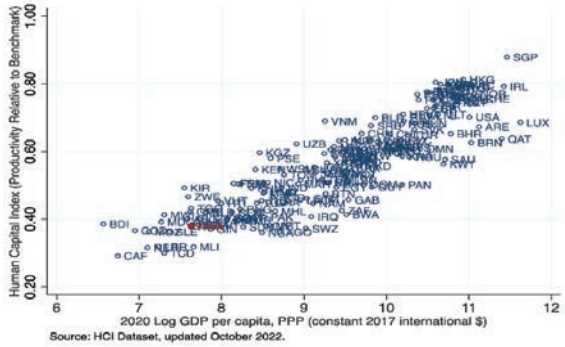
B. GDP and GDPPC growth rate



C. GDP level, index=100x (baseline/scenario)



D. World Bank Human Capital Index (HCI)



Source: Calculation based WDI and HCI da

Annex 1.5. Basic education: Main challenges and policy reforms

A. Basic education context

The achievement of Rwanda's economic development aspirations depends on the country's ability to build its human capital. In this regard, investing in the basic education system, to improve access to high quality education remains an urgent priority for the country. Basic education has a critical role in developing a skilled workforce that can drive the Rwanda's competitiveness and economic growth. It is the stage where children acquire foundational skills including literacy, numeracy, and socio-emotional skills that form the building blocks for higher level skill acquisition during post-basic education and training levels and increased productivity in adulthood.

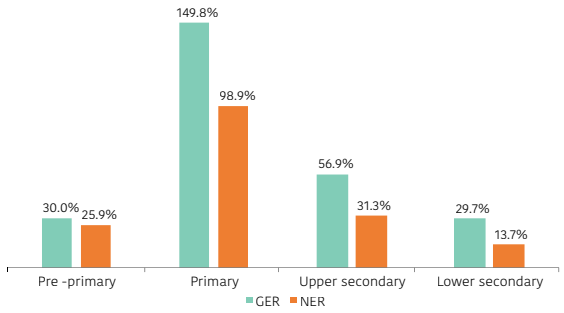
The GoR has recognized the importance of basic, as evidenced by its policies, financing for the sub-sector, and priority programs. Prior to 2012, the GoR's focus was on enabling all children to have access and complete at least nine years of free education; in subsequent years, the vision has been expanded to cover 12 years of free education (ESSP 2018). The education sector budget accounted for 18 percent of the total national budget in FY 2022/23 and the approved budget for 2023/24 will account for 19.1 percent of the total national budget, reflecting a consistent positive trend in the financing allocated to the sector. A lion's share of the education sector budget currently goes to lower levels of education. In 2022/23, 47.8 percent of the sector budget was allocated to pre-primary and primary education. The remaining allocation was 31.5 percent for secondary, 17.4 percent for tertiary and 3.3 percent other (Ministry of Education, Rwanda, 2023).

Through sustained efforts, the country has achieved significant improvements in educational outcomes, especially in terms expanding access; however, challenges remain. In order to improve educational outcomes, there is increased recognition that early childhood education, including pre-primary education, has a critical role to play, as it provides the foundation for all future learning. At the pre-primary level, which is managed by the MINEDUC, enrolment is improving with gross enrollment ratio (GER) reaching 30.0 percent in 2020/21 compared to 24.2 percent in 2017 (MINEDUC, 2022). However, this level of access is significantly lower than the Education Sector Strategic Plan (ESSP) targets for 2023/24, which is GER of 57 percent.

Early childhood development (ECD) services are also offered through other modalities such as home-based, community-based, and center-based ECDs, which opens the opportunity to expand coverage. These other modalities are currently managed by the National Child Development Agency (NCDA), which is under the Ministry of Gender and Family. Across all modalities offered by MINEDUC and NCDA, low access and quality remain a critical challenge. Addressing these bottlenecks requires investments in infrastructure–in order to create more learning spaces and ensure safe and inclusive learning environment, well designed curriculum, and training and ongoing support for teachers and service providers. By continuing to strengthen the different modalities of early childhood education and unlocking the binding constraints, the GoR can ensure that all Rwandese children benefit from high quality early childhood education, which will give them significant preparation for their basic education and a lifelong learning journey.

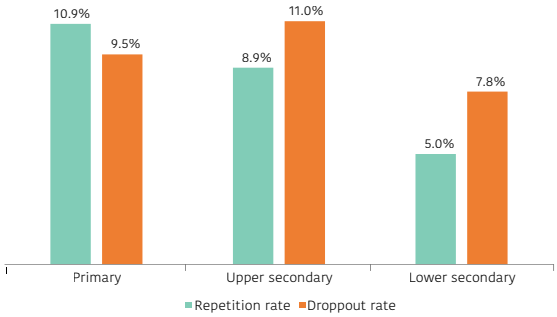
Access to primary and secondary education has also improved significantly in the country. Enrollment at the primary level is almost universal with NER of 98.9 percent in 2020/21, which reflects the GoR sustained effort to make basic education affordable and accessible (MINEDUC 2022). Access to secondary education is improving, with GER at lower secondary level reaching 57 percent in 2020/21, which shows a significant improvement from 44.9 percent in 2017. The enrollment rate drops as children transition into at upper secondary level, where GER was 30 percent in 2020/21. Trend data also shows that over the past 5 years there has been little change, with upper secondary GER at 30 percent in 2017. The limited expansion of upper secondary education is in part driven by the increased focus towards expending technical and vocational education and training (TVET), with the ESSP 2018–24 aiming to shift 60 percent of secondary age enrollment to be in the TVET sector. The shift towards multiple exit points after basic education is encouraging in terms of improving the

Figure A1.2: Gross enrollment ratio (GER) and net enrollment ratio (NER) by level of education, 2020/21
a) Revenue forecast in tourism.



Source: Replication from MINEDUC, 2022.

Figure A1.3: Repetition and dropout rates by level of education, 2020/21
a) Revenue forecast in tourism.



Source: Replication from MINEDUC, 2022

labor market prospect of youth leaving the education system. However, in order to meet the country's ambition of becoming a knowledge economy, more and better investments into secondary education are needed to improve access, quality, and equity, as it is an important transition stage into tertiary education.

There are also significant inefficiencies across grades along with quality related challenges. The system continues to struggle with early grade bulge. Primary GER for 2020/21 reached 150 percent, significantly higher than 100 percent and NER of 98.9 percent (see Figure A1.2). The significant difference between the NER and GER figures shows the high share of children who are outside of the official school age group enrolled in the system. In the Rwanda context, there is a number of factors driving the early grade bulge, including the high share of underage children enrolling in Grade 1, due to lack of access to pre-primary education. The situation was exacerbated during the COVID-19 pandemic; primary GER for 2020/21 was particularly high (for example compared to 139 percent 2019) due to re-enrollment and double intake in Grade 1 due to COVID-19.

In addition, the repetition rate is high, especially at the primary and lower secondary levels, which contributes to overage enrollment and increase the risk of dropout. The repetition rate was 11 percent at the primary level and 9 percent at the lower secondary level in 2020/21. The high rate of repetition, which contributes to the high share of overage age students in the system is likely to present a challenge for teachers who must teach a more diverse group of students with varying levels of school readiness and learning needs. High dropout rate is also a critical challenge in the system; in 2020/21, the dropout rates at the primary level was 9.5 percent and 11 percent at the lower secondary level. This means, many children leave the education system before they acquire the foundational skills and knowledge the need to be productive or pursue higher education or training.

In addition to the high dropout rate, low quality of education remains a challenge in Rwanda's education sector. Learning outcomes are suboptimal, including at foundational levels. The 2021 Learning Achievement in Rwandan Schools (LARS) showed that only 10 percent of grade 3 students reached basic proficiency level in English, the medium of instruction for most subjects, while literacy outcomes were significantly better in Kinyarwanda, with 68 percent of grade 3 student reaching grade level proficiency. About 61 percent reached basic proficiency level in mathematics, when the assessment was conducted in Kinyarwanda, but this figure drops to 16 percent among those assessed mathematics using English. Challenges related to language of instruction and teachers' low proficiency in English, low capacity, overcrowded classrooms, and double shifting all contribute to the quality of education challenge.

Beyond foundational skills, strengthening Science, Technology, Engineering and Mathematics (STEM) education starting in basic education is essential for Rwanda to meets its vision of emerging as a globally competitive knowledge-based economy. The country is making significant investments to improve STEM education by establishing and strengthening centers of excellence, expanding access to digital technology and connectivity in all secondary schools (e.g., through smart classrooms), to improve digital skills and increase the use of ICT in teaching and learning. To ensure that these investments translate into improved outcomes, more needs to be done to build teachers capacity at all levels.

Gender inequality is an important challenge the education system. At the primary level, girls have higher promotion and completion rates. However, this pattern changes at the secondary level with girls having lower promotion rates and higher repetition and dropout rates. Gender gaps are also apparent in terms of learning outcomes. The 2020/21 LARS assessment showed that girls had lower learning outcomes in English literacy and numeracy at the primary 3, primary 6 and secondary 3 levels. National examination results shows that over time, gender gaps are closing over time. Gender gap in passing rate was about 15 percent in 2008 in favor of women, which has narrowed to 3 percent in 2020/21, with boys having a pass rate of 87.5 percent and 85.3 percent. However, the gap remains wider in upper secondary exams, with 94.8 percent of boys passing the school leaving examinations, compared to 89.7 percent of girls.

B. Policy and strategy in basic education:

The GoR's ongoing response to key challenges:

The GoR's strategic documents put strong emphasis on improving basic education as a strategic focus area for the country's ambition of reaching middle income status by 2035. This focus is captured in Rwanda's National Strategy for Transformation 2018–24 (NST 1), which under its Social Transformation pillar identifies ensuring quality of education for all with the aim building a knowledge-based economy as a priority. The NST 1 objective are further elaborated in the ESSP 2018–24, which identifies, among other things, all learners achieving basic levels of literacy and numeracy in early grades and beyond and all learners entering primary school at the correct age and successfully complete 12 years of basic education as priority objectives. In line with the NST and ESSP, the GoR is implementing a number of reforms and large-scale investments in order to address some of the most critical bottlenecks in the education system. These efforts are financed both using the GoR's own resources and by mobilizing partner support including from the World Bank.

In order to address challenges related to distance to schools, poor learning environment, and overcrowded classrooms, the GoR has undertook an ambitious school construction program. Using joint financing from Government and World Bank supported project, over 22,000 classrooms and over 31,000 gender segregated toilets have been constructed, with strong focus on accessibility for children with disabilities. This large-scale construction program used home-grown school construction approach, which generated stronger ownership and facilitated faster implementation. These investments led to an additional 68,000 Rwandan children able to access school within a two-kilometer radius and student to classroom ratio was reduced by over 30 percent from 73 students to 1 classroom to 49 students to 1 classroom in 2020.

To staff the newly constructed classrooms and reduce high student to teacher ratios, the GoR recruited over 50,000 teachers in the past few years. The recruitment process was managed through the newly revamped Teacher Management Information System (TMIS) system, which fostered a standardized and efficient hiring process. This system is expected to strengthen teacher management and development processes, not only in terms of requirement, but also by allowing better coordination and targeting of teacher training and capacity building programs provide both by the GoR and its development partners. To address teacher capacity challenge, the MINEDUC is also developing a number of teacher capacity development programs, focused on improving English language proficiency, digital skills, and pedagogical skills, especially for uncertified teachers. Teaching and learning materials

Box A1.1: Quality basic education for human capital development project

The World Bank is supporting the GoR's effort to accelerate progress in improving access and quality of basic education, through financing and technical assistance. The Quality Basic Education for Human Capital Development Project with a total funding envelope (US$340 million) is the flagship project for World Bank's support to the basic education sub-sector.

Under the development objective of "to improve teacher competency, and student retention and learning in basic education," the project supports a wide range of interventions aimed at building capacity to deliver quality education at scale while improving resource efficiency and sustainability. Some of the core interventions supported by the project include:

- A large-scale classroom construction under the ongoing investment project financing helped reduce distance to schools and overcrowding and improved the school environment to be safe and accessible to all. The World Bank has also supported development of new teacher standards integrated with teacher recruitment and a national database of qualified teachers, which has improved efficiency in teacher recruitment and management.
- Teacher training programs are being developed under the project in order to improve teachers' capacity and English language proficiency at scale, using cost-efficient blended models.
- The project is also supporting textbook and other teaching and learning material procurement in order to improve the availability of Teaching and Learning Materials (TLMs) to support classroom instruction and in the process, help the GoR to put in place an efficient TLM provision system.
- To address learning loss and accelerate progress, the project also supports remedial education, by piloting different models and scaling up cost effective approaches that have promising impact on learning.

have been developed or revised and it is expected that significant provisions will be made in the next few years to reach 1:1 ratio in textbooks.

The GoR has scaled up its school feeding program from pre-primary up to secondary schools, with the aims of ensuring that every child in public and government aided schools receives at least one nutritious meal. The program is financed by the GoR's budget, with increased allocation to the sector budget, partner support including the World Food Program (WFP) and the Global Partnership for Education (GPE), complemented by parents' contribution (up to 10 percent). Consolidating these resources, the GoR has equipped schools with kitchens and cooking stoves and is providing a subsidy for each student's meal. Overall, the program is expected to contribute towards reduced stunting rates and child hunger, both of which are detrimental to learning and human capital development.

Rwanda is also making progressing with the implementation of a regular learning assessment, through assessments such as early grade reading assessment (EGRA), early grade mathematics assessment (EGMA), and the LARS. The 2023 LARS was aligned with the global proficiency framework (GPF) and was designed to be comparable with the 2021 LARS. This means the GoR can effectively track the countries progress over time and benchmark its performance against peer countries in order to set realistic yet ambitious learning targets for the system. In addition, the GoR is continuing to strengthen the Comprehensive Assessment and Information Management (CAMIS) system, which is used to continuous learning assessment and examination to provide feedback to the education system. Moving forward, increased effort is needed to make the data widely available to ensure utilization for policy making and program design, including at sector and district level.

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Notes

1 The seven-year Government Plan requires more than 40 percent of the government budget to be devoted to capital spending and net lending.

2 This formula assumes a constant K/Y ratio and utilizes a labor share of . A 0.5 percentage point increase in the working age to population ratio boosts medium run growth by around 0.28 percentage point.

3 The human capital index (HCI) measures the amount of human capital that a child born today can expect to attain by age 18. It conveys the productivity of the next generation of workers compared to a benchmark of complete education and full health.

4 As per a measure using the national poverty line and National Institute of Statistics of Rwanda's approach.

5 Based on data from the Rwanda Labor Force Survey series from 2016 to 2022, the unemployment rate in Rwanda is higher (at 16.7 percent in 2016–19 and 19.8 percent in 2020–2022 of the labor force). So, the comparison with peer countries should be favorable to Rwanda using country-level labor force surveys over the 2016–2022 period. Data limitations prevent us from making that comparison formally.

6 Rwanda's Vison 2050 outlines how Rwanda will reach upper middle-income status in 2035 and high-income status in 2050, with domestic savings and capital inflows being identified as a critical lever.

7 https://en.wikipedia.org/wiki/2023_African_Great_Lakes_floods#cite_note-4

[8] Damages represent the estimated value of physical and natural assets destroyed by the floods. Losses represent the reduction in production or income that would have been generated by the destroyed assets (e.g., loss of rental income from destroyed housing). Recovery needs include not only the expected cost of replacing destroyed assets, but also of proposed social programs to support vulnerable populations, credit to restore business activity, and the establishment of a legal framework to provide insurance against natural hazards (GoR 2019).

[9] The Rwandan economy is dominated by nature-based tourism, rainfed agriculture, and other extractive industries. In 2021 agriculture, forestry and fisheries constituted 48 percent of employment in Rwanda and 24 percent of real output (with related manufacturing in food and beverages contributing 5 percent of real output). Similarly, in 2021 trade, transport and hospitality generated 21 percent of employment and 16 percent of real output. Goods and services derived from Rwanda's natural resource endowment accounted for 41 percent of export revenue between 2015 and 2021.

[10] The baseline scenario represents a future which assumes 'business as usual,' with no major new policies or infrastructure. In this analysis, the baseline scenario is based on historical trends (e.g., for water demand) and excludes commitments in Vision 2050, which is treated as an alternative scenario in the simulations, so that the effects of Vision 2050 on water demand can be formally analyzed. The baseline scenario assumes growth in final domestic demand and exports in each sector, based on recent trends, and represents a long-run value. The long-run growth rate of final demand was set to 7.1% / year.

[11] The pension sector represented 17% of assets, 95% of which is in the public scheme (Rwanda Social Security Board (RSSB)), and the remaining 9.2% is in the insurance sector (data from the National Bank of Rwanda, 2021).

[12] Micro/ small projects and one-off projects have been a key characteristic of Rwanda's portfolio of development projects in 2016/17–2020/21, which are problematic for the efficiency of public (capital) expenditures (see World Bank. 2022. Rwanda Public Expenditure Review – Improving Efficiency and Equity to Stimulate Sustainable Inclusive Growth. December 2022, Washington, DC: World Bank [referred to as World Bank (2022)]).

[13] These figures are expressed in 2022 Atlas US$ (with cutoffs expressed as on 1 July 2022), which are updated from the nominal cutoffs expressed in the Vision 2050.

[14] Assuming that the TFP growth would accelerate to 3.25% by 2028, which is the highest in SSA over 2000–2019 (taken from the TED database or PWT10 databases) and is the second highest in all LI and lower-middle income countries over the same period, our estimates suggest that investment would need to reach implausibly high rates (80–100% of GDP) to achieve the growth targets. This is not surprising, as Rwanda is currently a low-income country, and the first target skips over lower-middle income status to achieve UMI status in only 12 years.

[15] The World Bank baseline growth potential is 7.2% over the medium term, before moderating to 6.3% by 2050, mostly due to slowing population growth. As slowing population growth has less effect in per capita terms, the baseline features an almost-flat GDPPC growth path of slightly below 5%, which is very similar to the experience of Rwanda over the 2010s. However, it represents an impressive increase in living standards, with GDPPC quadrupling by 2050 in the baseline. Note that the baseline is not a forecast of growth, but rather one plausible path, and rapid growth in the baseline results in risks that are skewed to the downside.

[16] The countries included (and the year when they were at Rwanda's level of development) are Botswana (1970), China (1987), India (2000), Thailand (1965) and Vietnam (1992). South Korea is not included in the list, as it was already above Rwanda's level of development in 1950, when the PWT sample begins.

[17] The figures after 30 years are relative to GNI PC in 2021—the latest data at the time of writing—and so represent GNI PC in 2051.

[18] This could reflect (for example) faster structural transformation, improvements in the agricultural sector, or greater trade integrations.

[19] In the moderate reform scenario, ASR, not stunted rates, and schooling quality stay the same as in the baseline.

[20] This reflects the fact that historically investment has been evenly split between public and private (Figure 1.15), whereas typically private investment is much larger than public investment.

[21] Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition (GoR WB (2020d)).

[22] The LTGM-PC also allows for variation in the efficiency of public investment, though in the Rwandan context we don't utilize this aspect due to missing data on the efficiency of public investment.

[23] This is a standard calibration in the literature (not specific to Rwanda) and is at the high end of the range estimated by Calderón, Moral-Benito, & Servén (2015). See Bom & Ligthart (2014) and Devadas & Pennings (2018) for a discussion.

[24] For example, Devadas & Pennings (2018) find that the median is 1.24 for LI countries and 1.82 for LMI countries.

[25] This implies $\frac{I^G}{Y} / \frac{K^G}{Y} = g^{GDP} + \delta^G$ and $\frac{I^P}{Y} / \frac{K^P}{Y} = g^{GDP} + \delta^P$. Substituting into equation A2, generates the long run relationship.

[26] Normally we also assume the 15–19 cohort is affected, but in Rwanda's case most children have already finished school by age 15 (given the expected years of schooling is only 6.85 years).

[27] Gross enrollment ratio (GER) is defined as total enrolment in a specific level of education, regardless of age, expressed as a percentage of the eligible official school-age population corresponding to the same level of education in a given school year (UIS, 2009). GER can exceed 100 percent due to the enrollment of over-aged and under-aged students because of early or late entrants, and grade repetition. On the other hand, the net attendance ration (NER) is total enrolment of the official age group for a given level of education expressed as a percentage of the corresponding population.

PART 2:
BOOSTING PRODUCTIVITY AND COMPETITIVENESS

Most Rwandan firms are small and informal, facing low capacity utilization due to various operational constraints, and average productivity lags behind regional peers. Innovation is limited and declining, while firms struggle with weak managerial and technological capabilities. Despite progress in improving the investment climate, regulatory challenges remain, including weak enforcement of anti-competitive laws, a complex insolvency framework, and SOE participation in competitive markets. Low domestic savings and limited formal financial intermediation restrict firms' access to growth finance. Rwanda's export growth is further hampered by similarities with regional trade partners, low diversification and product complexity, low survival rates, and vulnerability to climate shocks. Strengthening regional integration, opening digital services, boosting FDI through infrastructure and international agreements, and enhancing Rwanda's role as a regional transit hub could significantly boost trade.

This section of the report (Chapters 2 and 3) focuses on private sector productivity. However, a full discussion of productivity should also include structural transformation (Chapter 4) and public expenditure efficiency (Chapter 7).

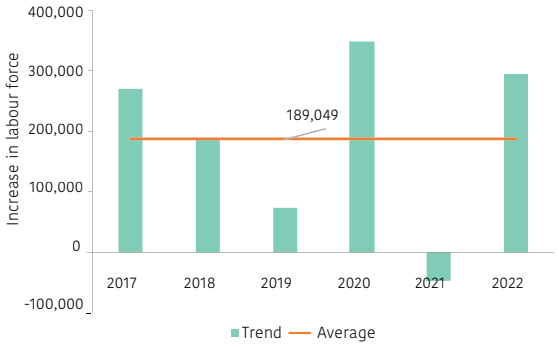
CHAPTER 2
DEVELOPMENT OF A PRODUCTIVE PRIVATE SECTOR

2.1. Introduction: Increased private sector activity is critical to Rwandan development

While targeted complementary public investment will continue to be crucial in sustaining economic growth, private investment must increase substantially if the country's development ambitions are to be fulfilled. Public investment is and has been an important catalyst of economic growth in Rwanda. Through good governance practices, public investment has effectively improved the delivery of public services and connected citizens, farms, and firms to economic opportunities. To consolidate Rwanda's productivity growth in a context of moderate risk of debt distress and fiscal deterioration, however, increasing private sector participation in the economy will be essential. According to World Bank estimates comparing the growth trajectories of Rwanda with a bundle of other high-growth countries over selected periods of time, Rwanda cannot reach upper-middle-income (UMIC) status by 2035 without large increases in private sector investment. Private investment needs were estimated at 32 percent of GDP by 2035, from a 15.8 percent contribution in 2022 (a drop from 16 percent in 2016). According to authorities' NDC implementation framework, the value of ongoing and planned projects over 2020–25 is USD 5.9 billion. However, actual investment has lagged in the first three years of the project. Although Rwanda aims to bridge the gap through Ireme Invest, the green investment facility, it is challenging to bridge the gap since out of a total estimated investment of USD 55 million in FY24/25, only USD 11 million was approved by end-June 2024.

More rapid private sector growth is also key to quality job creation and poverty reduction in Rwanda. The expansion of the private sector contributed substantially to off-farm job creation and poverty reduction in the decade before COVID-19 (World Bank, 2020). The number of registered business establishments grew by 48 percent leading to the increase of jobs by registered firms by 26 percent, between 2011 and 2014, followed by an increase of 31 percent in the subsequent 3 years (2014–17), to over 466,000 jobs, and 10 ppts of poverty reduction.[1] Between 2017 and 2020, the increase of jobs was 15.7 percent, to about 539,250 jobs (National Institute of Statistics of Rwanda (NISR), 2021). (These patterns are also described briefly in Chapter 4, Section 4.3.) However, the pace of job creation by establishments—approximately 73,000[2] in 2020 compared to 2017—lags significantly the rate of labor force entry of approximately 189,000 individuals per year (World Bank Group; Government of Rwanda, 2020).[3] The demand for labor would have to expand by at least 160 percent to absorb all of them in the short- to medium term. This would require a major transformation in the creation of growth opportunities for the private sector.

Figure 2.1: Number of people entering the labor force soaring since the COVID-19 pandemic



Source: Calculations based on NISR databases

This chapter addresses the issues surrounding private sector growth in Rwanda. The next section briefly reviews the performance of the private sector, followed by Section 2.3 on selected constraints to private sector growth. Section 2.4 considers ICT and innovation in Rwanda, and Section 2.5 provides conclusions and policy recommendations.

2.2. Private sector performance

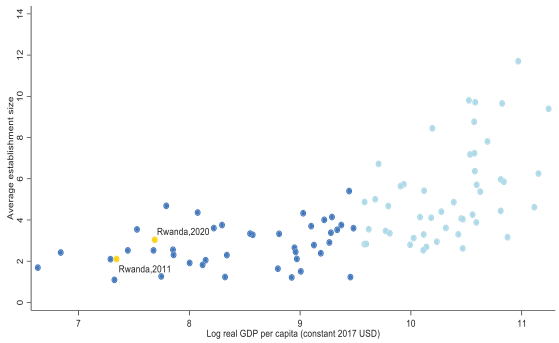
Rwanda's private sector has achieved considerable dynamism, as shown by the rapid creation of firms since the mid-2010s and the growth in the number of firms participating in international trade. However, most firms are informal and small and operate in low value-added service-based sectors. Capacity utilization is low due to multiple barriers to firm operations, for example, lack of appropriate inputs, technology, and finance. Average productivity lags that of many regional peers.

2.2.1. Pervasive informality and small size in the enterprise landscape

The rapid growth of firms is evidence of a dynamic private sector. The number of firms[4] in Rwanda increased from 146,502 in 2014 to 223,446 in 2021, recording a decline only in 2017 (Figure 2.2a). Another good sign of dynamism is the rapid growth in the number of firms involved in international trade. Rwandan firms' participation in international trade has increased dramatically. The share of firms involved in exporting rose from 11 percent in 2006 to 21 percent in 2019, or higher than in any other country in SSA (other than Togo; 28 percent), higher than that of most Association of Southeast Asian Nations (ASEAN) countries, and higher than the average level in high-income countries (17 percent). Notice that the share of firms involved in services exports increased sharply, while the share of exporters among manufacturing firms fell to levels well below many SSA and ASEAN countries.

Most Rwandan firms remain small and are in the informal sector. In 2021, about 92.1 percent of these firms were informal, and 88.8 percent of both informal and formal firms were microenterprises with fewer than three employees (Figure 2.2b). Roughly two percent of companies have an annual turnover of more than Rwf50 million (equivalent to US$ 42,000) per year (National Institute of Statistics of Rwanda (NISR), 2021). The formal sector employs 571,201 just 18.7 percent of the overall workforce. Most Rwandan firms concentrate in low-value-added service-based sectors. Over 60 percent of firms operate in the wholesale and retail sectors, while manufacturing accounted for 8.25 percent of firms in 2021. Sixty percent of employment is in agriculture and 30 percent is in services. Industry has made substantial progress in recent years but employs only around 10 percent of the labor force.

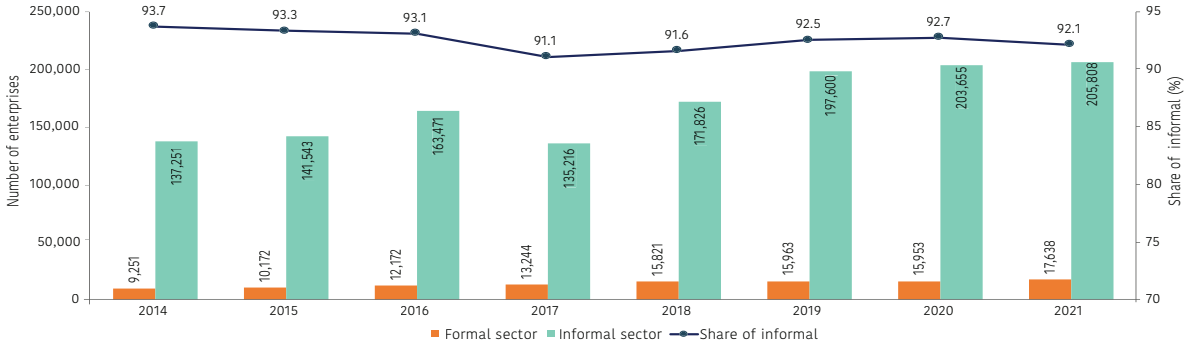
Figure 2.3: Positive correlation between per capita income and business size globally



Source: Calculations based on Establishment Surveys from various countries and Penn World Table version 10.01.

Figure 2.2: Dominating informal businesses rising in number and primarily of micro size

a) Informal businesses dominating in number the landscape of business enterprises.



Source: Calculations based on NISR databases

b) Small and medium sized firms form the majority of formal firms while micro firms dominate the informal in 2021

	Formal		Informal		Total	
Micro (1-3)	2,456	13.92	196,013	95.24	198,469	88.82
Small (4-30)	9,109	51.65	9,727	4.73	18,836	8.43
Medium (31-100)	3,974	22.53	68	0.03	4,042	1.81
Large (100+)	2,098	11.90	0	0.00	2,098	0.94
Total	17,638	100	205,808	100	223,446	100

Source: Calculations based on Integrated Business Enterprise Survey (IBES) 2019–21

2.2.2. Weak productivity in private sector

Low-capacity utilization, an aggregate indicator of firm-level efficiency, discourages long-term investment strategies. The output capacity of Rwanda is underutilized, signaling that the economy has infrastructure, human and physical capital, and technologies that sit idle. The capacity underutilization in formal manufacturing sectors in Rwanda is particularly high at 57.6 percent (National Institute of Statistics of Rwanda (NISR), 2023). Most frequently selected reasons were low demand, unreliable supply of inputs, and a lack of working capital (reported by 76, 44 and 34 percent of companies respectively). A lack of necessary technology, machinery and spare parts, and old equipment come as 4th and 5th constraints, followed by a lack of skilled workers and unreliable power supply. Utilization levels differ across business size typologies and economic sectors. Low demand accounts for the highest share of capacity utilization barriers across all business enterprise sizes except for big formal business enterprises. About 30 percent of big business enterprises cited unreliable input supply. Other significant barriers for the formal sector include a lack of working capital for small business enterprises, and labor market regulations, and old equipment for small business enterprises (National Institute of Statistics of Rwanda (NISR), 2023).

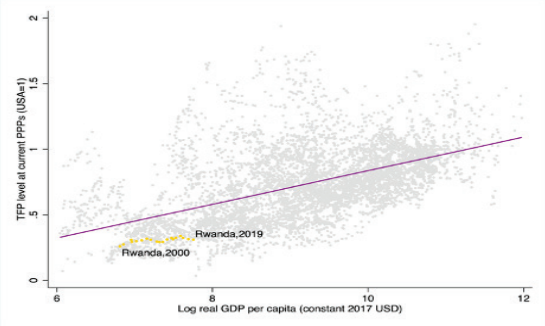
In the agricultural sector, land misallocation contributes to low productivity in Rwanda. Across the globe, land misallocation disincentivizes the adoption of new technologies and reduces the farmers' ability to learn new techniques (World Bank, 2007). Chapter 2 explores the other reasons for low productivity and low uptake of new technology in the sector. Moreover, the agricultural sector is the main sector of employment—at around 60 percent of total of jobs, followed by the services sector with around 30 percent—but is highly characterized by informality and subsistence activities, leading to low per capita value-added compared to services and industry sectors. Land misallocation combined with high informality in the main employer, the agricultural sector, would require the development of productive capacities that enhance cross-sectoral linkages and private investment and trade. This can help the most productive farms and firms reach scale and command more factors of production, thus contributing to increased productivity growth.

2.2.3. Limited job creation

Job creation has remained insufficient and erratic. In the first two years of NST-1 implementation, Rwandan economy created 256,753 (8.7 percent of total employment) net new jobs in 2017 and 247,371 (7.7 percent of total employment) a year later (Figure 2.5a), including farm and off-farm jobs. A depressing performance occurred already in 2019 whereby job creation significantly dropped to 66,585, equivalent to 2.2 percent of total employment. Despite the COVID-19 pandemic, Rwanda managed to create 186,937 net new jobs, or about 5.4 percent of total employment, a sign of the adequate response of the country to counter the first round of pandemic effects. Following the drastic job creation decline of 2021, a rebound in job creation is observed, with 258,655 net new jobs representing 7.3 percent of total employment in 2022. In cumulative terms, total new job creation amounted to 1,030,079 over the 2017–22 period.[5] The bulk of total job creation in Rwanda stems from the private sector, averaging 90.2 percent in this period.

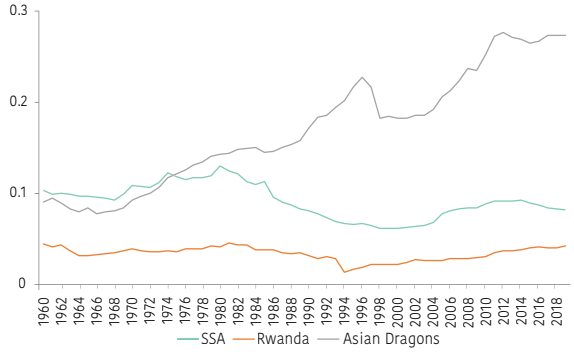
Figure 2.4: Productivity performance: Unfavorable ranking of Rwanda globally and regionally

a) Rwanda's TFP performance



Source: Calculations based on Penn World Table version 10.01.

b) Relative labor productivity (US = 1.0)

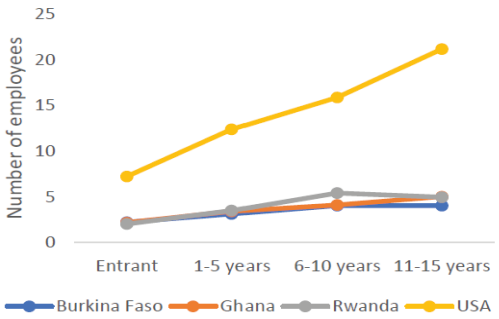


Source: Calculations based on Penn World Table version 10.01.

The evolution of decent and productive jobs has been disappointing. Decent and productive jobs—defined here as off-farm jobs as per the NISR practice—have reached a total of 134,391 over the 2017–22 period (Figure 2.5b), or an annual average of 22,399 jobs. This is far below the annual target of 214,000 decent and productive jobs set out in the NST-1. Prior to the COVID-19 pandemic, total decent and productive job creation amounted to 271,318—or an annual average of 90,439, but still way below the annual target. The (private) economic sectors leading decent and productive job creation—i.e., achieving at least 10,000 job creation cumulatively over the 2017–22 period—include transportation and storage (85,612), construction (50,293), other service activities (26,034), manufacturing (23,265), mining and quarrying (10,772). Chapter 4 presents an overview of Rwanda's progresses towards its target number of decent jobs.

Very limited growth rates over the life cycle of firms does not favor job creation (Figure 2.6). The overrepresentation of small-scale firms, few mid-sized firms, and a small but important group of frontier firms in Rwanda is not only the result of a preponderance of many small-scale often informal enterprises, but also from a general lack of growth of firms. This stunts the job creation capacity of most of Rwandan firms and leads to significant gaps between frontier firms and the rest of the economy.

Figure 2.6: Average firm size over the firm life cycle



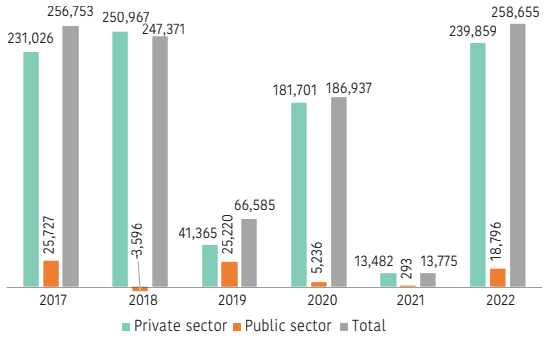
Source: Abreha et al. (2023), based on establishment census data and United States Business Dynamics Statistics (BDS).
Note: Employment distributions for SSA are based on census data covering both registered and unregistered business establishments in the manufacturing sector. Year coverage: Burkina Faso (2015), Ghana (2013), Rwanda (2013) and United States (2013).

2.2.4. Low firms' survival

In Rwanda, firms' survival has been quickly declining over the years. The comparison of the year of starting operations in Rwanda for the establishments censused in 2017 and 2020 allows to see the great dynamism of establishment creation in Rwanda (Figure 2.7a) since the end of the genocide against the Tutsis. Out of the 1,896 establishments that were censused in 2017 as having started operations in Rwanda before 1970, the overwhelming majority—e.g., 1,863 (or 98.3 percent) establishments were censused in 2020 as having started operations in Rwanda before 1970. For the establishments that started operations in Rwanda in 2015–17, the 2017 establishment census had a count of 128,413 and the 2020 establishment census a count of only 47,441, resulting in an estimated firms' survival rate of

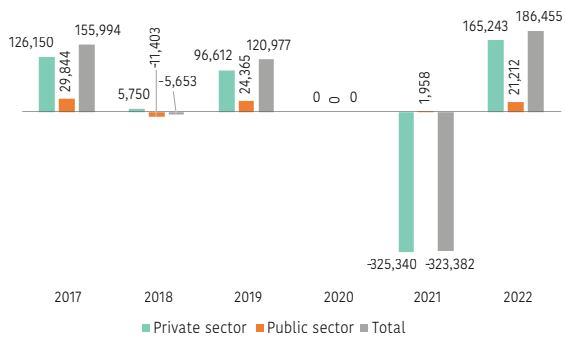
Figure 2.5: Insufficient and erratic job creation results

a) Overall job creation driven by the private sector, following erratic path prior to the COVID-19.



Source: Calculations based on Rwanda's Labor Force Survey (RLFS) in 2016–22

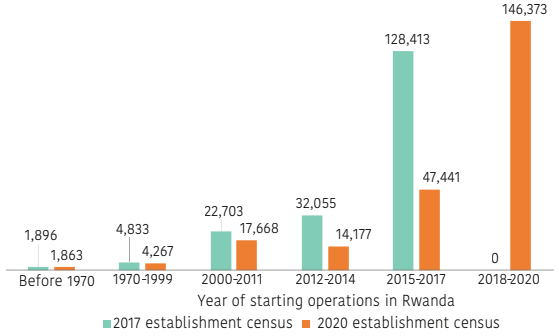
b) Erratic decent job (off-farm only) creation prior to the pandemic as well.



Source: Calculations based on Rwanda's Labor Force Survey (RLFS) in 2016–22

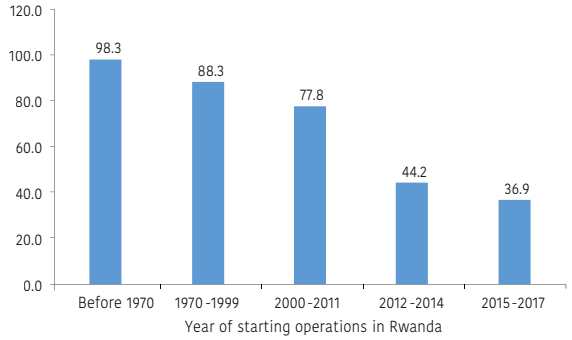
Figure 2.7: Establishments by starting year of operations in Rwanda, not surviving long

a) Number of establishments starting operations rising strongly since 2015



Source: Calculations based on various Establishment census (2017, 2021).

b) Share of establishments surviving between 2020 and 2017 sharply declining. (percent)



Source: Calculations based on various Establishment census (2017, 2021).

36.9 percent. It has declined sharply since 2012 (Figure 2.7b), suggesting that most of the created establishments did not have strong profitability or relied on poor marketing studies.

2.3. Constraints on the development of firms

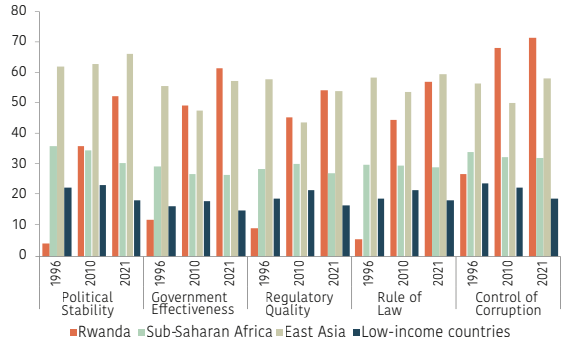
Private firms in Rwanda face significant challenges. While the government has made progress in improving the investment climate, as reflected by the country's rise in the Doing Business Index, key regulatory and institutional obstacles persist. Firm surveys highlight limited access to finance, high taxes, and a shortage of skilled workers. Formal and informal sector firms face distinct constraints. Further progress is needed to promote competition by removing barriers to firm entry and growth, enforcing anti-competitive laws more effectively, and reducing state-owned enterprises' participation in competitive markets. Improving the insolvency framework is also critical to increase recovery rates, encourage risk-taking, and improve resource allocation. Low domestic savings, with only a limited share passing through formal financial institutions, restrict firms' access to growth resources. While banking participation has increased, more adults save through informal institutions than banks, and few use long-term savings vehicles like pensions, insurance, retail bonds, or stocks. However, the growth of the Ejo Heza savings scheme presents a promising opportunity to enhance saving among low-income households.

2.3.1. Perception of obstacles to business in Rwanda by firms

2.3.1.1. Rwanda: A champion in promoting the private sector

The Government of Rwanda has implemented a series of reforms to enhance the investment climate and attract both domestic and foreign investors. Key reforms and future plans are outlined in Vision 2020 (now Vision 2050) and strategic frameworks like the Economic Development and Poverty Reduction Strategy (EDPRS) (2013–17) and NST-1. These initiatives include favorable policies such as corporate tax exemptions, duty-free import of inputs, no restrictions on foreign ownership, and one of the region's most open visa regimes (National Bank of Rwanda (NBR), 2023). Rwanda has also focused on investment facilitation and protection, offering a one-stop shop for business registration, environmental compliance, and access to investment incentives. This approach aligns with best practices recognized by UNCTAD, the OECD, and the World Bank. Governance improvements have further encouraged investment, with Rwanda achieving high scores in key areas of the World Bank's World Governance Indicators (WGI) over the past 20 years, including control of corruption, government effectiveness, political stability, regulatory quality, and the rule of law (Figure 2.8). Importantly, this makes Rwanda a regional outlier, closer to the values recorded by East Asian countries. Over the same time span the SSA region did not improve accordingly.

Figure 2.8: Percentile rank (0 to 100), selected governance indicators, Rwanda and SSA average



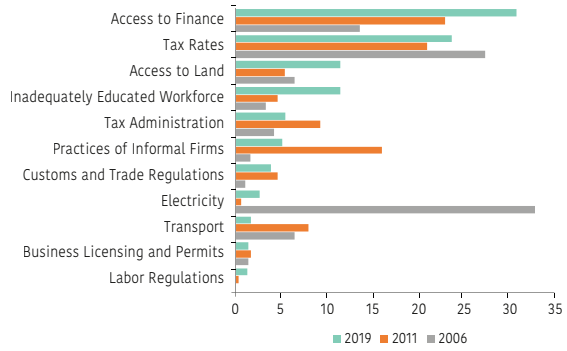
Source: Calculations based on World Governance Indicators (WGI)

It is therefore not surprising that in the annual Foreign Private Capital (FPC) conducted by the National Bank of Rwanda, foreign investors in Rwanda report a favorable opinion about several dimensions related to doing business in the country. The most recent census (National Bank of Rwanda (NBR), 2023) shows an overall high level of satisfaction by foreign firms, especially in relation to specific dimensions such as the legal framework (almost 90 percent report satisfaction), governance (82.7 percent) and tax incentives and the investment framework (81.6 percent).

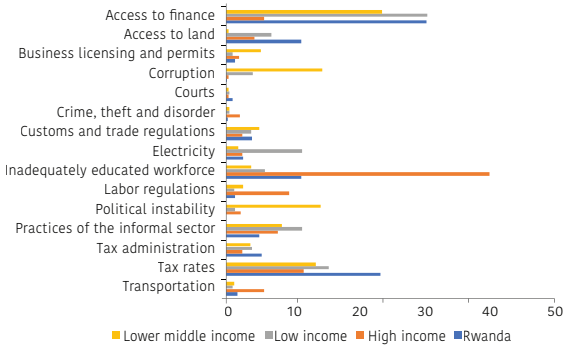
Nevertheless, firms cite a few areas that remain significant obstacles to their operations. Access to finance is mentioned by about 30 percent of firms as a major constraint in 2019, double the share of firms in 2006 (Figure 2.9); an equal share of firms include access to finance as a major obstacle in low-income countries, on average. As might be expected, a large share of smaller firms experience access to finance as a major constraint, while this is mentioned by only about 12 percent of larger firms (Figure 2.9). A significant share of firms mentioned tax rates as a major problem in 2006, 2011, and 2019. About half of large firms (more than 100 employees) found it difficult to hire workers with sufficient skills, while this was not a frequently mentioned constraint by smaller firms, as many of these are involved in low-productivity activities that do not require high levels of skill. On a brighter note, electricity was cited by around 35 percent of firms in 2006 as an important obstacle to business, but by less than five percent in 2019, reflecting the government major investments in electricity infrastructure.

Figure 2.9: Rwanda's doing business

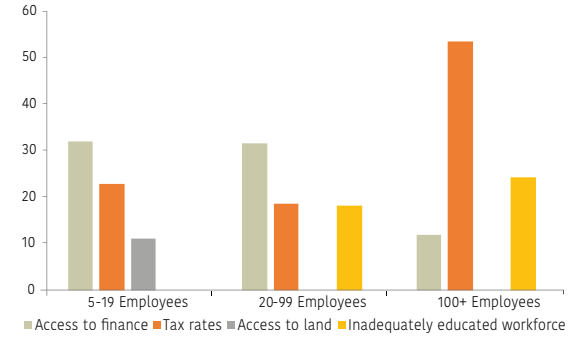
a) Rwanda: Top Obstacles to Doing Business in 2006–19



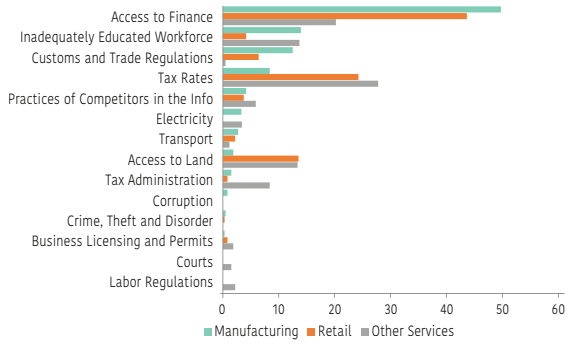
b) Rwanda as Comparators: Top Obstacles to Doing Business in 2019



c) Rwanda: Top Obstacles to Doing Business by enterprise's size in 2019



d) Rwanda: Top Obstacles to Doing Business by main sectors in 2019



Source: Calculations based on Rwanda's Labor Force Survey (RLFS) in 2016–22.

Perceptions of the major challenges in the business environment vary considerably between formal and informal firms. According to the latest Rwanda Integrated Business Enterprise Survey (IBES), the top challenges faced by formal firms have to do with factors of production (inputs, land, finance, skills), as well as sales and transport costs. Informal enterprises are generally preoccupied with accessing affordable finance, water, and working space. Exporters claim that the main barriers to growth are market intelligence, financing, and transport constraints.

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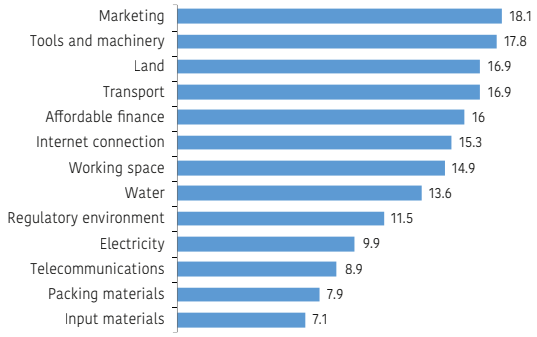
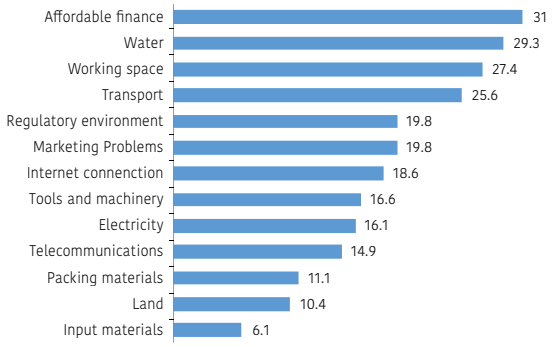
Rwanda's infrastructure investment gap largely stems from transport, electricity, and telecoms. Rwanda's medium-term plan (jointly prepared with the support of the African Development Bank, AfDB) suggests that the country needs a total investment of 7.7 percent of GDP per year in the transport sector between 2019–24 to meet the sector's medium-term goals, or 6.81 percent of GDP higher than the 2017–19 average (this difference is referred to as the 'investment gap').[6] According to the Oxford Economics estimates,[7] Rwanda needs to invest through 2040 a minimum of 1.36 percent of GDP per year in transport, or 0.51 percent of GDP higher than in 2017–19, to meet Sustainable Development Goal (SDG) targets (Figure 2.12). Similarly, investment needs in the ICT sector to meet SDG exceed the 2017–19 average by 4.2 percent of GDP through 2040. Finally, despite heavy private investment in the sector, the energy investment gap to meet SDG equals 1.86 percent through 2040. Figure 2.12 lays out infrastructure investment needs up to 2040, delineated by sector, as a percentage of GDP.

Figure 2.10: Overall ranking of perceptions of business factors by difficulty

a) Formal enterprises

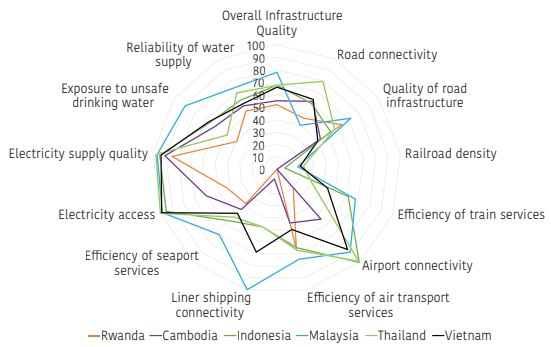


b) Informal enterprises



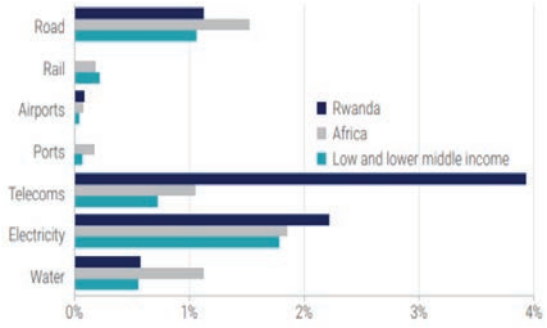
Source: Calculations based on IBES 2019–21 (National Institute of Statistics of Rwanda (NISR), 2023).

Figure 2.11: Key infrastructure: Margin of improvement for Rwanda



Source: Calculations based on data from Oxford Economics.

Figure 2.12: Large infrastructure investment needs for Rwanda going forward



Source: Calculations based on data from Oxford Economics estimates.

2.3.1.2. Improvements needed in competition, insolvency, and state enterprise sector

Further improvements are necessary in three areas that are difficult to get at through a survey of firms, including: constraints on competition, the insolvency framework, and the impact of Rwanda's large state footprint in markets.

First, the landscape for private enterprises and investors in Rwanda is characterized by the relative weight of incumbent firms and persisting barriers to entry and expansion across economic sectors. Regulations that restrict competition and risks of anticompetitive practices affect market functioning, and have an impact on productivity, competitiveness, and private investment. (Pop, et al., 2017). In Rwanda, operational risks related to unfair competitive practices and vested interests are relatively high (3 out of a maximum of 4), among the highest legal and regulatory risks in the country and without any improvement in the last four years.[8] Furthermore, Rwanda scores only 5 out of 10 in the development of fundamentals for a market-based economy, according to the BTI Transformation Index for 2022. ICT, finance and agriculture are examples of sectors where more pro-competitive regulation could support sector development (see section 2.6.6, Box 2.5 and section 5.4.1, respectively). Vision 2050's priority of attracting and sustaining high private investment for economic transformation requires competitive and contestable markets where enterprises can enter and compete on a level playing field. The Rwanda Inspectorate, Competition and Consumer Protection Authority (RICA) established in 2017 (Law no. 31/2017) initiated operations only in 2020, and implementation of the competition law has been almost inexistent. The new Competition and Consumer Protection Policy 2023 provides direction to enforce competition law more effectively, integrate competition principles in government regulations and policies, and recognize the importance of allocating appropriate resources for operationalization. Nonetheless, technical resources for effective implementation and effective interinstitutional collaboration are needed.

Second, a complex and not fully implemented insolvency framework impairs the willingness of investors, banks, companies, and entrepreneurs to take risks and invest in growth. The 2020 Doing Business Report stated that the recovery rate for insolvency in Rwanda was estimated in 2020 to be only 19.3 cents on the dollar, compared to 32 cents in Kenya, over 40 cents in Uganda, and 70 cents for the Organization for Economic Cooperation and Development (OECD) high-income average.[9] Further, a weak insolvency framework creates the risk that more drastic and costlier action will be needed if non-performing loans (NPLs) and insolvency filings increase after withdrawal of COVID-19 support. Efficient and effective insolvency frameworks promote the quick exit of non-viable firms, facilitate the survival of distressed but viable firms, reduce the likelihood of the liquidation of profitable businesses, and increase recovery rates and return to creditors. Reforming insolvency regimes can materially improve outcomes for firms by: (i) lowering the cost of credit; (ii) increasing the availability of credit; (iii) increasing returns to creditors; (iv) supporting job preservation through reorganization; and (v) promoting entrepreneurship (Menezes, 2014).

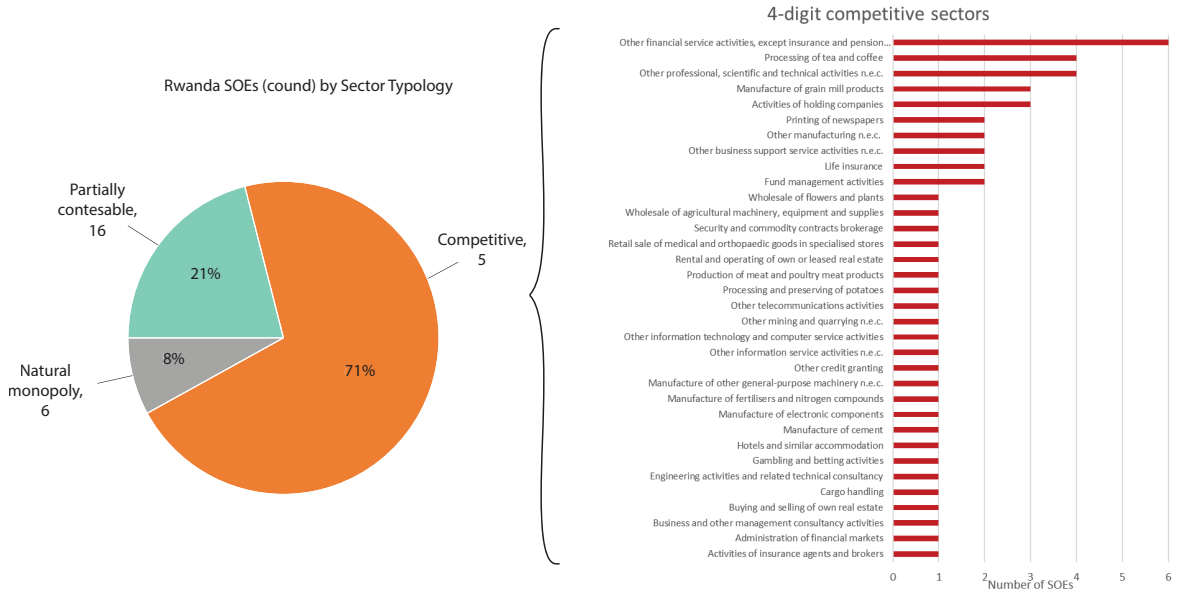
Third, private sector firms competing with partially or fully state-owned enterprises underscores the need to ensure a level playing field. Progress in refocusing the role of the state in the economy to crowd in private investment has been slow, while opportunities to improve allocative efficiency by removing direct or indirect advantages to SOEs remain—for example in ICT monopoly rights for 4G spectrum were granted to Korea Telekom Rwanda Networks, it took ten years to eliminate the monopoly and now pro-competitive spectrum regulations are still pending. Internationally, empirical evidence points to potential risks to business dynamism (i.e., entry, exit, investment, and growth) when the State intervenes in the market (Box 2.1), especially in markets that generally have limited market failures.

Rwanda's State-Owned Enterprises (SOE) landscape comprises enterprises with full government ownership (State-Owned Companies, SOCs, as defined by Rwanda's legal framework) as well as those with partial (majority and minority) government ownership. Based on an analysis of a sample of 76 Rwandan SOEs, 71 percent of SOEs in Rwanda operate in sectors classified as competitive based on industry characteristics, where now private sector operates and the rationale for SOEs is

less obvious (Figure 2.13). An additional one fifth of SOEs operate in partially contestable sectors. These sectors differ from natural monopoly sectors (such as electricity distribution and transmission) in that it is viable for more than one firm to operate although externalities and market power issues need to be addressed through appropriate regulation (Dall'Olio, et al., 2023). Together, SOEs in competitive and partially contestable sectors account for over 90 percent of state business activity, when measured by number of firms. Although the presence of enterprises with state shareholdings might have been justified at the time of their creation, there has not been a systematic and periodic reassessment of the need to retain these SOEs neither a clear framework to assess the expansion or creation of SOEs vis-à-vis other alternative government interventions. The presence in competitive sectors – such as manufacturing and construction – can pose risks for private sector development, especially if the market conditions, SOE governance, and regulations do not ensure a level playing field between them and private peers. Therefore, a thorough assessment is advisable considering the particular characteristics of the Rwandan economy.

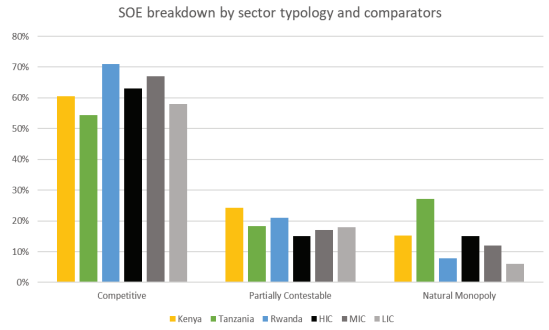
Activities in sectors classified as competitive are largely concentrated in agribusiness, followed by the ICT sector, both of which face regulatory challenges. Relative to regional comparators, Rwanda stands out with proportion of SOEs in competitive sectors (71 percent) exceeding the LIC average of 58 percent as well as Kenya's (60 percent) and Tanzania (54 percent). On the other hand, SOE activities are concentrated in fewer sectors, compared to other countries such as Tanzania where SOEs operate across 76 percent of competitive sectors. Agri-business SOEs (SOCs and enterprises with majority or minority state shareholdings) span a number of stages in the value chain, including inputs, processing, milling, and machinery supply. There are concerns about distortions to the level playing field or weak enabling regulations in agriculture input markets as well as in mobile communications, affecting technology adoption and productivity.[10] Evaluating the role of the state in specific sectors—such as agri-business and ICT—and considering complementary regulatory reforms to ensure competitive neutrality, improved governance of SOEs, and enablers for private sector participation would be most effective to achieve public policy objectives.

Figure 2.13: Composition of SOEs in Rwanda by sector typology



Source: Ministry of Public Investments and Privatization (July 2023) and World Bank desk research.
Note: SOE presence and firm count based on information collected using Orbis, information provided by MININVEST and publicly available data as of 22 September 2023.SOE list includes funds, namely Agaciro Development Fund Corporate Trust Ltd, Africa 50 Project Development, and Africa 50 Project Finance.

Figure 2.14: Comparison of Business of the State (BOS) presence in Rwanda and other countries



Source: Calculations based World Bank, Business of the State (BOS) database; Ministry of Public Investments and Privatization (July 2023)
Note: Figure does not report BOS operating in unknown sectors. For Rwanda, BOS presence and firm count considers information shared by MININVEST in July 2023 and additional information collected using Orbis and publicly available data as of 22 September 2023. Information for other countries is as of December 2019. The Business of the State dataset tracks all corporations where national or subnational governments have an ownership stake of at least 10 percent, either directly or indirectly. SOE list includes funds, namely Agaciro Development Fund Corporate Trust Ltd, Africa 50 Project Development, and Africa 50 Project Finance.

Since 2006, the Government of Rwanda has worked to privatize SOEs, reduce its non-controlling shares in private enterprises, and attract FDI, particularly in ICT, tourism, banking, and agriculture; however, a more comprehensive strategy is still needed. A more detailed assessment of the role of the commercial role of the State and the competitive neutrality of SOEs in different sectors will be needed to accelerate the implementation of a reform agenda that includes crowding in private sector through different mechanisms (Box 2.1), rules on the creation of SOEs, improving the governance of SOEs where the government retains ownership (see section 7.4.3), and creating a legal framework and oversight mechanisms that secure transparency and effectiveness of SOEs. The Presidential Order that sets rules on the creation and management of SOEs with full state ownership is a first step, but more detailed guidelines and implementation is needed. These reforms are expected to boost private sector investment and business dynamism and productivity as well (Box 2.1).

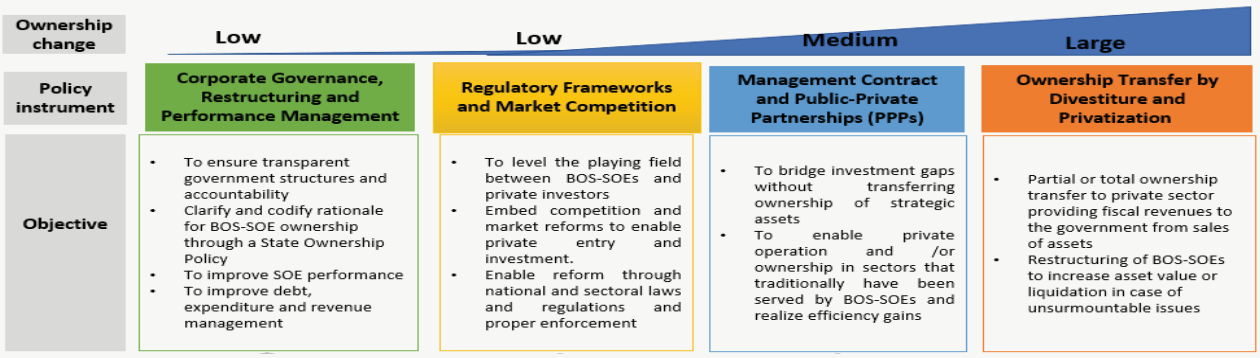
BOX 2.1: Reforming SOEs to crowd in private sector and achieve development impact

State ownership can impact firms' dynamism, which can restrain productivity in the longer term. New evidence from the World Bank' Business of the State report (World Bank (a), 2023) for Ecuador, Brazil, Vietnam, Türkiye, and Romania shows that state ownership can hinder private entry, impair the reallocation of resources across firms, and hasten exit of private firms, with larger effects for competitive sectors where the economic rationale of state ownership is less clear. Furthermore, higher state presence in a sector is associated with higher market concentration and lower rates of entry, while there is no systematic association between greater state presence as catalyst for new private investment.

Reducing the state footprint in markets can take different forms beyond privatization to promote private sector-led growth and requires complementary actions. Options for reform should be tailored to the type of sector where SOEs operate, their financial performance, and the need to ensure proper market incentives and discipline. Ownership changes are neither necessary nor a sufficient solution to achieve more dynamic private sector-led growth (World Bank, 2023 (b)). It is critical to ensure the pre-conditions are in place for achieving impactful results of the reforms, such as i) open markets for private sector participation and enabling conditions to entry, ii) level playing field by removing potential rules that provide subsidies or below-market prices for inputs or services compared to private peers, and iii) market discipline by making SOEs subject to the same rules and enforcement as private counterparts. Furthermore, international experience indicates that SOE reforms are most likely to gain traction and yield tangible outcomes when packaged with other reforms. These include fiscal rules to limit direct off lending of funds to SOEs, credit guarantees, and other special concessions and privileges to SOEs, as well as rules to ensure social safety nets for employees of SOEs.

Multiple policy instruments can be deployed to prioritize sectors for reform and foster growth in markets where the state is present. Reform options can range from a diverse set of instruments such as corporate governance and restructuring, management and service contracts, regulatory reforms to embed competitive neutrality, to PPPs and full divestiture that can change the ownership structure (Figure 2.15). Loss-making SOEs in competitive sectors can be suitable for liquidation, while financially healthy SOEs in competitive sectors can be viable for divestiture. PPPs and management contracts are another solution for SOEs in partially contestable sectors, in which there are some market failures that justify state ownership (e.g., air transport services), while improving performance, investment, and service delivery transferring the management to the private sector. Furthermore, when SOEs in natural monopoly sectors such as utilities remain under state ownership, sectors can improve by bringing discipline through an independent regulator that enforces price controls and monitors service delivery.

Figure 2.15: Policy instruments and mechanisms for reforms with state footprint



Source: World Bank Group (2023)

SOE reforms can deliver benefits in terms of investments as well as productivity. Ethiopia, Pakistan, Korea, and Uzbekistan created varying forms of central oversight bodies and performance monitoring systems for SOEs. Positive outcomes from these measures include boosting foreign investment in Uzbekistan (test privatizations such as the sale of Coca Cola Ichimligi Uzbekistan Ltd. attracted substantial foreign investor interest), dampening fiscal risks posed by SOE debt in Pakistan and Ethiopia (transfer of ETB$400 billion in SOE debts to Liabilities and Asset Management Corporation (LAMC)), and enhanced SOE performance in Korea. In China, privatization in the 2000's led to increased economic efficiency through improved labor and capital productivity. In the power sector, for example, labor productivity increased by 21 percent and net profit margin rate increased by 7.1 percentage points (AIIB AIF, 2022). More broadly, SOE reforms between 1998 and 2007 are estimated to account for 20 percent of total factor productivity growth (AIIB AIF, 2002). In Indonesia, recent changes to centralizing SOEs into holding companies have shown mixed results, however a 2012 study on Indonesia's partial privatization between 1991–2007 found positive long-term impacts on productivity and profitability, despite a short term dip (Nahadi and Suzuki, 2012). The SOE monitoring system developed in Korea played a role in selection of firms for privatization, yielding positive fiscal results through buttressing government revenues (24.3 trillion South Korean Won) and foreign reserves (10.7 billion USD) resulting from the privatization of eight SOEs (World Bank (c), 2023).

Sources: Asian Infrastructure Investment Bank (2022) AIIB AIF Report—Moonshots for the Emerging World- Building State Capacity and Mobilizing the Private Sector Toward Net Zero.; World Bank (a) (2023, forthcoming). Businesses of the State (BOS) and private sector development: A policy toolkit for practitioners; World Bank (b) (2023, forthcoming). Businesses of the State (BOS); World Bank (c) (2023) Soh, Hoon Sahib, Youngsun Koh, and Anwar Aridi, eds. Innovative Korea: Leveraging Innovation and Technology for Development. World Bank Publications, 2023; Nahadi, Bin, and Yasushi Suzuki. "Partial privatization and performance of privatized SOES: The evidence from Indonesia." Journal of Economics and Sustainable Development 3.14 (2012): 98-109; Graham, Edward M. "World Investment Report 2000: Cross-border Mergers and Acquisitions and Development (Book Reviews)." Transnational Corporations 10.1 (2001): 139-146.

2.3.3. Access to finance: Boosting savings to ease access to finance

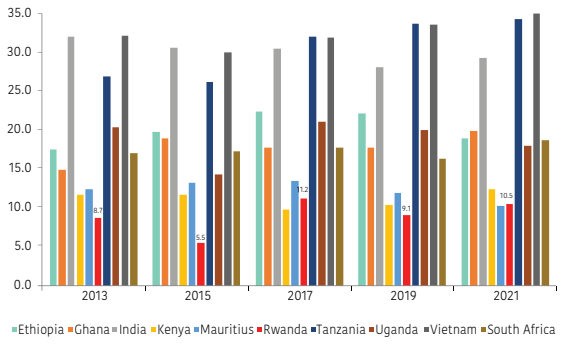
The financial system in Rwanda has grown considerably, is relatively diversified, but remains concentrated. As of December 2022, the financial sector assets were equivalent to 64.9 percent of GDP, up from 33.8 percent in 2010, compared to an average of 58 percent in Sub-Saharan Africa (European Investment Bank (EIB), 2018). Banks accounted for 67.3 percent of total financial sector assets, while non-bank financial institutions (NBFIs) constituted 32.7 percent of total assets of the financial sector. The pension sector represented 16.6 percent of assets, 95 percent of which in the public scheme (RSSB), 9.3 percent in the insurance sector, and 5.7 percent for microfinance institutions (MFIs) and SACCOs.[11] MFIs and SACCOs displayed a broad-based expansion, serving largely the rural population and the agriculture sector—playing a complementary role to banks in the provision of financial services. Although still nascent, the pension sector reform led to emergence of private pensions since 2015. The rapid growth of mobile money is a notable development, which is positively contributing to closing the gap in financial inclusion. In addition to formal institutions, informal savings groups (unregulated) play a significant role in rural areas (Access to Finance Rwanda, 2020).

Despite significant improvements in the depth of the financial system, credit penetration remains relatively shallow, with local firms heavily underfinanced. According to a 2021 report by the World Bank, only 17 percent of Rwandan firms have access to formal credit, and the average

interest rate on loans is 20 percent. Thirty percent of informal enterprises and 16 percent of formal firms, respectively, consider access to finance their biggest challenge. There are only a few commercial banks in Rwanda, and they are relatively small and rely on short-term resources. This significant reliance on short-term deposits limits the ability of both banks and MFIs to provide longer-term financing, which is critical to finance growth. The lack of competition results in high cost of credit, with an average lending rate of 16 percent, reflecting low domestic savings, public sector demand for credit, the banking sector's fragmentation and inefficiencies, as well as the small size of the market that makes it difficult for banks to obtain gains from economies of scale. Rwanda's shallow capital markets further limit access to long-term finance and raises its cost. This lack of financing limits the ability of businesses to expand operations through strategic investments. Robust financial systems boost productivity in an economy as they increase the efficiency of resource allocation by enhancing the quality of information about firms, exerting sound corporate governance over the firms to which they mobilized their resources, providing effective mechanisms to manage, pool, and diversify risks, mobilizing savings to the most promising projects in the economy, and facilitating trade.

The low level of savings in Rwanda constrains development. In 2021, gross domestic savings equaled 10.5 percent of GDP, the lowest level in a group of SSA comparators (Figure 2.16). The low level of domestic savings reduces the pool of financial resources available to firms, an important reason that many firms, particularly SMEs, cite limited access to finance as a major constraint on their operations (see above). However, small

Figure 2.16: Gross domestic savings as percent of GDP. country comparison



Source: Calculations based on WDI datasets.

developing countries like Rwanda should use foreign as well as domestic savings to finance investment, and Chapter 3 in particular delves into greeter detail on foreign direct investment. Rwanda has important strengths in savings mobilization, as well as significant opportunities for improvement.

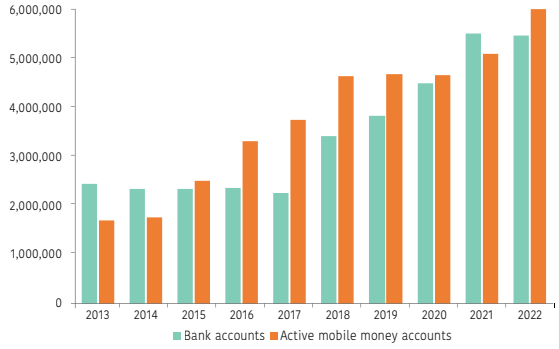
Paying the largest price of the underdeveloped financial sector in Rwanda, micro, small, and medium enterprises (MSME) fare very badly in terms of access to finance. According to a survey conducted as part of the 2021 Financial Sector Assessment Program, MSMEs received only 15 percent of total lending by banks in 2019, with micro-firms receiving only 1 percent. Yet, MSMEs represent over 99 percent of total establishments and employ 71 percent of establishment workers in Rwanda. Agriculture, a national priority sector accounting for 25 of GDP in 2022, received only 1 percent of total bank loans over the same period (National Bank of Rwanda (NBR), 2023). In fact, banks tend to focus on specific segments and sectors that are considered less risky, mostly retail and larger firms, and in urban areas, while the majority of MSMEs are micro and informal firms in rural areas. Fortunately, MFIs and SACCOs have been fundamental in enhancing access to finance for MSMEs in Rwanda. However, these institutions are limited to further advance financial inclusion for MSMEs due to their scale, fragmentation, governance, funding constraints, and lack of digitalization.

The challenges of financing MSMEs emerge from both the demand side and the supply side. The engagement of financial institutions with MSMEs faces a wide range of challenges emerging from the demand side, including: (i) higher credit risk than larger firms; (ii) poor quality of financial statements (when available); (iii) high degree of informality in their business operations; (iv) lack of hard collateral required by lenders; (v) deficiencies in business planning capacity that limits their ability to manage risks; and (vi) limited financial literacy. There are also several inter-related supply-side challenges that limit the provision of credit to MSMEs, including the low degree of automation of processes in financial institutions' credit decisions. In fact, the lack of automation, and digitalization may hinder the pricing of risk across financial institutions. One of the possible reasons behind

lenders' lack of automation of processes in credit decisions includes persistent data availability and data quality issues. Importantly, despite a solid foundation for the credit information system, some deficiencies remain and pose a challenge for lenders. These deficiencies in the supply side hinder the capacity of financial institutions to serve riskier segments, such as MSMEs.

Financial inclusion has increased. In order to mobilize savings, populations must be financially included. The recent data in Rwanda shows that there is strong progress on this front. Specifically, the rate of financial inclusion rose to 93 percent in 2020, with the rate of access only through informal mechanisms falling from 21 percent to 16 percent of those included. The number of bank accounts and mobile money accounts has also been steadily increasing (see Figure 2.17).

Figure 2.17: Number of bank accounts and active mobile money accounts



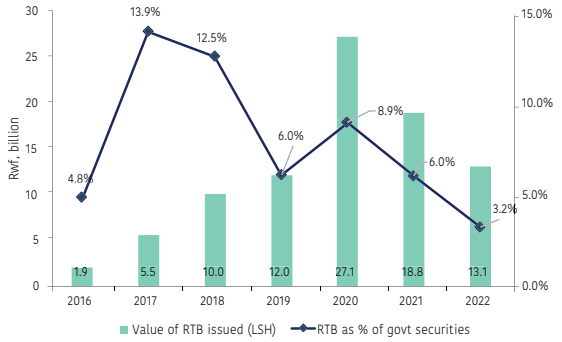
Source: Calculations based on BNR database

Recent developments in savings behavior in Rwanda have been mixed. Rising financial inclusion has been accompanied by an increased share of adults using banks as savings vehicles (from 13 percent in 2016 to 21 percent in 2020), while the percentage of adults who save at home as opposed to in formal or informal financial institutions dropped from 10 percent in 2016 to 2 percent in 2020. However, 29 percent use informal savings products, and a third lack savings products from a commercial bank but rely on other formal, non-bank savings products (they may also have/use informal savings mechanisms and/or save at home), or considerably more than use banks. The share that do not save at all remained at 14 percent in 2020, or equal to the share in 2016. In short, a significant share of the population does not save at all, and of those that do, more rely on informal savings vehicles than rely on banks.

Formal, long-term savings vehicles are little used in Rwanda:

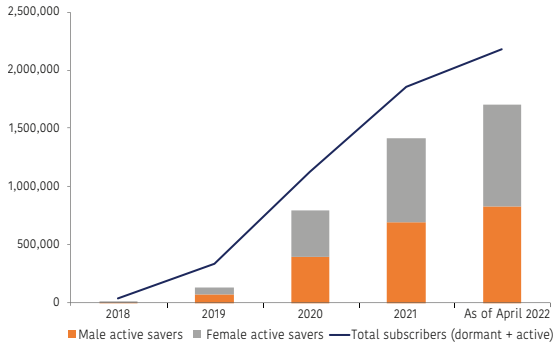
- Pensions. According to Finscope data, only 13 percent of Rwandans had a private pension in 2020, up only 2 ppts from 2016. The pension system in Rwanda, as in many countries in SSA, is characterized by low assets under management, investment in short-term assets (mainly government securities), low returns on investment, and a restrictive regulatory framework. Based on these conditions, Rwanda will need to move towards a targeted universal pension system financed through public resources, although the shift to such a system should be gradual so as not to lead to fiscal strain.
- Insurance. Insurance uptake almost doubled from 507,220 in 2016 to 927 937 in 2020 but equaled only 17 percent of the population. The main barriers to uptake, according to a nationally representative study in Rwanda, are affordability and lack of awareness. The main growth is in life insurance and household insurance, while the main decline is in medical insurance. Rwanda's insurance sector is not very developed. Total premiums paid equal 1.6 percent of GDP, compared to a global average of 6.1 percent in 2019. The markets for both life and non-life insurance are highly concentrated (Herfindahl-Hirschman Indices much higher than in Ghana, Nigeria and Kenya, 45 percent higher than natural levels for life, and double the natural level for non-life), indicating limited competition. Moreover, an index of profitability and financial health (referred to a combined ratio), which should be 75-90 percent, exceeds 100 percent, indicating low profitability.
- Retail bonds. Retail bonds increased steadily from 2016–20 in terms of value and as a share of government securities, reaching 37.1 billion Rwf and 8.9 percent, respectively, in 2020 (Figure 2.18). However, both measurements fell during the COVID-19 epidemic.

Figure 2.18: Retail bonds as a percentage of government securities



Source: Calculations based on BNR, World Bank, International Debt Management Symposium, 2022.

Figure 2.19: Ejo Heza participation, 2018–22



Source: Calculations based on Ejo Heza Policy Reports

- Ejo Heza long-term savings scheme. Ejo Heza, a government defined contribution savings plan, has achieved coverage of 27 percent of the working age population in the four years since establishment in 2017. Many participants are from low-income households, informal sector workers comprise 87 percent of savers, and 49 percent of the subscribers are females, compared to only 32 percent of total contributors in the RSSB formal sector scheme.

2.3.4. Development of skills

An inadequately educated workforce is a key obstacle faced by firms in Rwanda. In the World Bank Enterprise Survey (WBES) conducted in 2020, 34 percent of surveyed firms (360 in total) mentioned inadequate education as a challenge. Skills gaps noted in the survey include: i) technical, vocational, job specific skills, ii) foreign languages, iii) interpersonal and communication, iv) problem solving and critical thinking, v) management and leadership, and vi) IT and computer skills. The level of education is lower than in most other countries in the region. Efforts are underway by tRwanda, World Bank, and other development partners to expand the capacity of the post-secondary and tertiary education ecosystem to respond to these gaps, including through curriculum revisions targeting priority economic sectors and competence based training, retooling of faculty and trainers, enhancing industry-academia linkages, expanding critical infrastructure including training equipment, and expanding opportunities for practical based learning, including structured internships and apprenticeships.

Only a small share of the labor force has completed more than primary education. Around 47.1 percent of Rwandan workers have not completed any formal education and 30.3 percent have completed only primary education. Thus, only 22.6 percent of workers have graduated from secondary school or above, one of the lowest levels of education seen in the region. As per 2021 data from the United Nations Educational, Scientific and Cultural Organization (UNESCO), gross tertiary school enrollment in Rwanda was 7 percent, below the regional and income group averages of 10 percent for SSA and 9 percent for low-income countries.

There may be some misalignment between education levels and the demand for skills. While university graduates have the lowest unemployment rate across educational groups (12.9 percent), unemployment rates are higher among individuals with a lower/upper secondary education (20.4 percent and 25.6 percent, respectively) than for individuals with lower levels of education (Table 2.1). This suggests that either the economy is creating more low skill jobs that are better served by those with no/limited education, or that secondary school achievement makes these individuals less willing to be under-employed and willing to wait for jobs more closely aligned with their sense of acceptable work.

TABLE 2.1: Population 16 years old and over by labor force status and level of educational attainment
February-23 (Q1).

Level of education	Total	Labor force status				Labor force participation rate (%)	Unemployment rate (%)
		Labor force	Employed	Unemployed	Outside labor force		
Population above 16	7,976,250	4,596,057	3,803,942	792,115	3,380,182	57.6	17.2
None	3,754,028	2,147,531	1,817,896	329,635	1,606,498	57.2	15.3
Primary	2,600,758	1,478,724	1,219,254	259,470	1122034	56.9	17.5
Lower secondary	715,797	286,348	227,849	58,499	429,449	40.0	20.4
Upper secondary	635,721	444,783	331,106	113,677	190,938	70.0	25.6
University	269,945	238,671	207,837	30,834	31,274	88.4	12.9

Source: Calculations based on NISR: Labor Force Survey Trends, 2023 (Q1), Feb. 2023.

There is evidence of considerable employer dissatisfaction with graduates of public universities. Evidence from tracer studies suggests that employment rates for post-graduation are around 40-60 percent for tertiary education in public institutions and vary by institution and program. For instance, a 2021 graduate employment survey of 363 students across the 8 public polytechnics showed an employment rate of 52.3 percent, of which 39.5 percent were in a permanent job. According to the National Skills Development and Employment Promotion Strategy (NSDEPS), employer satisfaction with regards to the relevance of the skills of TVET graduates is estimated at only 60 percent. In contrast, a private university such as Carnegie Mellon University in Kigali has 90-95 percent employment rates for graduates in technical roles. Analysis done by Carnegie Mellon University in Rwanda showed that the reasons employers hired their students included good communication, teamwork, and branding skills in addition to technical competencies.

Internships and work study arrangements face obstacles. Evidence from recent Rwanda Polytechnic (RP) tracer studies (Graduate Employment Survey, 2021) suggests such programs (also referred to as 'industrial attachments') are highly valued, but opportunities are limited and employers face implementation challenges. Only 9.5 percent of workers surveyed had completed an industrial attachment. Of the 80 companies surveyed for industrial attachments, 55 percent accommodated students for workplace learning but 33.8 percent faced the following challenges: interns do not understand workplace learning requirements; interns not interested or get tired easily; interns don't respect regulations; management of interns is hard; low capacity of interns to manage equipment; interns do not bring protective clothes; interns want to be placed in Kigali city; no insurance for damage caused by interns; and insufficient materials, equipment, infrastructure.

Skills development needs to adjust to changes in the demand for skills. Audits from across sectors in Rwanda (agriculture, energy, manufacturing, mining, urbanization, and meetings, incentives, conferences, and exhibitions, known as MICE) have indicated the need for major skills upgrading. Selection of priority economic sectors will be key to driving growth and employment in the medium to long run. An analysis of quantitative data along with a qualitative assessment of the strategic importance of specific economic sectors suggests that sectoral priorities for skills development include agriculture, forestry and fishing; manufacturing; transportation, logistics and storage; accommodation and food service; ICT, finance and insurance, and professional, scientific and technology related services; and health and education.

2.4. Firm innovation and ICT services

Only a small and rapidly declining share of firms undertake innovation in Rwanda. Firms' managerial and technological capabilities are poor, and indicators of innovation are not that different from the average for low-income countries. Rwanda performance in indicators of access to and efficiency of Internet service are mixed. The national Internet network covers most of the country, a

diverse set of approaches are used to access the global Internet, many firms own an e-commerce website, and broadband speeds are the highest on the Continent. On the other hand, broadband adoption lags regional peers and Internet usage in rural areas lags far behind that in urban areas.

2.4.1. Innovation indicators

Rwanda's performance on innovation indicators is poor. The percentage of establishments in Rwanda that engage in product innovation, process innovation, and ISO certification declined from 58, 83, and 11 percent in 2011 to 15, 7, and 3 percent in 2019, respectively. Given the rapid deterioration in technological progress, Rwanda compares poorly regionally and globally. For example, in 2019, only 15 percent of firms had introduced a new or significantly improved product or service during the last three years, which places Rwanda in the 14th percentile of countries with a rank of 103 out of 120 (World Bank, 2022). While the Government of Rwanda has provided substantial financial support to help firms enhance the skills of their workers, it will require further efforts to incentivize innovation through R&D and address persisting skill gaps.

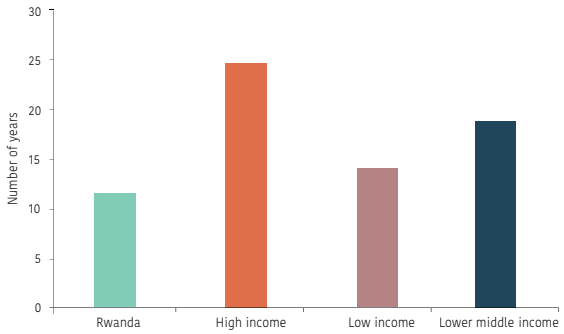
Managerial and technology adoption capabilities are poor, which limits the overall potential of firms to reach their optimal scale. Good management practices can help businesses navigate sourcing constraints which influence production decisions and productivity outcomes. Differences in management practices account for about 30 percent of total factor productivity differences both between countries and within countries (Bloom et al., 2020). One indicator of innovation, the average number of years of experience of top managers, is lower in Rwanda than the average for low-income countries (Figure 2.20a), while lagging behind many comparators in firm's innovation indicators in 2010–20 (Figure 2.20b). In 2019, R&D spending as a share of GDP was only slightly above the average for low-income countries. Since spending on R&D is essential to introducing a new product (service) or a new process innovation, Rwanda's firms reported levels for both indicators similar to those for low-income countries. The COVID-19 pandemic has highlighted the urgent need for digital and other innovations to build more resilient systems for a healthier society and more sustainable economy. More investments from public and private and institutional investors, and an appropriate legal/regulatory framework, are needed to stimulate this innovation. The October 2022 legislation on the Protection of Personal Data and Privacy is an essential step in developing an innovation-driven economy that preserves the trust and privacy of its citizens.

2.4.2. ICT services

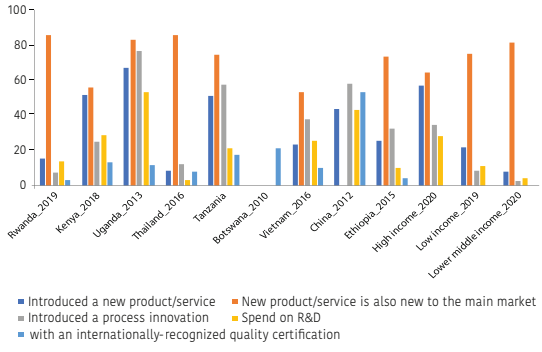
Increasing access to ICT services powered by digital technologies is critical to long-term economic growth and job creation.[12] In its Digital Africa flagship report, the World Bank finds that internet availability has a positive impact on creating jobs, including for lower-skilled labor. For example, in Nigeria, labor force participation and wage employment increased by 3 and 1 ppts, respectively, after three or more years of exposure in areas with internet availability. In Tanzania, working-age individuals living in areas with internet availability witnessed increases of 8 ppts in labor force

Figure 2.20: Rwanda 's innovation and management practices to make further progress

a) Rwanda Vs comparators: years of top manager's experience 2019–20.



b) Rwanda Vs comparators: Firm's Innovation Indicators 2010–20.



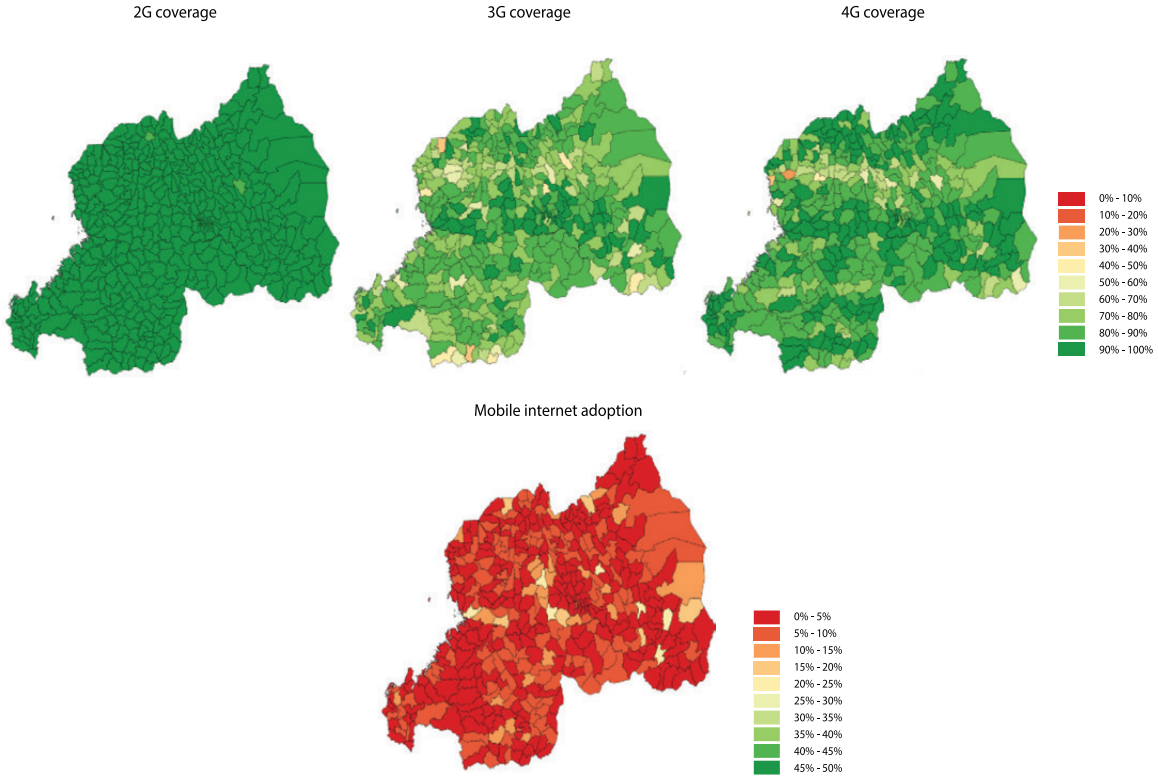
Source: Calculations based on WBES

participation and 4 ppts in wage employment, after three years of exposure. However, to unlock these economic gains there needs to be a focus on productive usage (Tania, Blimpo, & Dutz, 2023).

Data play a central role in the digital economy and have the potential to significantly impact Rwanda's development by generating economic and social value. Data collected by governments to serve the public good (public intent data) hold great potential for designing, executing, and evaluating public programs and policy, whereas data collected and curated by the private sector for commercial purposes also hold great potential to spur development. Innovations in the use and application of data by businesses are creating tremendous economic value by enhancing data-driven decision-making and reducing transaction costs. Increasing access to more users through strengthening data governance, open data, interoperability standards and data sharing initiatives, for example, increases the potential of using data for positive development impacts (World Bank, 2021).

Rwanda fares well in terms of network coverage. The Government of Rwanda made large-scale backbone network investments 15 years ago through a public private partnership (PPP) to support the deployment of 3,000 kilometers of fiber with Korea Telecom. This open access national backbone infrastructure (NBI) is based on a resilient network typology, covering all 30 districts, and consists of some nine cross-border links to neighboring countries' terrestrial networks, as well as a metro fiber ring in Kigali (UN-OHRLLS, 2017).[13] Given Rwanda's high population density and compact size, most of the population now lives within closer proximity of the backbone transmission network than those in many other East African nations, which is a distinct advantage (International Telecommunication Union, ITU, 2024). These investments have facilitated the deployment of access networks that connect end-users, ensuring near universal mobile broadband network coverage in Rwanda and improvements to network speeds (see below). Today, 3G and 4G broadband network coverage rates stand at 93 and 97 percent respectively, compared with a regional average of just 76 percent (Map 2.1).

Map 2.1: Network coverage for mobile broadband versus adoption (2020)

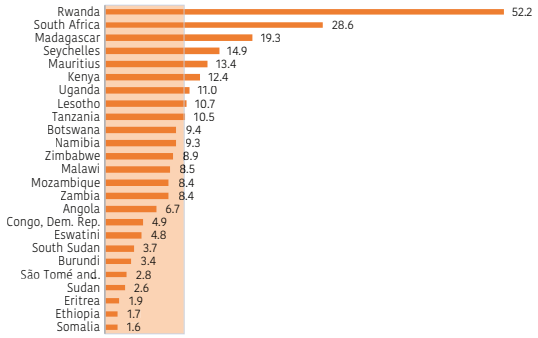


Source: GSMA analysis of data sourced from mobile operators, GSMA Intelligence, UN, World Pop, CIESIN, Gallup World Poll, Integrated Household Living Conditions Survey 5 and Earth Observations Group (VIIRS Nighttime Lights). Adoption is calculated based on the number of unique mobile (internet) users relative to total population. The model also presents adoption relative to populations aged 10 and above and 15 and above. However, given that some mobile users can be under these ages, total population is used as a basis for analysis.

Rwanda has several means of accessing the global Internet. Rwanda is connected to multiple international submarine cables such as EASSy and TEAMS, landing on Africa's coastline, that provide high-capacity internet connectivity, accessible through the terrestrial transmission networks of neighboring countries. Rwanda has established cross-border fiber connections with several neighboring countries, including Uganda, Tanzania, and the Democratic Republic of Congo (DRC), which enhance its access and regional connectivity. In addition to submarine cables and fiber optic networks, Rwanda also utilizes satellite connectivity to enhance direct access, particularly in remote or underserved areas where terrestrial infrastructure may be limited. At the end of 2022, the total equipped international internet bandwidth available in the country was 187,954 Mbps, whereas the average used internet bandwidth was 108,273 Mbps.

Rwanda has witnessed notable improvements in Internet speed over the years. Initiatives like the National backbone initiative (NBI) as well as infrastructure development by the mobile network operators (MNOs) and some internet service providers (ISPs), have enabled faster data transmission. As a result, the average internet speeds have increased, particularly in urban areas, allowing for smoother browsing, faster downloads, and improved online experiences. According to cable.co.uk, Rwanda ranked 1st in Africa in 2022 in terms of average broadband download speeds. Rwanda registered speeds of 52.2 Mbps, well ahead of second-place South Africa's 28.6 Mbps.[14] (Figure 2.21). This helps explain why Rwanda ranks 11th in Africa and 101st out of 131 countries globally, in the 2022 Network Readiness Index that measures the degree of readiness of countries to exploit opportunities offered by ICT.[15]

Figure 2.21: Average broadband download speed (Mbps), AFE, 2022

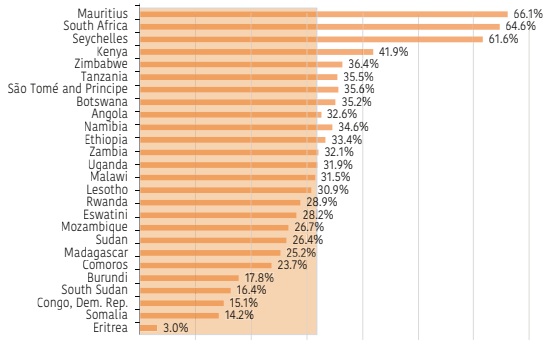


Source: Cable.co.uk (https://www.cable.co.uk/broadband/speed/worldwide-speed-league/).

Conversely, Rwanda lags on broadband adoption by both individual consumers and businesses. Most users in Rwanda connect via a mobile broadband subscription. However, the overall broadband adoption rate remains low. As of early 2023, there were only 49,501 active fixed broadband subscribers (equivalent to a 0.37 percent penetration rate). 3G and 4G mobile broadband subscriptions were 2,756,978 and 347,715, respectively equivalent to a 23.3 percent mobile broadband penetration rate (RURA, 2023). Benchmarking, based on GSMA data from 2022, puts Rwanda's mobile broadband subscription rate at a slightly higher figure, yet shows that Rwanda is falling far behind its neighbors and peers in the region such as Kenya, Tanzania, Uganda, Malawi, Ethiopia, etc. (Figure 2.22). The key challenge in Rwanda is therefore to address the 'usage gap'—namely, connecting populations already covered. Weak digital adoption also extends to government, where many Ministries, Department and Agencies beyond Kigali and sector level still lack reliable access to broadband. The World Bank is currently looking to support development of the Government internal network, connecting more local government offices, hospitals, and schools.

Rwandan firms rank fairly high in website ownership compared to other SSA countries, although the increase in website ownership has slowed. In 2019, 42.6 percent of Rwandan establishments had their own website, 7th in the sample of 33 SSA countries with available WBES data (Figure 2.23). Note, however, that in many of the countries, data are not available for the latter half of the 2010s, which may lead to an overstatement of Rwanda's relative position. Website ownership in Rwanda increased

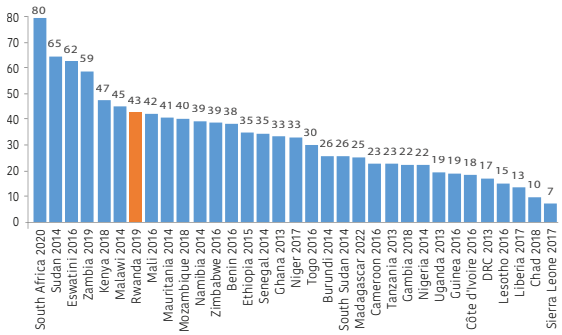
Figure 2.22: Benchmarking of regional mobile broadband adoption



Source: Mobile Broadband Capable Connections (GSMA) / SIMs Per Unique Subscriber (GSMA) / Total population. Graph below has been condensed and as a result excludes some countries.

substantially in all sectors from 2006 to 2011, but expansion slowed from 2011 to 2019 for most industries, with the exception of retailers.

Figure 2.23: Own website in Sub-Saharan Africa
(% of all firms)



Source: Calculations based on most recent WBES based on availability. Median sample weights for subpopulation used.

The 2022 Census in Rwanda reveals that there are very stark disparities in access to the Internet and usage of digital technologies between urban and rural areas. Urban areas in Rwanda, where networks are more developed, generally have better access and quality of services compared to rural areas. Internet service providers often prioritize urban centers due to higher population density and commercial viability. As a result, rural communities may have more limited or unreliable access to the internet, hindering their ability to access digital services. The Census also showed that 32.8 percent of the population in urban areas (aged 10 years and above) use the Internet, compared with only 6.2 percent in rural areas. 44.4 percent of residents in Kigali use the Internet—a much higher figure than in all other provinces, where usage ranged between 23-28 percent. Moreover, 83.9 percent of residents of Kigali owned a feature phone, compared with 51-56 percent in all the other provinces.

2.5. Boosting manufacturing to foster growth and employment in Rwanda

Rwanda's manufacturing sector is essential for productivity, job creation, and economic diversification, contributing around 10 percent of GDP and 5.5 percent of total employment in 2023. Despite high production costs and a small domestic market, initiatives like the Kigali Special Economic Zone and Made in Rwanda aim to support the sector, though results have been mixed. The Manufacture and Build to Recover Program (MBRP) launched in 2020 aims to attract investments and create over 42,000 jobs by 2025. The new industrial policy (2023–33) focuses on high-value goods and services and requires coordinated efforts across multiple ministries.

Enhancing Rwanda's Industrial Policy (IP) involves integrating green growth, aligning cross-cutting regulations with sector-specific strategies, and reducing export tariffs. Expanding the IP beyond priority sectors and tailoring interventions through strategic segmentation will improve effectiveness. Smooth implementation requires strengthened governance, prioritized interventions, and detailed resource allocation. Firm-level support should address sector-specific challenges, with government interventions focusing on productivity drivers and continuous industry analysis. Increasing access to serviced land and investing in shared infrastructure can reduce production costs and attract FDI, jobs, and exports.

Rwanda's food processing sector is set for growth, with domestic food demand expected to double to US$13 billion by 2040. The African Continental Free Trade Area (AfCFTA) offers significant market opportunities for processed foods, which made up 23 percent of Rwanda's merchandise trade in 2022. The services sector, now almost 50 percent of Rwanda's total value added, is vital for manufacturing productivity and industrialization. Successful integration of service sectors with manufacturing in countries like Indonesia, the Philippines, and Singapore provides a model for Rwanda. Key manufacturing sectors include food and beverages, textiles, and industrial goods, with recent FDI in light manufacturing indicating potential for export growth and job creation.

Rwanda sees its manufacturing sector as essential for boosting productivity, creating quality jobs, and achieving development goals. Historically, manufacturing has driven productivity in developed countries through trade and technological advancements (Ha-Joon Chang, 2014). In the USA and the UK, it accounts for 60 to 70 percent of R&D, while in Germany, Japan, and Korea, it is 80 to 90 percent. In Rwanda, manufacturing is five times more productive than agriculture. Despite a shift towards the services sector, manufacturing still plays a significant role, contributing around 10 percent of GDP and 5.5 percent of total employment in 2023. It also promotes export growth and economic diversification, with exports

driven by food, beverage, and textiles, remaining around 10 percent of total goods exports in 2022 (Figure 2.24, Figure 2.25).

Manufacturing development in Rwanda faces challenges due to its small domestic market and landlocked geography, leading to high production costs. While manufacturing is crucial for productivity, employment, and economic output, Rwanda and Sub-Saharan Africa encounter unique obstacles. Technological advancements have made manufacturing more skill- and capital-intensive, reducing its capacity to create jobs, which undermines industrialization as a sole growth strategy. Many countries experience economic growth with low industrialization and face premature deindustrialization, where manufacturing's GDP contribution declines earlier than expected (Rodrik, 2016). Rwanda's high production costs, limited land access, and competition from regional neighbors further hinder manufacturing growth. Enhancing regional integration is essential to increase trade and investment.

The Government of Rwanda is committed to supporting a thriving manufacturing ecosystem through initiatives like the Kigali Special Economic Zone (KSEZ), Made in Rwanda (MiR), and the Manufacture and Build to Recover Program (MBRP). KSEZ provides quality infrastructure, reliable utilities, and better collaboration with government agencies. It has improved the business environment and access to industrial land and inputs. However, its results have been mixed, as many slots are occupied by existing businesses relocating within Kigali and used as warehouses (Box 2.3). The Domestic Market Recapturing Strategy (DMRS), launched in 2015, aimed to reduce the trade deficit and was followed by the Made in Rwanda initiative in 2017. MiR focused on reducing production costs, developing sector-specific strategies, improving quality, promoting backward linkages, and encouraging local consumption. Despite these efforts, MiR's goal of reducing the trade deficit by US$450 million annually has not been achieved, partly due to overlapping policies and confusion among stakeholders (Annex 2.4). The collapse of the services sector during the COVID-19 pandemic led to renewed efforts in Rwanda to diversify the economy through the manufacturing and building better initiative (MBRP), which was introduced in 2020 to attract private sector investments and boost economic recovery. The program, which runs until 2025, has attracted 130 projects with a total investment of US$2.3 billion, expecting to create over 42,000 jobs (Box 2.2).[16]

Figure 2.24: Food, beverages and textiles are the main drivers of manufacturing growth

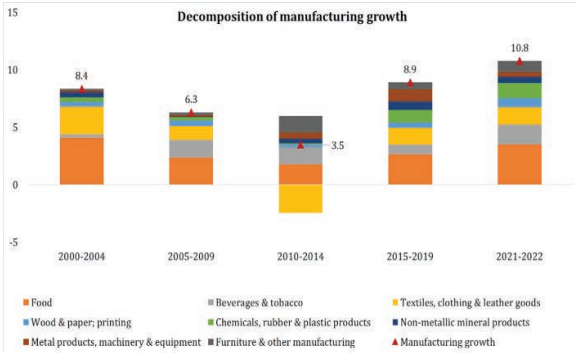
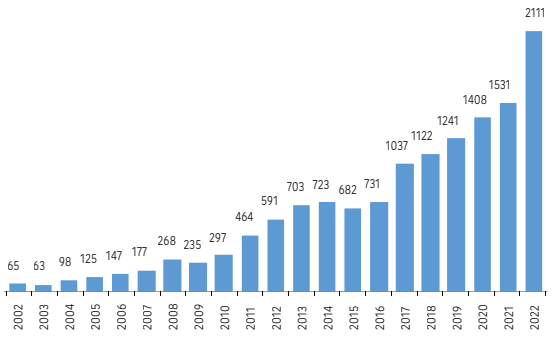


Figure 2.25: Manufactured exports in Rwanda
US$ current prices millions, 2002–25



Source: Calculations through the WITS platform from the Comtrade database maintained by the United Nations Statistics Division and World Trade Organization via World Development Indicators.

BOX 2.2: Overview of manufacture and build to recovery program

The Manufacture and Build to Recovery Program (MBRP) will not be extended beyond December 2024. It provides tax incentives (import duty and VAT) to boost production in agro-processing, construction materials, light manufacturing, and cross-cutting enablers like paper and plastic packaging. The program has attracted 130 projects, totaling US$2.3 billion in investment. These include 52 manufacturing projects, 43 construction projects (46,000 housing units), and 35 agro-processing projects, expecting to create over 42,000 jobs. So far, 89 projects have received RWF 21.9 billion in tax incentives. No new projects will be added to the scheme after 2024.

Source: Rwanda 2023 IMF Article IV Consultation

BOX 2.3: An assessment of SEZ on firm behavior in Rwanda

Special Economic Zones (SEZs) aim to boost private investment, industry, and exports by providing quality infrastructure, streamlined regulations, and incentives. While SEZs in Asia have been successful, those in Sub-Saharan Africa face challenges such as high transport and labor costs, and a lack of skilled workers, limiting labor-intensive manufacturing.

The Kigali SEZ (KSEZ), established in 2013, has diversified export products but relies heavily on imports. It offers quality infrastructure, reliable utilities, and government collaboration. Improvements include better business environments and increased access to industrial land and inputs.

Future Recommendations for KSEZ include: 1) Developing a modern KSEZ; 2) Extending projects to mining and tourism; 3) Supporting service sector trade (financial services, ICT, etc.).

The traditional EPZ model, focused on the assembly of imported components (e.g., the garment sector), may not be ideal for Rwanda due to high transport costs and fragile export conditions like African Growth and Opportunity Act (AGOA).

SEZs can significantly boost domestic industries by fostering agglomeration, helping them achieve economies of scale, and enhancing their competitiveness in regional and global markets (Farole, 2011). Expanding SEZs into natural resource sectors such as mining and tourism could be beneficial.

Rwanda excels in business regulation, ranking as the second-highest African country on the World Bank Doing Business Index. Introducing competition from EAC service-sector providers in financial services, accountancy, law, ICT, and engineering could be advantageous. Service sector trade is crucial for manufacturing in the EAC (Hoekman and Shepherd, 2015). This focus is planned through the new ICT Park in KSEZ Phase 2, offering opportunities for services trade in tertiary education and ICT. However, further analysis is needed to determine how SEZs can best support other forms of services trade.

Source: Steenbergen V. and Beata Javorcik. "Analysing the Impact of the Kigali Special Economic Zone on Firm Behavior." International Growth Centre Working Paper. F-38419-RWA-1. August, 2017.

Rwanda's new industrial policy (2023–33) aims to accelerate economic transformation and manufacturing development. Key goals from the National Strategy for Transformation (NST1) include creating over 200,000 jobs annually (Priority 1), establishing a globally competitive knowledge-based economy (Priority 3), and promoting industrialization with a shift to high-value goods and services (Priority 4). Focus areas are agro-processing, construction, meat and dairy, leather, textiles, horticulture, tourism, knowledge-based services, mining, creative arts, aviation, and transportation. The policy requires an inclusive growth strategy to boost job creation and improve welfare. It involves multiple ministries and uses instruments such as export and investment promotion, technology policy, special economic zones, tax incentives, tariff policy, regional agreements, services exports, and public investment. Although led by the Ministry of Trade and Industry (MINICOM), full participation from other ministries and agencies is essential (Newfarmer & Twum, 2018).

To enhance Rwanda's Industrial Policy (IP), several key improvements are needed.[17] First, mainstreaming green growth and environmental sustainability throughout all pillars would create a "Green Industrial Policy." Second, better integrating cross-cutting regulations with sector-specific strategies would ensure a holistic approach to private sector development, aligning with other policies like the National Investment Policy 2023 and the Competition and Consumer Protection Policy 2023. Third, strengthening competitive neutrality by reducing export tariffs would promote fair competition and green growth. Fourth, broadening the IP to include more than just priority sectors and conducting strategic segmentation within sectors, such as different types of tourism, would tailor interventions more effectively. Fifth, enhancing governance and cross-agency collaboration through objective criteria and transparent selection processes would promote value addition and diversification. Sixth, prioritizing and sequencing the IP's 110 interventions across 34 strategies and 8 pillars would make it more actionable. Finally, the institutional delivery framework should detail

the resources, budget allocations, and roles needed to implement the IP, ensuring effective monitoring and evaluation for continuous improvement.[18]

Designing firm-level support mechanisms requires understanding the distinct challenges of different economic sectors. A detailed, current assessment of competitive pressures on providers, buyers, intermediate firms, and institutions within each sector can inform targeted industrial policies and effective firm-level programs. Government interventions should identify local positive externalities that drive productivity growth, such as knowledge spillovers, input-output linkages, and labor pooling. Continuous industry analysis, combined with global market trend examination, can pinpoint constraints and failures. Integrating this analysis with inclusive Public-Private Dialogue (PPD) can catalyze strategic change, incentivize alliances, and enhance sector collaboration. An effective approach involves producing analytical outputs and disseminating them through workshops, supported by a parallel stakeholder facilitation process.

Expanded access to serviced land can reduce production costs among firms. Public and private investment in shared infrastructure can boost capacity utilization and vertical integration. Increasing access to serviced land has demonstrated that it can help SMEs reduce the elevated costs of production in a landlocked country like Rwanda and to access regional and global markets. The increased FDI, jobs and exports generated through Rwanda's Special Economic Zone (SEZ) program are comparable to levels achieved during the initial years of those in countries such as Bangladesh, Kenya, Ethiopia (Box 2.4) and Vietnam. The government's efforts should focus on closing infrastructure gaps in existing IPs (e.g., housing, utilities) and improving capacity utilization, productivity, and investor retention while scaling up the program in viable locations across the country leveraging innovative financing solutions, including increased private sector investment and PPPs.

Going forward, food processing presents a significant growth opportunity for Rwanda's manufacturing sector (see Chapter 6). The value of domestic food demand is projected to double from US$6.5 billion in 2020 to US$13 billion by 2040, driven by demographic trends (see Chapter 5). This increase reflects a shift in diet from cereals and beans to more livestock-sourced products, horticulture, and processed foods and beverages, as

BOX 2.4: Learning from Ethiopia's industrial parks strategy

The Government of Ethiopia formulated its industrial policy in the Growth and Transformation Plan (GTP 2010–15) to address the manufacturing sector's contribution to GDP, which was less than 5 percent, and the high unemployment among youth. Challenges included access to land, infrastructure, finance, logistics, and bureaucracy. In 2015, Ethiopia established industrial parks (IPs) as a key implementation tool, with goals to create jobs, generate exports, establish industrial linkages, and transfer technology.

By the end of 2022, Ethiopia's IPs had created 90,000 jobs, accounting for one in seven new formal private sector jobs, though less than 5 percent of the annual labor force growth. Net exports from IPs grew rapidly, reaching US$163 million in 2019/20, nearly half of Ethiopia's total manufactured exports. IPs attracted 66 investors with US$740 million in inward investment, and net exports from publicly owned IPs grew by 50 percent annually since 2014/15.

However, IPs' impact on the broader economy remains limited. They rely heavily on imported inputs, with local sourcing below 5 percent. There is little evidence of technology transfer beyond basic training for Ethiopian staff. The strategy has struggled to recover from COVID-19, internal conflict, and the suspension of African Growth and Opportunity Act (AGOA) trade preferences, crucial for IP exports to the U.S.

Key issues include weak linkages with the domestic economy, low skill levels, lack of SME support, broader investment climate challenges, and insufficient sector-specific policies. Other problems are poor technology transfer, inadequate urban planning, and a lack of long-term vision for transitioning to high-value manufacturing. Ethiopia's experience highlights the need for an integrated industrialization strategy balancing sectoral competitiveness, SME development, FDI attraction, and robust planning.

Note: "Special Economic Zones" are a policy-enabled type of industrial parks, where liberalized and often experimental business policies and reforms are introduced to complement the park's infrastructure offering. (UNIDO)

well as more meals consumed outside the home. These shifts offer immense opportunities for job creation, higher value-added activities, and the development of new food services, provided the right environment and public services are established.

The African Continental Free Trade Area (AfCFTA) also offers a significant market opportunity for processed foods. In 2022, processed food imports accounted for 23 percent of Rwanda's merchandise trade, the highest among the six EAC countries (Figure 2.26 A). While processed food imports have been increasing in Rwanda in recent years, they have been consistently declining in other EAC countries like Burundi. In terms of current price values, Kenya is the leading importer of processed foods among EAC countries, with imports totaling US$3.315 billion in 2022 (B).

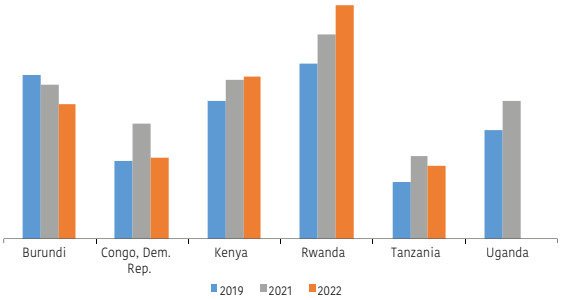
A 2020 Industrial Diagnostic Study for Rwanda by UNIDO identifies priority sectors in manufacturing, including food and beverages, textiles, wearing apparel, paper, chemicals, non-metallic minerals, basic metals, motor vehicles, and other transport equipment (Figure 2.27). The NST-1 highlights agro-processing, meat and dairy, and textiles and garments as key sectors deserving the highest attention. Rwanda possesses many prerequisites for these industries, such as natural resources, human skills, and technologies. However, the development of value chains linking primary activities like agriculture and livestock farming with downstream activities remains incomplete. Strengthening value addition and transformation activities in manufacturing is a necessary strategic direction for the country. Creating an "Integrated Value Chain Development" component will be crucial to achieving this goal (United Nations Industrial Development Organization (UNIDO), 2020).

Food and beverages, textiles, and industrial and consumer goods are the most prominent subsectors in the light manufacturing sector in Rwanda. Private investment in the light manufacturing sector (outside of agribusiness) in Rwanda is small, but the country has received some new FDI in the sector of late, including in apparel, footwear, handbags, electronics, and, most recently, automotive. These subsectors are considered important for Rwanda's future growth and would have important implications for export performance and inclusion through low-skill job creation (World Bank Group, 2018).

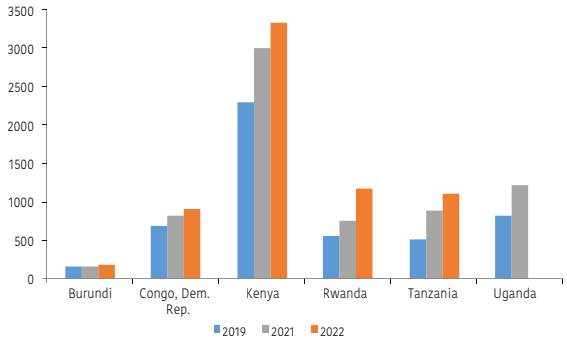
The increasing servicification of Rwanda's economy presents an opportunity to foster industrialization, as manufacturing productivity depends on the efficiency and growth of the services sector. The services sector now accounts for almost 50 percent of Rwanda's total value added, up from 35 percent in the mid-1990s (see Chapter 5). Baccini et al. (2021) found a positive association between economic growth and the share of "high-skill" services in employment, using census data for thirteen African economies. This is because manufactured goods are increasingly bundled with essential services like finance, design, engineering, telecommunications, consulting, and digital services, which are critical for further industrialization and enhancing productivity and trade potential.

Figure 2.26: Processed foods imports in 6 EAC countries in 2019, 2021 and 2022

a) In percent of merchandise trade

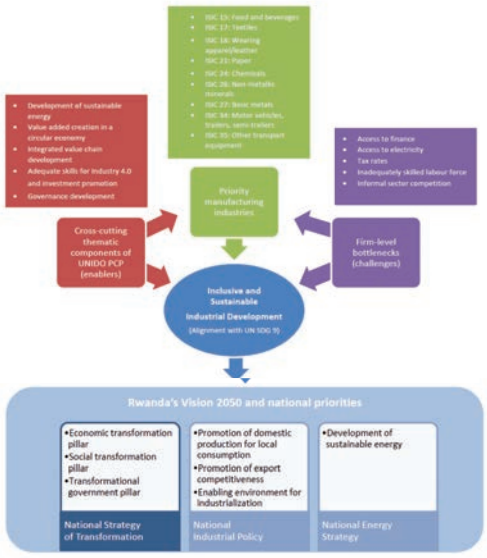


b) In US$ current prices millions



Source: Calculations based on UNCTAD database
Note: Data available for latest year of 2022 for most countries, except for Uganda, which is as of 2021.

Figure 2.27: Strategic map for program for Country Partnership (PCP) for Rwanda



Source: Adapted from United Nations Industrial Development Organization, (2020)

Manufacturing now requires services as integral components of the value chain, particularly logistics and transportation, vital for the export capabilities of landlocked countries like Rwanda. Countries like Indonesia (2020) and the Philippines (2019) (See Annex 2.5.), which recently achieved Upper Middle-Income Country status, demonstrate the successful integration of strong service sectors with their manufacturing bases. These nations reformed critical service areas, especially finance and transportation, creating a conducive environment for manufacturing. Similarly, Singapore developed its service sectors, such as finance, logistics, and information technology, alongside its manufacturing industry, exemplifying a successful integration model.

2.6. Conclusions and recommendations

Given the limits on public sector expenditures, continued rapid economic growth will depend critically on the private sector. Without attempting to be comprehensive, this section recommends policies in a few key areas that would help to boost activities by private firms. Renewed efforts at the micro and meso levels of policy can support firm and sector-level growth. Economy-wide reforms can be coupled with targeted industrial policies to enhance competitiveness and productivity in economic sectors where Rwanda can harness its unique comparative advantages for sustainable development. Strengthening the regulatory framework governing anti-competitive behavior, improving the insolvency regime, and rationalizing the scope of state-owned enterprises would help to strengthen competition, enable private investment and reduce resource misallocation. A revamping of educational and skills programs is necessary to support job market insertion and firms' labor demand. Efforts to raise Rwandan's propensity to save through formal institutions should focus on improving financial literacy, encouraging provision of financial services that are more focused on customer needs, supporting greater innovation in financial products, and improving the highly successful Ejo Heza program to increase coverage and financial contributions. Finally, the chapter outlines an agenda for strengthening the use of ICT services in Rwanda. Key areas include bridging the digital usage gap of consumers and firms, creating a data ecosystem conducive to service innovation and e-commerce, upgrading and introducing digital public infrastructure, and translating the enabling framework into wider adoption of emerging technology.

The performance of the private sector has not advanced at the pace required to achieve key development objectives. The country's record of good economic governance, policy coherence, and strong implementation focus has propelled Rwanda's development trajectory, but the road to higher productivity and competitiveness will require key reforms to effectively encourage specialization and scale economies across the business fabric. Private sector firms are overwhelmingly small and informal and thus lack the scale economies critical

for competitiveness. Strengthening the links between investment, trade and innovation through coordinated, productivity-enhancing policies will be central to meeting Rwanda's ambitious development goals.

The ongoing preparation of Rwanda's Industrial policy for 2023–2033 and the NST2 provides an opportunity to renew policy strategies to fuel private sector investment. The new industrial policy will span 10 years, overlapping for the most part and aligning target indicators with the NST2, expected to be approved by 2024. These will require efforts to remove key barriers in different drivers of productivity-led growth discussed in this chapter.

2.6.1. Advancing regulatory reform to increase competition and private sector partnerships

A regulatory framework that protects consumers and prevents anti-competitive practices can empower private businesses to bring productive activities to scale. Open and contestable markets are critical in stimulating private investment, as they create a level playing field that provides firms and entrepreneurs with legal certainty and reward for their investments. Evidence shows that reforms to facilitate a competitive environment increase productivity, growth, jobs, and inclusion (Dauda 2020; OECD 2017). Enforcement of competition rules is incipient in Rwanda and some regulations (or lack of effective implementation) still restrict competition in key sectors.

Strengthening Rwanda's insolvency legislation, the regulation of insolvency administrators and institutional capacity would promote access to finance and growth. Rwanda's insolvency framework could be significantly strengthened. The Rwandan Insolvency Law 2021 should be updated to streamline the procedures, enhance coherence and add a simplified procedure for micro and small enterprises. Insolvency practitioners (IPs) should be effectively trained, licensed and monitored. IPs are central to the success of the insolvency system—for example, they assist the court with most insolvency procedures, are normally given control over assets, support effective reorganizations and facilitate communication between the parties. Lastly, advanced training opportunities should be provided to the judiciary to increase quality as well as predictability, and awareness raising sessions to entrepreneurs so that they are aware of the insolvency framework's benefits.

Continuing to redefine the role of the State in the economy is essential for the creation of a level playing field. The Government of Rwandais determined to improve governance across all enterprises with public shareholdings, for this it is essential to analyze the portfolio of enterprises and evaluate the competitive neutrality of SOEs, especially in partially contestable and competitive sectors. Rich firm-level data can enable the analysis of the effects of SOEs on sector performance, investments and job creation to inform decisions on whether SOEs are the most appropriate and cost-effective government policy intervention in a sector. The privatization framework from 1996 needs to be updated in line with the Privatization Policy and Strategy 2020 to support government's efforts to refocus ownership and ensure that procedures for selection of enterprises for divestiture, due diligence on issues related to labor, competition and environment, identification of appropriate method of privatization that favor competition, privatization transactions and post-privatization monitoring are transparent, effective and well-governed. For the enterprises where the state decides to retain shareholdings, stronger SOE governance and oversight, and competitive neutrality are essential.

2.6.2. Supporting firm growth through improved capabilities

The institutional portfolio of firm-level support mechanisms is fragmented and does not cater to different stages in a firm's growth cycle. Major government institutions supporting SMEs, such as National Industrial Research and Development Agency (NIRDA),[19] Banque Rwandaise de Développement (BRD),[20] MINICOM, National Agricultural Export Board (NAEB),[21] or RDB,[22] deploy instruments that are mainly subsidy-based, rather than service-oriented. Historically, MDIs including the World Bank[23] and bilateral donors have put in place dedicated Funds with direct support to SMEs, while some NGOs also provide business support.[24] The impact and performance of SME support schemes across the Government of Rwanda is poorly monitored and generally assessed through ex-post impact evaluations at the output level. These schemes are for the most part financial instruments and tend to target the agriculture sector.

There is additional scope to upgrade and streamline institutional support to improve the productive capabilities of firms. SMEs need technical support in addition to financial support. Properly designed and implemented, service-based support schemes can provide firms with technical assistance to accelerate progress on core competence areas. In Rwanda, the number of firms assisted through tool rooms and technology institutions to raise awareness on manufacturing trends and facilitate intellectual property or quality standardization is very small. The ongoing preparation of the new industrial policy 2023–33 and the National Strategy for Transformation (NST2) can open opportunities to improve inter-agency coordination around upgrading SME capabilities. The EquIP (Enhancing the Quality of Industrial Policy) long-term capacity building project will improve the capabilities for industrial diagnosis, implementation and monitoring. Coordinated policy action to stimulate innovation and encourage technology adoption should combine a renewed portfolio of support schemes with efforts to strengthen the delivery capacity of ministries and agencies and the creation of markets for Business Development Services (BDS). Implemented together, these interventions can have tangible impact on entrepreneurship and SME growth in Rwanda. The Government of Rwanda might also consider the implementation of monitored SME Growth Acceleration programs to identify high potential SMEs, with a special emphasis on women-owned/led SMEs. Incentives need to be more clearly linked to the productivity performance of beneficiary firms, with effective monitoring, and should be focused on export promotion where the opportunities for productivity gains through scale economies and specialization, and the market discipline to punish poor performers, are greater.

Programs to improve management practices have shown results in other countries and could be scaled up in Rwanda. These programs can support the capacity building of local SME through BDS, advisory networks and mentors. Businesses get affordable access to technical assistance on issues that can range from how to improve operations (e.g., sourcing decisions), organize sales, adopt new technologies or design export strategies, which can have direct effects on business performance and productivity outcomes. The percentage of establishments that set both short-term and long-term production targets in Rwanda ranks very low both regionally and globally.[24] Returns on these types of public investments in high-income countries have been as high as 10 to 30 times the original investment, and governments in Latin America are piloting interventions which provide SMEs with access to individualized consulting services, as well as more novel approaches of providing group consulting services, which can be delivered at lower cost and leverage group learning dynamics. Stimulating and nurturing innovative projects through grant-matching consortia can spur knowledge spillovers and spread the benefits of innovation. Since individual firms are too small to undertake innovation-intensive projects by themselves, they need both incentives and a platform to create these alliances.

The upgrading of the SME support mechanisms should be preceded by an impact evaluation of the current SME policy mix. The rationalization of support mechanisms should be informed by a functional and effectiveness analysis of the existing portfolio to assess whether expenditures across schemes and subsidies supporting SME growth (e.g., entrepreneurship ecosystems, managerial capabilities, supplier development, quality-upgrading, export promotion), are having the intended impact on science, technology and innovation (STI) outcomes. Recommendations to add, scale or drop SME programs should be done in alignment with NST-2, currently under preparation. An assessment of the underlying causes for the underutilization of several central and state schemes supporting manufacturing firms by MSMEs should inform the design of a new suite of instruments that tailor to MSME challenges, including those specific to certain industries. The assessment should determine whether the overall framework addresses the most important market failures currently faced by MSMEs.

Greening of SMEs is equally crucial. SMEs in Rwanda are particularly vulnerable to climate change shocks such as unpredictable weather patterns affecting agricultural production and water resources, increasing temperature that affects labor productivity and energy consumption and expedited deterioration of infrastructure. While it is critical to build resilience and adaptability

across the business fabric, promoting widespread sustainable business practices can also enable Rwandan companies gain competitiveness in other markets. Emerging regulations particularly from advanced economies such as the European Union pose challenges and opportunities for SMEs to export products and to integrate into global trade. While these compliance requirements may add cost of production and export, they can also be used as a competitive advantage by serving high value markets.

2.6.4. Development of skills

The next generation of skills in Rwanda will have to focus more on preparing the working age population to perfectly match the requirements of firms. The challenges point to the need for skills development and employment promotion strategies that can: support skills upgrading in the informal sector to improve enterprise productivity and worker mobility; enable job seekers, notably youth, to acquire the higher level skills demanded by the formal sector where better paying jobs can be found; support the growth of non-traditional economic sectors by ensuring that employers in these sectors have an adequate supply of workers with the required skills; prepare for self-employment as an element of skills training. In addition, there is a need to strengthen career centers at TVET and higher education institutions to improve job matching for students. Personal networks (32 percent) are the leading mechanism for TVET graduates to access their first source of employment, while for higher education graduates, responding to a job advertisement (27 percent) is the most popular.

Skill development and job creation remain strong government priorities in Rwanda, and key to the country's ambition of reaching middle income status by 2035. The TVET program will be a center piece of the government strategy, particularly given the need to make employment creation more inclusive (See Chapter 4 for a more detailed analysis of the distributional dimensions of structural transformation in Rwanda). Among other objectives, Rwanda's NST-1 focuses on the need for human capital development and includes a target to increase the proportion of students pursuing TVET from 31.1 percent in 2017 to 60 percent by 2024, and the need to make TVET training relevant to labor market needs. This development blueprint covers all sectors in education, aiming to equip the more than 200,000 youth entering the labor market annually with critical productive skills for access to good quality jobs. The National Skills Development and Employment Promotion Strategy (NSDEPS, 2019–24) centers around Skills Development, Employment Promotion, and better Labor Market Matching.

Youth will remain the priority beneficiaries of skills development in Rwanda, to build the foundations for a highly qualified labor force in the long term. Over the past years, the government has implemented a critical skills program for youth at various educational levels, as part of its NST development plan. Various development partners, including the World Bank, are priority skills development targets in the NST. Currently, the World Bank supports these efforts through a comprehensive approach, reflected in two programs: The Rwanda Priority Skills for Growth (PSG) and the Africa Higher Education Centers of Excellence (ACE II). The PSG Program was designed to build the foundations for quality long term training programs in the country (selected TVET and University programs), as well as for provision of short-term training opportunities, through expanded pathways, to Rwandans seeking to upgrade their skills.

The provision of skills development programs will be tailored to respond to the needs of priority economic sectors with strong job creating potential. In doing so, it will be important to build on these foundations in order to make further progress on support to employment-intensive growth of priority economic sectors, and the unfinished agenda for the three priority economic sectors (energy, agro-processing, and transport/logistics) under the PSG; scale up promising interventions such as the SDF to benefit a critical mass of youths, including young females and out of school youths, as well as upskilling of existing workers in micro and small enterprises; accelerate digital development to facilitate large scale quality expansion of digital integration in delivery of TVET and degree training programs; and strengthen capacity gaps in the institutional framework for skills development (notably, digital development for ICT integration in program delivery, and system capacity building

to strengthen engagement of the private sector in skills development). In addition, specific skills are associated with climate change adaptation and decarbonization, for example skills related to value chains in solar power, climate smart agriculture, and e-mobility, will require a special focus.

Sustaining efforts in innovative research will be essential to maintain a high quality and productive labor force in Rwanda. Notably, growing economies also need innovative post graduate professionals and researchers to drive transformative economic development. To that end, ACE II, is strengthening four centers of excellence at the University of Rwanda. These centers deliver quality post-graduate education and build collaborative research capacity in energy, ICT, data science, and education. Cumulatively the Rwandan ACEs have enrolled almost 900 master's and PhD students of which 20 percent are regional students; offered more than 35 nationally accredited programs; have signed 45 MoUs with private sector and industry; and have published 450 research publications in peer-reviewed journals.

A structurally transformed Rwanda through skills and science will entail continued efforts to address gender equalities in research activities. Stronger efforts are needed to increase the number of girls enrolled in STEM subjects in secondary education. Despite the government's goal of gender parity in STEM by 2024/25, females make up only 32 percent of students in STEM programs at the tertiary level. A structured pre-university, or bridge, academic support program could address pre-entry gaps for young women transitioning to tertiary levels.

Along with enablers on the labor demand side (such as job creation), there are clear areas for additional interventions on the labor supply side:

a. Relevance: evidence from tracer studies in Rwanda highlights skills mismatches and gaps in tertiary education infrastructure and teaching. To address these challenges, training programs must align more closely with labor market needs, with the private sector playing a key role in skills audits and curriculum reviews to ensure core industry competencies are met. Establishing Sector Skills Councils (SSCs) in priority sectors can further institutionalize employer-led skills development. Cross-cutting skills such as work readiness, English proficiency, communication, social-emotional skills, and functional literacy should be integrated into regular training. Improved information flow between jobseekers and employers is also needed, supported by stronger career services at training institutions. Additional measures include rolling out soft skills and work-readiness curricula in TVET and higher education, expanding STEM outreach at the secondary level, offering mentorship programs, and promoting blended learning and green skills training, including climate-sensitive agriculture.
b. Quality: while access to TVET and tertiary education is improving, the quality of the programs remains a concern. While access to TVET and tertiary education in Rwanda is improving, the quality of programs remains a concern. Delivery is hampered by a shortage of qualified instructors, poor curriculum design, weak industry-academia linkages, limited internship opportunities, and inadequate facilities. To address these barriers, the government should conduct a mapping study to identify capacity and quality gaps across institutions, including faculty quality, infrastructure, instructional materials, and student outcomes. Expanding capacity in under-offered programs, increasing public sector investment, and attracting more PPPs like Carnegie Mellon University (CMU) are crucial steps. Institutional differentiation is also needed to enhance the teaching-learning environment and improve curriculum delivery and assessment. Establishing Centers of Excellence (CoEs) in priority sectors can drive this effort, partnering with a network of related training institutions to optimize resources and facilities. Additionally, the lack of sustainable funding for internships limits students' access to practical training. A costed operational plan is essential for implementing the existing Rwanda Work-Based Learning (WBL) policy, ensuring that students can gain practical experience, develop work-based skills, secure jobs, and expand their networks.
c. Access and equity. Application volumes at public TVET institutions, especially the IPRCs, are extremely high. Due to limited capacity, many qualified students are turned away from technical and vocational programs. Student financing is inadequate, with gaps in affordable on-campus or off-campus accommodation. To address this,

Agence Française de Développement (AFD) is conducting a feasibility study for a PPP framework to build and manage affordable student hostels. Enrollment fees and a lack of scholarships or financial support also create barriers to accessing tertiary education, internships, and apprenticeships, raising equity concerns. Increasing financial assistance and incentives for students to pursue tertiary education, especially in priority programs aligned with labor market needs, is critical.

d. Inadequate support for entrepreneurship, business development, and upskilling programs. Establish integrated entrepreneurship and business development support as part of the TVET curriculum, and for non-formal skills development including apprenticeship training (work experience in-build), additional scope of integrate entrepreneurship curriculum is required, with comprehensive business development services, including incentives for affordable capital, toolkits, and incubators. In addition, there is a need to fund on the job training/upskilling programs for existing employees in the labor force through better targeting and greater involvement of the host company. Establish enforceable agreements with the host company on retention of employees post training and a clear understanding of the objectives of the training.

e. Appropriation and use of digital resources, and development of digital skills. The development of digital skills requires a combination of training, access to technology and opportunities to practice and consolidate the learnings. It is critical to establish a Digital Skills framework to guide the capacity building activities for Instructors/teachers, to provide a broadly an easily accessible high quality internet service, access or ownership of digital devices and digital content and learning experiences that allows the users to employ their digital skills. As digital skills acquisition is a gradual process, there is also a need to provide continuous learning and practice opportunities and assess and validate the progression in digital competencies throughout time. The development of digital skills should be supported by a well-articulated policy that establishes a vision and timebound targets and the roles of the different stakeholders.

f. Enhancing governance of the skills development system. (Capacity constraints on regulation, external and internal quality assurance mechanism, and use of data, and measurement-for employment outcomes and program/intervention objectives). Without systematic governance of the skills developments sector, including data collection and use, many of the proposed recommendations above may not be effectively implemented and measured. There is a large number of development partners working with the Government of Rwanda bridging skills gaps in the country. Efforts should be coordinated for better delivery and scale up.

g. Strengthening of initiatives facilitation school-to-work transition including help to young people to start their own business. In addition to basic business (entrepreneurship) training, incubators, business advisory services, soft loans, and networking have proved to be useful instruments for this purpose. Along the same line, there is an urgent need to improve the skills level of the informal sector. SDF has successfully piloted an initiative aiming at this.

2.6.5. Increase access to finance

Rwanda will achieve adequate and inclusive financial service delivery to the private sector through a holistic approaching addressing challenges undermining both savings mobilization capabilities and firms' readiness to fully tap on available financial products across the country. In this regard, more emphasis should be put on MSMEs, as they are the most deprived of financial services in Rwanda.

2.6.5.1. Scaling up access to finance for MSMEs

MSMEs urgently need support to close the finance access gap. Lending rates remain high, and credit is primarily short-term due to both demand- and supply-side constraints. While credit guarantee schemes help address collateral mismatches faced by MSMEs, they are not widely used in Rwanda. Limited availability and access to data make it difficult for lenders to assess borrowers' creditworthiness, especially farmers, which hampers lending to MSMEs. These challenges highlight the potential for rapid and visible improvements in lending terms and conditions. To achieve this, the following reforms must be implemented vigorously:

- Invest in financial literacy and business management skills of MSMEs. Promote programs that support the development of business and financial skills of entrepreneurs. Specifically, develop a broad training and awareness agenda targeted to the MSME segment to develop the management capabilities (including accounting skills, market research, project implementation, among others) of these entrepreneurs, while fostering financial literacy. The agenda should promote the understanding of financial products and how they can be used to support business operations.
- Increase support to the digitalization and consolidation of SACCOs to address the fragmentation and lack of scale of individual SACCOs. The Government of Rwanda has embarked on a reform agenda to foster automation and the consolidation of Umurenge SACCOs (U-SACCOs). The first phase of the program focuses on automation of operations, migrating out of legacy systems; the second phase focuses on the consolidation U-SACCOs into District-SACCOs to create interoperability and improve efficiency and quality of service delivery (U-SACCOs would operate as branches of the District SACCOs); the third phase entails the establishment of a cooperative bank to foster synergies within the system, helping achieve gains from economies of scale. The program thus proposes a 3-tier structure comprising individual U-SACCOs at the bottom, District SACCOs as a middle layer, and a cooperative bank at the top.
- Address significant data gaps on MSMEs. Financial institutions should adopt a harmonized definition of MSMEs for reporting purposes. The adoption of such harmonized measure should be enforced for regular reporting of data to the National Bank of Rwanda (NBR) by financial institutions to facilitate the data gathering process as well as data analytics and dissemination. In addition, policymakers should: (i) expand the data collection efforts, especially for under-served segments such as MSMEs; (ii) regularly publish summary reports; and (iii) maintain an updated online database with detailed statistics on the provision of financial services to these segments, including MSMEs. The NBR can facilitate centralized and easy access to such databases, creating, for example an online data portal that would allow access to detailed historical data for the public.
- Improve the information infrastructure to mitigate information asymmetries associated with MSME financing. Policymakers should continue to strengthen the credit reporting system by expanding the coverage and depth of credit information to address the existing data gaps—from increasing efforts to expand data collection to improve the availability, scope, and frequency of data on potential borrowers. In doing so, policymakers would address two objectives: (i) reduce the degree of information asymmetries between borrowers and lenders; and (ii) foster the use of data analytics among financial institutions, so that they can identify and assess the creditworthiness of potential borrowers in a cost-effective manner, thus allowing them to more effectively price risk, improve the quality of financial service provision, and expand their outreach to the MSME segment. Efforts should concentrate on two fronts, as follows:

i. Expand the coverage and depth of credit information on individual borrowers. The development of data analytical tools is critical for greater outreach to under-served segments such as MSMEs. But the range of information currently available to lenders or potential borrowers is limited, especially positive data, thereby hindering the development of such tools. Policymakers should step up efforts to expand the data coverage to include additional sources[26] of information beyond regulated financial institutions, with mandatory reporting of both positive and negative information. Policymakers should also ensure that financial institutions have access to the data.[27]

ii. Movable assets need to better serve as collateral. Although they typically account for most MSMEs' assets, banks are typically reluctant to accept movable assets due to shortcomings in the legal and regulatory environment, the lack of consistency of collateral enforcement, and the under-

utilization and/or lack of a collateral registries (that are centralized, electronic) for such assets. Priority measures to modernize the secured transactions framework could address some of these issues.

2.6.5.2. Boosting savings to increase access to finance

There is considerable scope to increase Rwandans' propensity to save, particularly through formal institutions, thus increasing the financial resources available to firms. One promising approach is to strengthen BNR programs on improving financial literacy. BNR has developed a National Financial Education Strategy and has several financial literacy initiatives programmed each year.[28] What is lacking, however, is targeted education to improve digital financial literacy, particularly in light of the emerging consumer risks that are evolving along with the growth of fintech. Conventional approaches to financial education (that is, financial-literacy events, training sessions, seminars, workshops, and classroom-based lectures) are mostly unsuccessful in sustaining behavioral change (Gradstein, Bint Abbas, & Tomilova, 2021). Emerging evidence suggests that key behavioral tools and practices, such as simplifying financial education into concrete, actionable steps, personalizing education, providing short, timely messages, and making education convenient and easy to access, have successfully changed consumer knowledge, decision-making, and financial behaviors. Implementing the required financial capability initiatives to improve savings behavior, using the most effective methods, is a high priority, and should have a high level of feasibility especially if coordinated with other financial inclusion and stability initiatives. Creating an appropriate environment for digital financial services could help to increase savings through formal financial institutions (Box 2.5).

BOX 2.5: Strengthening the enabling environment for digital financial services (DFS)

Digital Financial Services (DFS), enabled by fintech, has the potential to lower costs, increase speed, security and transparency and allow for more tailored financial services that serve the poor at scale. DFS are characterized by low marginal costs and greater transparency. They can respond to both the supply-side and the demand-side barriers of uptake of savings products. DFS require a robust set of enabling factors to be in place to ensure financial integrity, stability and competition. These policy enablers can be divided into three categories: conducive legal and regulatory frameworks; enabling financial and digital infrastructure; and ancillary government support systems. Addressing these three areas requires policymakers to look at a wide range of critical issues. These include:

1. How to enable basic digital connectivity and mobile phone penetration.
2. Whether and how to permit non-banks to have access to national payment infrastructure and to issue electronic money.
3. How to enable and regulate widespread 'agent networks' that meet the need for the cashing-in and cashing-out of digital accounts because most economies remain cash based.
4. Rolling out digital and biometric ID systems.
5. How to enable access to government data platforms.
6. How to ensure competition for DFS, considering dominant platforms which engage in DFS; and
7. How to regulate non-traditional players that offer financial services.

Using the framework of the G20 High-Level Principles (HLPs) for Digital Financial Inclusion, the following are policy recommendations to stimulate digital savings:

1) HLP 1: Promote a digital approach to financial inclusion: Incorporate saving elements in national financial inclusion strategies. Highlight the importance of affordability, flexibility, accessibility, and customization in digital savings account offerings. Facilitate the integration of digital savings account options with government-to-person payments and encourage providers to offer options for earmarking portions of salaries for digital savings accounts.
2) HLP 2: Balance innovation and risk to achieve digital financial inclusion: Establish policy practices for enabling digital savings competition while facilitating cooperation and effective partnerships. Support a "multispeed" approach to digital savings inclusion, as some consumers may be ready to move beyond digital savings accounts to digitally enabled, market-based wealth-building products.
3) HLP 3: Provide an enabling and proportionate legal and regulatory framework for digital financial inclusion: Develop a legal and regulatory framework that allows banking institutions to pursue digital savings partnerships with nonbank entities and conduct limited purpose banking services through retail agent networks. Where appropriate, consider regulatory sandboxes for limited purpose, technology-driven digital savings account deployments. Harmonize, where prudent, the application of a risk-based approach to customer due diligence for e-money wallets and bank deposits, as imbalances can hinder the acquisition of digital savings customers.

4) HLP 4: Expand the DFS infrastructure ecosystem: Support the development of nonbank e-money issuer-to-bank interoperability, which serves as the technological backbone for digital savings partnerships and distribution strategies.
5) HLP 5: Establish responsible digital financial practices to protect consumers: Ensure customer funds protection standards are robust for bank deposits and e-money accounts. Ensure customers are afforded critical information about digital savings accounts at point of opening, noting that information sharing may occur unconventionally, such as directly on a mobile phone or through an agent-facilitated document collection process.
6) HLP 6: Strengthen digital and financial literacy and awareness: Incorporate saving elements in financial education strategies.
7) HLP 7: Facilitate customer identification for DFS: Continue to implement, refine, and expand national identification systems, and align know-your-customer requirements for basic transaction accounts and savings accounts.
8) HLP 8: Track digital financial inclusion progress: In cooperation with digital savings providers, gather and publish data on deposits facilitated through digital channels, as such information is critical for understanding digital savings opportunities and risks.

Moral suasion and the licensing process can be used to encourage financial institutions to provide low-income households with financial services that are focused on meeting customer needs (see the CGAP Customer-Centric Guide), in order to encourage greater financial savings. As part of the product licensing process, Rwandan authorities may consider requiring providers to prove that their savings, pension and insurance products have been developed using a customer centric approach and that they also respond to the needs of lower income and marginalized segments. This is a relatively low priority, because it will require changes in management practices and the results may be difficult to assess in the short term.

Authorities could encourage savings through financial institutions by supporting greater innovation in financial products. A review of research and feedback received from a small sample of FSPs in Rwanda point to a lack of innovation in financial products. Steps could involve easing regulatory barriers to innovation (for example providing greater regulatory discretion to encourage innovation, strengthening the product approval process, improving regulatory certainty and establishing enabling infrastructure, such as national databases); facilitating innovative businesses (introducing greater regulatory flexibility, informing market players, and using tax incentives or subsidies); and designing regulation to incentivize innovation rather than fragmentation and irrational competition, e.g., risk-based supervision, and separating old or disallowing new composites (insurers that provide both life and non-life insurance).

Remittances represent an alternative (and, to date, underutilized) source of finance. Remittance inflows have increased considerably since 2016, now represent 4 percent of GDP, and are projected to continue growing (Box 2.6). Worldwide, they represent a significant source of finance and have helped lift households out of poverty while improving education and health services. There is strong evidence that the growth of remittances in Rwanda has been due to the increased formalization of these flows. As such, they represent a new source of capital for investment through the formal financial system.

The successful Ejo Heza program could be strengthened to further boost the growth of coverage and increase the contributions made by subscribers. Improvements in the incentives framework could include allowing short-term access to 30-40 percent of funds to encourage a new class of savers, increasing the minimum savings level to be eligible for government incentives (70 percent of respondents to a survey on Ejo Heza reported they would likely save more if the matching threshold were increased, [World Bank Group, 2023]), divert collected VAT revenues directly into individual Ejo Heza accounts as a contribution (60 percent of respondents said this would encourage them to save, 27 percent said they might save in this case), and requiring more well-off individuals (in categories U3 and U4) to contribute to Ejo Heza. In addition, the design of the program could be improved by fixing the rate of return on contributions, indexing contributions to inflation, using a single fund management approach to avoid incentive incompatibility (ideally using a govt. fund manager such as the Rwanda National Investment Trust), and imposing mandates concerning a minimum level of financing of domestic capital formation from fund resources. Annex 4.2 provides a list of technical changes that could improve performance of the program.

BOX 2.6: Remittances are growing and can be an important source of finance

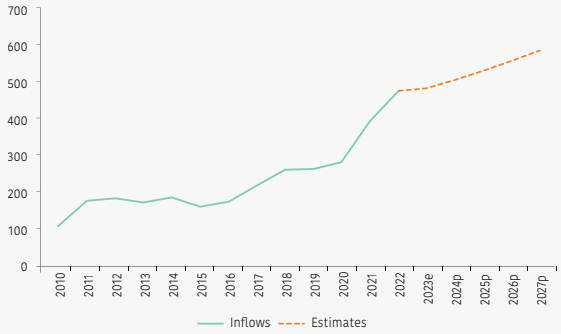
Patterns of recent remittance growth

Remittance inflows to Rwanda have grown steadily since 2016. From about US$107 million in 2010, remittances grew to about US$175 million the following year and stayed flat for a few years, increasing sharply beginning in 2016 to about 391 million dollars in 2021 (World Bank, 2022, Figure 2.28). They are estimated to have increased further to 469 million dollars in 2022, equivalent to nearly 4 percent of GDP.[29] Through the first half of 2022, the large inflow of remittances, together with official transfers, has helped curb the widening trade deficit (IMF, 2022). Remittances are projected by the IMF to continue to grow through the next few years.

The growth in Rwanda's remittances far exceeds the growth worldwide—and the drivers are unclear. The increase in remittances began prior to the pandemic and the county has experienced a particularly rapid increase since 2020. In part, this is consistent with the "surge" of remittances worldwide in 2021—equivalent to about 10 percent growth, driven by easing covid restrictions, a post-covid global economic reopening and recovery, among other reasons (Ratha, et al., 2022). This is also consistent with the economic recovery in 2021 of the known country sources of Rwanda's remittance inflows, led by Kenya and the United Kingdom. However, the growth of remittances in Rwanda, equivalent to nearly 40 percent growth, far outstrips the global surge and the growth rate of remittance source countries. And though worldwide the growth in remittances is estimated to have slowed in 2022, down to about 4.9 percent—amidst global economic turmoil and conflict—remittances to Rwanda are estimated to have continued to grow by 20 percent.

Figure 2.28: Rwanda: Remittance Inflows, 2010–27

(In millions of US dollars; projections after 2023)



Source: Calculations based on World Bank (2010–23 data) and IMF (2024–27). The World Bank data are the most recent estimates from KNOMAD, December 2022. The IMF data are from the June 2022 staff report.

In part, the growth of remittance inflows likely reflects the increasing formalization of remittances. Informal or unrecorded remittances worldwide are thought to be large, at least half as large as official flows (Ratha, Mohapatra, & Scheja, 2011).[30] Beginning around 2020 and driven by constrained mobility, many parts of the world experienced an increasing "formalization" of remittances, as remittances previously sent through informal channels—hand-carried by the migrant workers themselves, or sent through personal intermediaries—were sent electronically for the first time (Caron & Erwin, 2020; Dinarte Diaz, et al,, 2021; Dinarte Diaz, et al., 2022; Mughogho, 2021). In Rwanda, digital transfers were estimated to have expanded by 400 percent in 2021.[31]

The promise of remittances as a source of finance

The rapid growth in remittances represents the growth of a critical financial resource for development. Robust microeconomic evidence worldwide has shown that remittances have helped lift countless people out of poverty and have helped improve education and health outcomes (Adams, 2011; Andersson & Siegel, 2020). Because remittances tend to be countercyclical, they have provided a valuable safety net to numerous migrant households. In Rwanda, there is evidence to suggest that international remittances can help reduce poverty by half (Kadozi, 2018). The formalization of remittances also represents a growing resource for investment and financial inclusion through the formal financial system.

Policy measures to help attract more remittances

Easing the cost of sending remittances to Rwanda can help facilitate more inflows. Between Tanzania and Rwanda, the cost of sending remittances is among the world's most expensive corridors. The cost of sending about US$200, in particular, is equal to about 20 percent. The global average, in contrast, is about 6 percent (Ratha, et al., 2022). Regulatory constraints and the limited entry of new remittance transfer operators all serve to push the cost of sending remittances.

Finally, bolstering interoperability with other government systems and integration with private sector should have significant benefits for Ejo Heza. The high costs of signing up new members (cost of agents and telco marketing costs) could be reduced by promoting contributions (on an 'opt out' basis) from informal and self-employed earners in the organized segment of the informal economy (earnings that go through a centralized professional organization, such as a cooperative, or digital platform). It also requires the product to be good to start with (low administrative fees, good returns, etc.), otherwise loss of trust could ensue.

2.6.6. ICT innovation agenda

Rwanda's new policies already include measures to address many of the challenges to achieving effective and efficient ICT services. In October 2022, the Ministry of ICT and Innovation (MINICT) spearheaded Government's adoption of a new National Broadband Policy and Strategy, which looks to promote further competition and address the broadband adoption challenge (Ministry of ICT, 2013). For example, the new policy liberalizes technology deployments and wireless access spectrum assignments. This is set to change the market structure, particularly for 4G, which has held back the development of this market segment to date. The policy also points to areas where more regulatory action is needed.

Priority 1: Bridging the digital access and usage gap for consumers and firms

Continued investment in network upgrades and densification will be needed to keep pace with next generation technology development. 4G infrastructure deployment will not be adequate to accommodate future traffic volumes, requiring further investment in network densification and deployment of LTE Advanced 4G and 5G networks, and fixed lined broadband networks. Ensuring that related networks deployed are climate smart will also be important to build resilience, given Rwanda's vulnerability to adverse climate events such as flooding and landslides, to prevent network disruptions and costly repairs. Greening older and newer networks deployed to minimize the emissions stemming from digital infrastructure by using the latest climate smart and energy efficient network technology will also be imperative. This investment will need to come mainly from the private sector. Further support for parallel infrastructure deployment should also be encouraged to reduce the investment cost required and ensure both electricity and connectivity access. The country will also need to diversify and boost access to international capacity to accommodate future traffic volumes.

Regulatory benchmarking suggests that Rwanda has scope to increase its regulatory action in several areas, including competition and spectrum management, to achieve greater market efficiency. Rwanda already ranks very high on the ITU's ICT Regulatory Tracker. Rwanda scored 88 percent in the 2022 rankings, behind only Kenya in Africa that scored 90 percent. However, the World Bank's Regulatory Watch initiative noted that RURA is yet to publish any decision on significant market power (SPM), which could point to weak enforcement of existing competition regulation. Market data published by the regulator suggest that MTN Rwanda has gained a growing market share of mobile communication in recent years. Competition could also improve through the introduction of a reference interconnection offers (RIO), which is yet to be published, as well as improvements to spectrum management, covering next generation technology such as 5G. There is also room to improve infrastructure sharing to reduce service costs. Improving services quality and affordability will be key to boosting further uptake. Boosting uptake and bridging the usage gap will also require scaling current initiatives that address demand-side constraints. Several factors explain why roughly three-quarters of the population is still offline. These include affordability of data plans and broadband-compatible devices, gaps in digital literacy, awareness, and lack of attractive content that boosts the value proposition of being connected. Notably, the 2022 Census found that only 24.3 percent of the population above the aged of 16 years own a smart phone, which would allow them to connect to existing broadband networks. The Government has sought to address this through a blanket tax exemption for digital devices, covering import duties and VAT and local manufacturing initiatives; however, there is a need to also scale access to consumer financing, via subsidies and de-risking guarantees. Meanwhile, digital literacy stands at only 20 percent nationally. Government is looking to address this by scaling initiatives like the Digital Ambassador Program and increasing digital skills training in the basic education system. Related efforts will need to go hand-in-hand with supporting the development of attractive and locally relevant public and private digital services and solutions.

Priority 2: Creating a data ecosystem conducive to service innovation and e-commerce

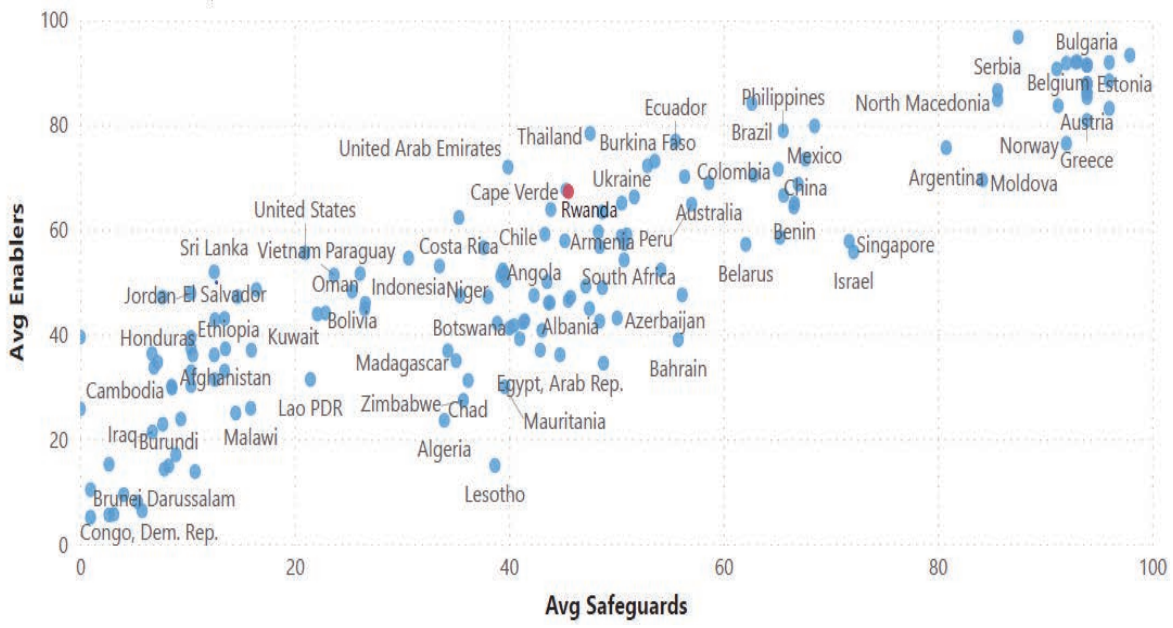
A well-designed data governance framework would enable Rwanda to capture the full economic and social value of both public intent and private intent data and leverage synergies between them. This involves creating trust in the integrity of the data

system, while ensuring that the benefits of data are equitably shared (World Bank Group, 2023). Rwanda has made strides in developing its data governance in recent years. Key developments include the adoption of a comprehensive law on personal data protection in 2021, which came into effect on October 15, 2021 (Law no. 058/2021 of 13 October 2021 Relating to the Protection of Personal Data and Privacy), and the establishment of an independent Data Protection Office.

Rwanda has relatively strong regulatory frameworks for both data safeguards and enablers compared to global averages. Today, Rwanda has an advanced framework for enablers (with a score of 75 compared to the global average of 56) and an evolving framework for safeguards (with a score just above the global average: 46 compared to 45, see Figure 2.29). With scores of 85 for personal data protection, 81 for cybercrime and cybersecurity, and 100 for e-transactions, Rwanda scores higher compared to global, regional, and income-group averages on enablers. Only two other countries in the region have more advanced regulatory frameworks for enablers (Burkina Faso and Cape Verde), where the regional average score is 42. Nevertheless, Rwanda can still strengthen its personal data protection legislation and cybercrime and cybersecurity framework to close the gap to the global frontier (World Bank, 2023). In terms of safeguards, several countries in the region do have more advanced frameworks (for instance Cape Verde, Kenya, Benin, and Nigeria), but overall Rwanda has adopted more good practices for safeguards compared to the regional averages (with a score of 46 compared to the regional average of 30).

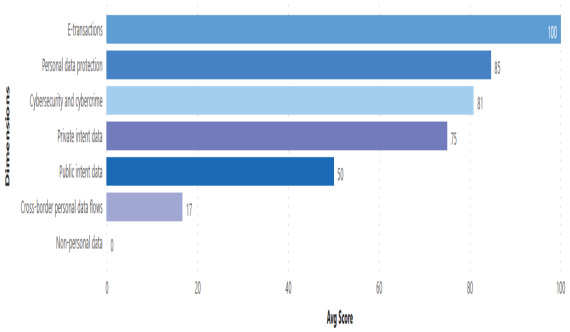
Non-personal data and cross-border data flows dimensions are particularly underdeveloped in Rwanda. To date, Rwanda has not implemented regulatory good practices to facilitate the portability of non-personal data and guarantee net neutrality (under the non-personal data dimension). While the law on the protection of personal data and privacy (Law no. 058/2021) includes provisions on cross-border personal data transfers, this dimension remains significantly underdeveloped. For instance, Rwanda lacks arrangements with other countries to facilitate cross-border data flows and has not published model data transfer agreements or binding corporate rules to facilitate compliance for cross-border data transfers (Figure 2.30). Moreover, the personal data protection law features data localization requirements that limit the extent to which data can be shared across borders. Rwanda requires data processors and controllers to store data within the country's borders unless they obtain authorization from the data protection authority to store data internationally. Addressing this will be key to supporting further digital market integration in the region and beyond and encouraging cross-border e-commerce (World Bank, 2023).

Figure 2.29: Benchmarking Rwanda on data governance, 2023



Source: Unpublished data collected in 2022 for the Global Data Regulation Diagnostic, World Bank

Figure 2.30: Rwanda's performance on key dimensions of data governance



Source: Unpublished data collected in 2022 for the Global Data Regulation Diagnostic, World Bank

Priority 3: Upgrading and introducing digital public infrastructure

While the Government of Rwanda will continue to ensure a robust and enabling regulatory framework to expand access and usage of digital technology, some public investment will also be required to ensure that digital public infrastructure (DPI) is in place. While DPI is a new and evolving concept, it broadly refers to the shared and cross-cutting platforms used by both the public and private sectors to scale digital services, including (i) trusted data exchange; (ii) payments infrastructure; and (iii) digital identification and authentication. These are commonly also referred to as the "technology stack", which have been used by countries such as India and Singapore to accelerate access to and adoption of digital services. These are building blocks for data driven service that are often less suited for 100 percent private sector financing but are critical public goods that can be re-used by public and commercial services providers to generate new services, efficiency gains and economic value (Desai, Marskell, & Marin, 2023).

1. Trusted data sharing

Foundational data infrastructure will need to be upgraded and extended to create an enabling environment for data-driven services. Many countries in Africa lack the data infrastructure needed to speedily exchange their own data traffic over the internet and secure cost-effective access to modern data storage and cloud computing facilities. However, Rwanda already does have some domestic infrastructure to exchange, store, and process data locally, which the country will need to continue to build on. There are several data centers in the country providing data storage and cloud computing services. Rwanda introduced a tier-3 National Data Center in 2010, financed through bilateral assistance from the Korean Government.[32] The National Data Center has allowed for the expansion of cloud-based services, including the roll-out of a government cloud (G-Cloud), which has in turn enabled Ministries, Departments, and Agencies (MDAs) to share more data and host services in a shared environment. However, there is scope to streamline and expand the use of cloud-based ICT infrastructure to improve services delivery among Government MDAs. Consultations indicate that there is also a need to upgrade and expand the National Data Center, following ten plus years of service, in line with growing and projected demand, as well as global efficiency standards for greening data centers. However, there is scope to crowd in more private sector funding to improve data hosting. Several operators, including Liquid Telecom and MTN, already have data centers offering commercial services. Rwanda also launched an Internet Exchange (RINEX) in mid-2004, allowing more traffic to be exchanged locally by ISPs, reducing latency and improving quality of services.[33] Government launched an Enterprise Service Bus (ESB) to connect different public sector IT systems in 2019, allowing them to exchange data. However, the system still does not collect all MDAs and needs to be upgraded further to ensure full interoperability.

Rwanda's data governance framework will need to be fully operationalized and keep pace with emerging risks posed by an increasingly digital economy in the years ahead. Rwanda is still setting up a functioning Data Protection Office. The country will also need to continue to build operational capacity to anticipate, prevent and respond to growing cyber security risks, inter alia increasing cybersecurity awareness in the public sector and among businesses and consumers. Data breaches and cyber-attacks can cause enormous economic harm and erode trust in digital technology, thwarting further digital adoption. Rwanda introduced a Rwanda National Computer Security and Incident Response Team (Rw-CSIRT) in 2014 and in 2017 a National Cyber Security Authority (NCSA) was legally established, which was later operationalized in 2020. The NCSA, which is home to Rw-CSIRT, will need to continue to mature. Rwanda scored 79.95/100 in the 2020 ITU Cybersecurity Index (International Telecommunication Union (ITU), 2021).

2. Digital identification and authentication

Rwanda benefits from a robust foundational identity (ID) ecosystem, which Government is set to upgrade to a single digital ID system, which will introduce a digital credential and increase the accuracy of ID data. A new ID law was published in the official gazette in June 2023 to support this initiative. Robust and trusted ID is an essential enabler for service provision and innovation. Rwanda has rolled out a nascent e-signature system, based on public key infrastructure, but there is scope to develop this system further to enable seamless online transactions. Uptake is still limited among MDAs and industry.

Priority 4: Translating the enabling framework into wider adoption of emerging technology

The Government of Rwandais an active proponent of using emerging technologies to drive services innovation, launching several enabling policy and capacity building initiatives, as well as partnerships to drive innovation in this area. In April 2023, the Cabinet of Rwanda approved the National Artificial Intelligence (AI) Policy, becoming the first country in Africa to do so. Rwanda is also home to Africa's first World Economic Forum (WEF) Center for the Fourth Industrial Revolution (C4IR) in Africa—a global network of centers focused on shaping policies and governance frameworks for emerging technologies, including AI, blockchain, and the Internet of Things (IoT). The Centre is Rwanda focuses on data governance, AI and machine learning. The Government of Rwanda has also partnered with a private firm called Cenfri, as part of the Rwanda Economy Digitalization Program, financially supported by the Mastercard Foundation, which seeks to harness the power of data analysis to enhance policymaking, foster innovation, and ultimately uplift livelihoods across agriculture, MSMEs, tourism, and education. The Kigali Innovation City project was launched as a technology hub to stimulate innovation. In 2020, Government also launched the Rwanda Space Agency (RSA) to regulate and coordinate all space activities in the country, while creating an environment that encourages entrepreneurial and industrial development of space technologies to enable the creation of products that are globally competitive for local consumption and export markets. Thanks to these initiatives Rwanda can showcase a handful of successful use-cases of emerging technology—for example, Rwanda was an early adopter of drone technology. A few start-ups have also emerged, including Circular, using blockchain technology to trace and ensure ethical sourcing of minerals.

However, business adoption of emerging technology is yet to scale to the extent that it can translate into economy-wide productivity gains. Several factors explain this, including the large gaps in basic digital adoption among Rwanda's SMEs and traditional industries noted above but also the skills gaps in supporting the development of relevant applications in business. For example, further development of the advanced and highly specialized digital skills base will be needed to drive further adoption. The Government of Rwanda has already taken steps to support capacity building, education, and training initiatives to address this gap e.g., in areas such as data science, which will need to be scaled and accessible to more students. Examples include the African Centre of Excellence in Data Science (ACE-DS) initiative at the University of Rwanda, supported by the World Bank's ACE II Project; the Big Data for Development project by African Institute for Mathematical Science Next Einstein Initiative (AIMS-NEI); and Carnegie Mellon University Africa's data analytics program. However, there is also a need to develop regulation for emerging technology further.

Annex 2.1. Matrix of key policy recommendations: MSME development

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
2.2.1	**Policy Area 1: Advancing Cross-cutting Business Environment Regulatory Reforms.**				
	Priority Area 1: Strengthen Rwanda's insolvency legislation, the regulation of insolvency administrators and institutional capacity.				
	Reforming the insolvency regime to support job preservation through business reorganization, stimulate investment through better recovery rates and return to creditors and promote entrepreneurship.				
	Regulate and improve the insolvency ecosystem through (i) new legislation to expand the outreach and efficacy of the 2021 Law, as well as (ii) upgraded capabilities across the array of Insolvency Practitioners (IP).	RDB	MP	ST	HF
	Priority Area 2: Enhance the implementation of policies to reduce risks of distortions to the level playing field				
	Strengthen privatization legislation, regulations and procedures to support successful divestiture or liquidation of SOEs and enterprises with direct or indirect shareholdings when needed, as well as develop a consistent framework to decide on the creation of SOEs	MINECOFIN	HP	ST	HF
	Categorize and rationalize the SOE landscape. Sector-based analysis of the economic rationale for government participation, SOE performance and achievement of policy goals, and competitive neutrality. Together with efforts towards improving SOE management (See below) and improving the PPP process flow and regulatory framework (see recommendation in Chapter 7, Section 4.7.4), this will contribute to crowd-in private investment and secure the optimal use of public funds, thus building fiscal buffers that support the state's financial capacity.	MINECOFIN	HP	MT	HF
	Strengthen competition policy implementation by updating and enhancing the current legal framework, reinforcing the institutional capacity of RICA, and prioritizing actions to unlock barriers to entry and fair competition.	MINICOM	MP	MT	MF
2.2.2	**Policy Area 2: Supporting Firm Competitiveness Through Improved Capabilities.**				
	Priority Area 1: Facilitate Sector Competitiveness policies.				
	Sector Screening and Prioritization exercise, including cluster mapping and the identification of priority sectors for proactive FDI promotion.	MNICOM, RDB			
	Pilot Sector Competitiveness Initiatives at the sector or cluster level. These initiatives combine competitive strategy analysis with a participatory process with sector stakeholders, including firms, as well as private and public associated institutions.	MINICOM (DG INDUSTRY), RDB, MINAGRI	HP	MT	HF
	Building institutional capabilities necessary to systematically conduct sector competitiveness policies in Rwanda. Creation of a coordination mechanism or institution to facilitate the development of competitive clusters in Rwanda and channel financial resources and public goods supporting the implementation of cluster action plans.	MINICOM (DG INDUSTRY), RDB, MINAGRI	HP	MT	MF
	Priority Area 2: Upgrade and rationalize the portfolio of SME support schemes across the GoR.				
	Institutional mapping exercise of firm-level support mechanisms across government agencies. The activity would map all programs and service-oriented instruments firms in Rwanda can currently access	MINECOFIN, RDB, MINICOM, others	HP	ST	HF
	Functional analysis of the schemes and impact evaluation of the current SME policy mix. The WB's Public Effectiveness Review (PER) methodology could be used to evaluate the effectiveness of the Government of Rwanda's portfolio of firm-level support mechanisms and inform recommendations to improve it.	MINECOFIN	HP	MT	HF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
2.2.3	**Policy Area 3: MSME Access to finance.**				
	Priority Area 1: Invest in Financial Literacy and Business Management Skills of MSMEs.				
	Promote programs that support the development of business and financial skills of entrepreneurs.				
	Develop a broad training program targeted to the MSME entrepreneurs to strengthen their management capabilities, alongside accounting skills, market research, project implementation, etc.	**MINECOFIN, MINICOM, RDB, BDF CMA**	MP	MT	MF
	Foster financial literacy in the MSME segment.				
	Establish an awareness agenda targeted to the MSME to promote their understanding of financial products and how they can be used to support business operations.				
	Priority Area 2: Increase the Support to the Digitalization and Consolidation of SACCOs.				
	Address the fragmentation and lack of scale of individual SACCOs through automation.				
	Accelerate the digitalization of Umurenge SACCOS (U-SACCOs).	NBR, RCA, MINECOFIN	HP	ST	HF
	Consolidate U-SACCOs to create interoperability and improve efficiency and quality of service delivery.	NBR, RCA MINECOFIN,	MP	MT	MF
	Adapt the process of digitalization, automation in processes, and adoption of data analytics to agricultural sector.				
	Strengthen the engagement with the agriculture sector.	MINAGRI, NBR, BRD, BDF	HP	ST	HF
	Develop and deepen the capacity of U-SACCOs, to acquire significant agriculture sector-specific knowledge.				
	Priority Area 3: Address data gaps on MSMEs.				
	Adopt and enforce the use of a harmonized definition for regular reporting of data to the National Bank of Rwanda (NBR) by financial institutions.	NBR, RDB	HP	MT	MF
	Facilitate the deepening of the MSME data gathering process as well as data analytics and dissemination.				
	Priority Area 4: Develop accountability mechanisms on the financial services delivered to MSMEs and Improve the Information Infrastructure.				
	Address data management and access on MSME financial services.				
	Maintain an updated online database with detailed statistics on the provision of financial services to MSME segments of private businesses.	NBR	HP	MT	MF
	Strengthen the capacity of the NBR to centralize efficiently data collection efforts on the financial services offered to MSMEs.	NBR			
	Improve the information infrastructure to mitigate information asymmetries associated with MSME financing				
	Strengthen the credit reporting system by expanding data collection efforts to improve the availability, scope, and frequency of data on potential borrowers,	NBR, RDB	HP	MT	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
2.2.4	**Policy Area 4: ICT, Innovation, and Productivity.**	**MINICT/ RISA/ RURA/NCSA**			
	Priority Area 1: Improve Digital Access and Usage in Rwanda				
	Fully liberalizing the 4G and 5G market, implementing related provision in the new Broadband Policy (RURA)		HP	*ST*	*HF*
	Ensure effective implementation of broadband market competition regulation to drive down prices and encourage infrastructure investments		HP	*ST*	*HF*
	Scale digital literacy programs for consumers and SMEs		HP	*MT*	*HF*
	Scale digital skilling programs in the formal education system at all levels		HP	*MT/LT*	*MF*
	Institute financing mechanisms aimed at ensuring affordability of smart devices		HP	*ST/MT*	*HF*
	Priority Area 2: Strengthen Data Infrastructure and Frameworks				
	Adopt regulatory best practice practices to facilitate regional data sharing that allows for e-commerce		HP	*MT*	*MF*
	Invest in the data infrastructure needed to expand digital public services and open data initiatives		HP	*MT*	*HF*
	Engage with private sector to ensure productive re-use of DPIs, open data and relevant training		HP	*ST/MT*	*HF*
	Strengthen operational capacity for managing data risks – cybersecurity and data protection		HP	*ST/MT*	***MF***
	Priority Area 3: Support Interoperable Systems, Innovation, and Start-ups.				
	Develop and scale up interoperable digital payment system		HP	*MT*	
	Improve access and quality of digital innovation and entrepreneurship ecosystem support services to encourage innovation and start-ups		MP	*MT*	***MF***
	Priority Area 4: Promote and Support the Expansion of Online Business – Website-based Commerce.				
	Support the conditions for rapid development and effective usage of digital infrastructure in districts.				
	Improve digital infrastructure in provinces outside of Kigali				
	Provide financial incentives in provinces outside of Kigali				
	Foster digital skills development in the retail and other services sectors				
	Promote cross-province and cross-sector collaboration				
	Improve the regulatory framework for secure Website-based commerce.				
	Establish secure and efficient online payment systems				
	Strengthen business support services.				
	Streamline regulatory frameworks				
	Provide awareness campaigns on the impact of Website-based commerce.				
	Conduct targeted marketing and awareness campaigns				
	Conduct research and monitoring				
	Encourage market access and trade facilitation				
	Priority Area 5: Develop Innovative Activities – Innovation and ISO Certification.				
	Create financial and technical opportunities targeted to innovation.				
	Provide financial incentives for innovation		HF	LT	HF
	Enhance access to finance for innovation activities		HF	LT	HF
	Improve quality certification for tangible market access.				
	Raise awareness and provide training on quality certification		HF	LT	HF
	Streamline certification processes		HF	LT	HF

Annex 2.2. Detailed modifications to Ejo Heza program

Ejo Heza is a pension scheme launched by the Rwandan government and is intended to improve the welfare of workers in the formal or informal sector, whether they be self-employed or otherwise. As of December 2022, the scheme had registered 2.9 million individuals, or 22 percent of the Rwandan population, representing 37 percent of the working age population, many of whom are from low-income households. Eighty-seven percent of those in the scheme are from the informal economy and over 80 percent of registrants are active savers. Despite this success, more can be done, most notably on increasing the numbers of participants in the scheme, improving savings adequacy and managing expectations. If saving levels fail to increase, there is a risk of unmet expectations and low pensions when people retire.

Based on engagement with Ejo Heza subscribers, authorities should consider the following more detailed actions recommendations to further catalyze Ejo Heza (World Bank Group, 2023):

A. Several activities around communication and mobilization will have a positive impact on Ejo Heza coverage and persistency in savings.

		IMPACT	
#	Recommendation	Persistency in saving	Coverage growth
1	Reshape the narrative on why people should save in Ejo Heza—steering away from incentives to highlighting prospects of a pension, and competitive and safe returns as in the formal sector.		X
2	Recognize and develop different targeting and communication strategies for urban/rural; USSD/smartphone users; women/men, individuals with/without phones	X	
3	Create <1min 'how to' videos that can be shared on WhatsApp/YouTube and show how to register, contribute, check balance, and get enrollment information	X	X
4	Engage with other aggregators who might have an 'observe and auto-deduct' capability especially in urban areas.	X	X
5	Adopt a 'Tech with touch' motto to avoid excluding those with limited digital access (women, children, low-income members) and in vulnerable situations (after death or disability of a member).	X	
6	Create 'digital contracts' using information at registration stage that can be accessed by members with a #text and can serve as proof of membership	X	

B. Experimenting with new business models and customer acquisition approaches should further expand the scheme

		IMPACT	
#	Recommendation	Persistency in saving	Coverage growth
1	Revisit targets for district using objective criteria to reflect socio-economic differences by district	X	
2	Assess and manage expectations of members on expected fund balance in old age given their saving levels	X	
3	Highlight the above inflation, competitive and stable returns in the communication material and in-person visits	X	
4	Explore potential for 'auto deduction' in partnership with Mobile Money operators and Banks	X	X
5	Promote the registration of spouses and children of existing members	X	X
6	Pilot other short-term incentives to members, for example, accident insurance, maternity benefits to savers in Ejo Heza or points in a grocery store/mobile money top-ups/chances to win a lottery if one saves persistently		X

C. There is also clear need for investment in human capital development and data collection.

		IMPACT	
#	Recommendation	Persistency in saving	Coverage growth
1	Organize study tours with countries that have relevant experience to share		X
2	Adapt systems and build capacity to allow 'intermediary logins' to be generated at the district level		X
3	Hire a PR firm to work with the communications team to craft tailored and creative messages targeting children, urban workers, women, and youth (age 16-30)	X	X
4	Building a 'richer data set' by pulling variables from other government databases as relevant		X
5	Adding a question at time of registration such as 'Who helped you register'?		
6	Ensure that the drop down under 'Occupation' at the time of registration includes the same categories as Rwanda's household survey data to allow for easier mapping		X
7	Analyze panel data of participants with policy relevant questions in mind	X	

Annex 2.3. Domestic Market Recapturing Strategy (DMRS) and Made in Rwanda (MiR) Policy

The DMRS aims to boost domestic production for local consumption, promote structural transformation, and enhance international competitiveness (MINICOM, 2015). It focuses on construction materials, light manufacturing, and agro-processing, selecting 21 specific sectors based on potential for import reduction, planned projects, market size, export potential, raw material availability, and strong domestic linkages. Priority sectors include cement, textiles, and garments due to their high potential for recapturing the domestic market.

Launched in 2017, the MiR Policy seeks economic transformation through enhanced competitiveness and industrial growth in partnership with the private sector. Its goals are to address the trade deficit and increase job creation by promoting exports, boosting local production, and improving the quality and competitiveness of Rwandan products. The policy aims for a US$450 million annual reduction in the trade deficit, representing 17.8 percent of the import bill at launch (Pritish Behuria, 2018), and targets significant employment increases by stimulating local production and consumption of competitive Rwandan products.

The TBI evaluation found that overlapping agendas between the Industrial Policy and MiR Policy have caused confusion among stakeholders, hindering the MiR's implementation. This lack of clarity has slowed progress and undermined accountability. Although some MiR outcomes have been achieved through the broader Industrial Policy, specific MiR initiatives, such as quality improvements by Rwanda Bureau of Standards (RBS) and the RDB's Supplier Development Program, have made notable contributions. The TBI evaluation team rated the MiR interventions with a B Score—Partially Meets Expectations—due to the limited presence of specific MiR initiatives.

Source: Tony Blair Institute for Global Change. "Evaluation of the Made in Rwanda Policy: Mid-Term Review". By Neil Spooner (Consultant for TBI). TBI Industrialization Practice. TBI Rwanda. July, 2022.

Annex 2.4: Servicification in Indonesia and the Philippines

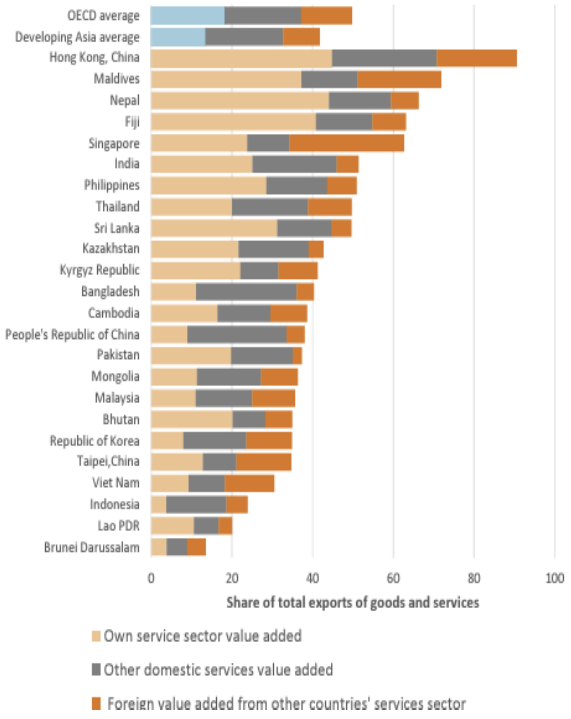
A 2018 ian Development Bank Institute (ADBI) Study on Servicification of Manufacturing in Asia examines data from Asian Development Bank (ADB) Multiregional Input-Output Tables, covering 24 Asian economies, including Indonesia and the Philippines, over nine years (2000, 2010–17). It categorizes economies into 35 sectors, including 14 manufacturing and 17 service sectors. "Manuservice" refers to the increasing reliance of manufacturing firms on services, evident in several ways:

1. Production Intensity: More services are used as intermediate inputs by manufacturers (Low 2013).
2. Job Orientation: The number of service-related jobs within manufacturing has grown, while core production jobs have declined (Miroudot and Cadestin 2017; Miroudot 2016).
3. Value Addition: Services are increasingly embedded in or bundled with goods.

Trends and Patterns of Servicification

Using the updated MRIO 2017, the study shows consistent trends in Asia. Services exports as a share of total exports remained steady at roughly 17 percent from 2000 to 2017, but excluding Japan, it declined from 18 percent to 16 percent. However, the value added by services increased. From 2000 to 2017, the services value added contribution to total exports of goods and services rose from 27.7 percent to 34.4 percent. In 2017, the share of services value added in exports was about the same in Asia and non-Asia, though it varied significantly across economies (see figure below).

Figure Own Services, Other Domestic Services, and Foreign Services Value-added Contribution to Value Added of Exports by Economy, 2017.



Note: Own service sector value added refers to value added originating from within the service sector to produce its own exports. Other domestic services value added refers to value added contributed by other domestic services sectors used to produce exports. Foreign value added from other economies' services sector refers to value added contributed by foreign services sectors to produce exports. The Republic of Korea is in both OECD and developing Asia.

Source: Authors, using ADB MRIOT 2017 data; Mercer-Blackman, V. and C. Ablaza. 2018. 'The Servicification of Manufacturing in Asia: Redefining the Sources of Labor Productivity.' ADBI Working Paper 902. Tokyo: Asian Development Bank Institute.

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Notes

[1] The number of establishments in rural areas grew by 66 percent, exceeding expansion in urban zones of 39 percent (although some of the newly registered establishments may have previously existed in the informal sector).

[2] This estimate of 73,037 is equal to 539,243 (in 2017) minus 466,206 (in 2020).

[3] See the series of "Rwanda Labor Force Survey" from 2016 to 2022.

[4] This refers to "business enterprises", as defined in the 2019–21 Rwanda Integrated Business Enterprise Survey Report (March 2023).

[5] This includes the sector of agriculture, forestry and fishing, which created about 827,770 jobs in 2017–22, cumulatively.

[6] Oxford Economics estimates are focused on air and road transport only, Rwanda's own medium-term plan is comprehensive and covered all subsectors of transport, including air, rail, road, water, pipeline, boarder post weigh bridge, and Urban Transport and Multi-Modal Facilities (See. African Development Bank (2013). Rwanda Transport Sector Review and Action Plan. Tunis.

[7] Oxford Economics' Global Infrastructure Hub. https://outlook.gihub.org/countries/Rwanda.

[8] World Bank analysis based on Economic Intelligence Unit Risk Tracker as of August 2023.

[9] See the Archived 2020 Doing Business Report for more information on the methodology: https://www.doingbusiness.org/en/data/exploretopics/resolving-insolvency

[10] See section 2.6.6 on constraints to mobile technology upgrade and section 5.3 and 5.4.1 on government involvement in the seeds and fertilizers markets coupled with regulatory challenges to register seeds and agro-chemicals and for seed multiplication by the private sector.

[11] Other NBFIs that include Forex bureaus, payment services providers and non-deposit taking lending only institutions remain relatively small and accounted for about 1.1 percent of the total assets of the financial sector.

[12] Digital technologies are defined broadly to include not only digital and data infrastructure, broadband internet, smartphones, tablets, and computers, but also a wide range of more specialized productivity-enhancing digital solutions ranging from communications to procurement, production, marketing, logistics, and financing (Tania, Blimpo, & Dutz, 2023).

[13] US$40 million was invested, financed by the sale of the historical operator Rwandatel. UNOHRLLS: United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States

[14] https://www.cable.co.uk/broadband/speed/worldwide-speed-league/#speed

[15] https://networkreadinessindex.org/

[16] Source: Rwanda Development Board. https://rdb.rw/gor-launches-manufacture-and-build-to-recover-program-extension-to-attract-more-private-sector-investments/

[17] Source: World Bank. May 2024. Assessment of Rwanda's Industrial Policy 2024–34.

[18] As part of this, the pool of institutions should also include RICA not only on consumer protection and product qualify, but also on competition to evaluate business support initiatives that can distort competition. Regulations on the evaluation of business support to firms in line with the EAC Competition Act and the 2023 Competition and Consumer Protection Policy would be needed.

[19] NIRDA has also been supporting the industrial sector's productive capabilities with firm-level programs for technology adoption, development, and transfer, soft loans for equipment acquisition, technical support and training of staff.

[20] The Business Development Fund was established in 2011 as a subsidiary of the Development Bank of Rwanda (BRD) to expand financing avenues to access to credit for small businesses through credit guarantees, Quasi-Equity support to start-ups, matching grants, SACCO Refinancing, and business development advisory services (BDS).

[21] Established in 2017, the National Agricultural Export Development Board (NAEB) provides timely and cost-effective support services and financial facilities to enhance the international competitiveness of businesses engaged in agricultural and livestock exports.

[22] The Rwanda Development Board (RDB) offers business registration and aftercare services to investors, as well as an array of schemes for SME support, including capacity building and skills development in priority value chains with high export potential, financial linkages, standards certification and market linkages.

[23] World Bank financed Access to Finance for Recovery and Resilience (AFIRR) project implemented by the Development Bank of Rwanda (BRD) and the Business Development Fund (BDF).

[24] For example, Inkomoko Rwanda and Business Professional Network.

[25] See the World Bank's Technological Capabilities and Firm Performance in Rwanda.

[26] Additional sources of important credit-related information on potential borrowers include, but are not limited to the court system, tax authorities, utility companies, telecoms, retailers, business registries, and digital financial service providers (such as FinTech companies). Including data on mobile money accounts can be particularly important.

[27] Especially in bulk format, rather than access only to the value-added services such as credit scoring, to increase the degree of automation in the decision-making process of credit provision.

[28] Examples include Financial Service Consumer Protection Law sensitization (Access to Finance Forums and all Umurenge SACCOs), programs for empowering Rwandan youth with financial skills (school Quiz Challenge for secondary schools with economic clubs and Zala Smart financial literacy programs for teenagers), credit information system awareness and micro insurance awareness campaigns.

[29] The IMF estimate for 2022 is 392 million dollars, equivalent to 3.2 percent of GDP (IMF, 2022).

[30] An earlier study suggest that it could be as large as 2.5 times the size of official flows (Freund & Spatafora, 2008).

[31] This is based on a couple of interviews with the Rwanda Country Manager for WorldRemit, a leading money transfer operator responsible for about 10 billion dollars of global remittances. See for example: https://taarifa.rw/electronic-payments-in-rwanda-increased-by-400/

[32] Under NICI II (2006 – 2010): The Development of ICT infrastructure.

[33] https://rinex.org.rw/spip.php?page=aggregate_traffic

CHAPTER 3

GROWTH AND RESILIENCE THROUGH TRADE: NEW POST-PANDEMIC POLICIES TO DRIVE EXPORTS

3.1. Introduction

Openness to international trade is vital for Rwanda. Sales to international and regional markets allow Rwandan firms to transcend the limitation of the country's small market to realize economies of scale, to increase productivity, and to strengthen competitiveness. Strong export growth will be key for Rwanda's sustainable economic development that will continuously reduce the importance of financial development assistance as well as remittances. Indeed, Rwanda's past remarkable growth performance was predicated upon a steady expansion of its international trade. Exports were the life blood of the economy. Rwanda has seen impressive growth of its exports over the decade since the great financial crisis of 2008–10, with an average annual growth rate of 14 percent in 2010–19 (Twum, 2022), substantially higher than the 3.7 percent for world exports and even better than the average of 4.5 for SSA between 2010–19. Furthermore, Rwanda's export growth, both in goods and services, outpaced that of Ethiopia, Ghana, Kenya, Tanzania, and Uganda, which share similar export structures (Figure 3.1). Export growth slowed somewhat in the second half of the decade, and then plunged in 2020 with the pandemic. Export growth has picked up since then but remains well below the rates needed (according to the Future Drivers of Growth study) to achieve Rwanda's aspiration of becoming an upper-middle class country by 2035 and a high-income country by 2050.

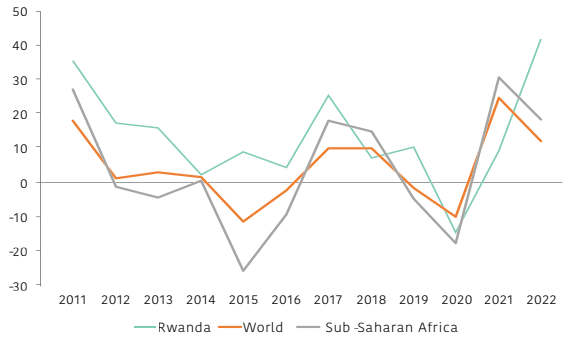
Moreover, Rwanda along with the rest of Africa experienced a series of external shocks in recent years. The pandemic recession was soon followed by the food prices surges associated with the war in Ukraine, and then interest rate surges emanating from rich countries to cope with worldwide inflation. Add to this the increasing frequency and impact of climate related shocks, and the need to build resilience into its productive structure and exports is urgent. On the eve of preparing for the second National Transformation Strategy (NST2), it is appropriate to review progress in trade performance and policies that could drive export growth, and to highlight new challenges and opportunities that have emerged in recent years to reshape policy priorities.

This chapter focuses on five broad objectives touched upon in the earlier study, but that have taken on new dimensions since 2018:

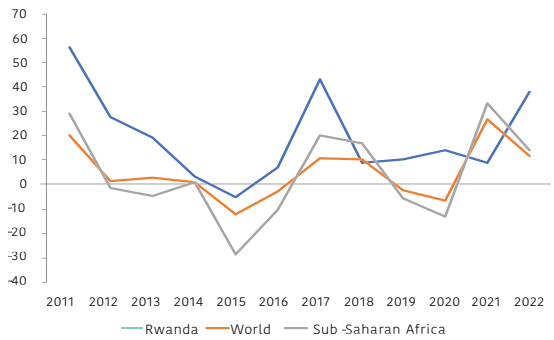
- Build resilience through diversification and increased product complexity. The serial shocks underscore the importance of diversifying both product and markets to cope with the inevitable shocks that will continue to emanate from the global economy. In addition, it is now apparent that an on-going ineluctable shock—climate change—is adding a new urgency to the quest for diversification.
- Promote services exports and foster digital trade. Services are key to increasing productivity and diversifying exports. Already services are an increasing share of Rwanda's exports. Services exports worldwide are outpacing merchandise trade and hence offer new opportunities for Rwanda—more so if production and trade of goods and services are considered jointly in a servicification agenda. E-commerce and digital trade have become even more important than they were in 2018.

Figure 3.1: Annual export growth

a) Goods and services export annual growth, %



b) Goods export annual growth, %



Source: Calculations based on WDIs

- Advance regional integration through coordination and trade liberalization. Regional trade has always provided an opportunity to test new product and service exports, but with the recent advent of the AfCFTA and an expansion of the EAC, realizing the promise of regional opportunities is essential to export growth—and to building resilience through diversification.
- Consolidate Rwanda's position as a regional logistics hub. Rwanda is uniquely positioned at the heart of Africa to become a center of transit and trade. Progress on developing rail and air linkages has accelerated. Reducing the costs of trading across borders—through reducing non-tariff barriers, improving administration at borders, and infrastructure—remain central to realizing potential export growth.
- Leverage foreign investment to access international markets and promote green growth. Slowing worldwide flows of FDI since about 2015 have made it more difficult to tap into their potential to link up to global value chains, import technology and skills, and improve access to markets. FDI can bring climate-adaptive technologies and drive green investment. Expanding Rwanda's SEZs and integrating them into the logistics infrastructure can be a key step to attracting FDI in modern, tradable sectors.

The study reviews progress in these five areas in light of recent global trade developments and Rwandan performance. To lay the contextual foundation for those discussions, the chapter begins with an analysis of the main structural challenges to exports, highlighting both the strengths and remaining structural weaknesses in the pre-shock decade to 2019 and the post-shock period after 2020. Subsequent sections then review the five priority areas, pointing to progress, remaining problems and possible new policies to drive export growth. A concluding section succinctly compiles the recommendations. Annex 3.2 summarizes the main policy initiatives in each area since the Drivers of Growth study.

3.2. Structural challenges to exports

Structural issues limiting Rwanda's exports include similarity with regional trade partners, limited diversification, low product complexity, low survival rates and vulnerability to climate shocks.

Rwanda's exports face substantial challenges that will limit growth going forward:

- Products similarity with key regional partners: Rwanda's exports to regional partners, where proximity and connections would otherwise support exports, are limited by the similarity of the main export products in the region, such as tea and coffee. Rwanda's complementarity with regional economies (except for Uganda) is low and is further declining.
- Limited products and markets diversification: While the number of Rwanda's export goods and markets (for large exports) increased between two and four times over 2010–19 (Twum, 2020), recently the concentration of goods and markets has stagnated, or even risen (Figure 3.3). This has been driven primarily by the high export values of gold to one major market, the UAE. High levels of concentration increase vulnerability to market disruptions, as demonstrated by recent supply chain disruptions. Gold carries inherent political risks that have the potential to disrupt trade flows, as exemplified by a recent policy initiative in the United States (Box 3.1.).
- Reliance on products with low complexity: Most of Rwanda's export growth has occurred through stronger performance in products with lower product complexity, including primary commodities such as gold, metals, agricultural commodities, various food products, and mineral oils. These goods are exposed to large price fluctuations in international markets and provide limited opportunities for increasing value added and productivity growth.
- Low export survival rates continue to pose a challenge: The World Bank (2017) estimates that on average only 30 percent of new exporters in a year survive in the export market into the next year; the entry and exit rate of exporters is highest in Rwanda compared to regional peers within the EAC. Between 2010 and 2019, approximately 18.2 percent of Rwanda's potential export growth was lost due to a decrease in exports of existing products to established markets (6.7 percent) and the complete cessation of exports to established markets (11.5 percent, Twum, 2022).

- Vulnerability to climate related shocks: Rwanda's strong reliance on agriculture makes it particularly vulnerable to the effects of climate-related shocks. In particular, low use of fertilizers and strong reliance on rain-fed cultivation (Kondylis, Jones, Magruder, & Loeser, 2018) increase the impact of climate shocks and adverse climate conditions. These risks are rising, as the frequency of damaging global climate-related disasters has increased (UNECE, 2020; UNDRR, 2020), particularly affecting small, agriculture-dependent economies such as Rwanda.

These challenges in part reflect low sophistication of Rwandan firms and products. Firms in Rwanda have low levels of ISO certification, undertake limited innovation and face constraints on participation in e-commerce (see Chapter 2), all of which are important for exporting. In 2019, only 3 percent of firms had obtained ISO certification, compared to an average of 13 percent in other EAC countries, while firms with ISO certification are 36 percent more likely to be exporters. Firms in Rwanda lag behind in product innovation compared to those in most other countries (World Bank, 2022a). In 2019, only 15 percent of firms had introduced a new or significantly improved product or service during the last three years, which places Rwanda in the 14th percentile of countries with a rank of 103 out of 120. While the adoption of e-commerce is a significant determinant of participation in international trade in Rwanda, 43 percent of firms engaged in ecommerce in 2019, which places Rwanda in the 33rd percentile of countries.

Some of these weaknesses are associated with high input costs. Despite gains in trade facilitation, transport costs remain high. The shipping costs for a 20-foot container from Shanghai to Mombasa is around US$500-1,000 while it costs around US$3,000-4,000 to transport it from Mombasa to Kigali (GIZ, 2020; World Bank, 2022b). High tariffs further raise input costs. The agricultural sector, for instance, faces import tariffs of between 14 percent and 22 percent on some imported goods that are then subject to further processing and exporting.[17] High tariffs also reflect inefficiencies in the EAC's Common External Tariff (CET), which applies tariffs up to 100 percent on certain imports.

3.3. Build resilience through diversification and product complexity

Diversification and increased product complexity would reduce the vulnerability of Rwanda's exports. Policies to support firms' innovation and productivity growth would help to boost diversification and complexity.

Diversification of products and markets can lead to a substantial reduction in the propagation of shocks, particularly through global value chains (GVCs) (Schwellnus, Haramboure, & Lea, 2023; Jansen, Lennon, & Piermartini, 2009; AIIB, 2021). On a macroeconomic level, higher diversification or lower concentration of economic activity is associated with greater stability in terms of output and terms-of-trade (Papageorgiou & Spatafora, 2012). This highlights the importance of diversification and increasing product complexity to boost export growth and reduce the impact of external shocks on Rwandan trade.

Figure 3.2: Product concentration Herfindahl-Hirschman index

Source: Calculations based on TBA

Figure 3.3: Market concentration Herfindahl-Hirschman index

Source: Calculations based on TBA

A coordinated approach is proposed that employs a wide scope of instruments to support firms' product innovation and market access. This includes the formulation of a trade strategy in consultation with private sector representatives to identify and support high-potential exports sectors and markets. This should be supported by innovative marketing strategies, provision of information and appropriate subsidies to firms to increase innovation and productivity and efforts to improve the skills of the Rwandan workforce. The section also discusses coordination with regional and global partners to enhance the effectiveness of trade policy in facilitating adaptation to climate change.

Policy area 1: Support exporting firms with new strategies to diversify products and markets.

Leverage Rwanda's comparative advantage to identify promising industries for export growth and import substitution. By acknowledging other countries advantage in certain industries, such as through established economies of scale or geographic conditions, Rwanda can identify what industries are promising candidates to drive Rwanda's future economic growth. Products from other industries, in particular for intermediate inputs into Rwanda's production, should be imported to guarantee low production costs and hence international competitiveness. This refers to the general benefits of international trade that foster international specialization important for industrial productivity and cost advantages. To promote Rwanda's high promising industries, the country should concentrate on market-friendly instruments to reduce market failure through the reduction of market barriers, the strengthening of its business environment and to ensure access to high-quality and cheap inputs. While some subsidies can be justified for example to support infant industries, market-based instruments will help to avoid retaliation from import supplier countries.

Identify and communicate high-potential export products in existing and newly developed strategies. Rwanda's new National Trade Policy II describes the country's ambition for more focused and aggressive campaign to identify and target high value manufactured products based on several measures[1] supported by measures to foster innovation. In addition, a review of available studies of priority export sectors, prepared as part of Rwanda's export strategy, industrial policy, Made-in-Rwanda strategy, and other related policy documents, would help to ensure policy coherence and prioritize feasible export diversification. While the expansion and diversification of the tourism sector has the potential to continue to be a major export driver, Rwanda could conduct a study of nascent service export sectors and products with high growth potential, such as transport, government, education, and healthcare services, building on an earlier International Growth Center (IGC) study using South Africa's Decision Support model (Twum, 2022; Viviers & Cameron, 2018).

Enhancing the quality and scope of high value-added sectors would contribute to diversification. Rwanda would greatly benefit from the design and implementation of a national export market access strategy that coordinates collaboration by the Ministry of Trade and Industry (MINICOM), Ministry of Foreign Affairs and International Cooperation (MINAFFET)'s Economic Diplomacy, and Rwanda Development Board (RDB) with sector-specific exporter associations aimed at helping exporters identify, enter, and expand their export markets. The strategy could include the following concrete policies to increase diversification discussed below.

Use traditional and non-traditional promotion to reach new markets and establish new products as suggested in NTS-2. This could include a combination of traditional strategies with innovative digital marketing approaches involving trade shows and marketing campaigns together with online marketing, including the use of social media channels (Twum, 2022). In addition, Rwanda should assess the efficacy and effectiveness of trade offices and embassies in foreign export markets, while looking for ways to use online information.

Streamline business regulation to create an incentivizing framework for diversification. Chapter 2 puts forward actionable recommendations on advancing regulatory reform to increase competition and private sector development. A stronger regulatory environment can increase diversification by facilitating the movement of resources from declining sectors to more dynamic ones. Additionally, clear antitrust and competition laws, along with their effective enforcement, encourage

firms to innovate and diversify. Competition policy reforms in various countries have led to increased competition in input markets, resulting in downstream diversification, improved services, and enhanced efficiency (OECD/WTO, 2019).[2]

Focus on the removal of entry barriers, particularly information barriers, which hinder innovation and market penetration. To translate government strategies into concrete action, expanding the scope of information sessions for the private sector on high-potential exporting activities could encourage new exports, build knowledge of market requirements, and help identify market access issues and non-implementation of trade agreements. In addition to initiatives that offer direct support for market access and product development, diversification will benefit from a strengthening of trade facilitation in a more integrated regional market and the removal of persisting trade frictions. Policies to reduce trade costs and foster trade integration are discussed in separate sections below.

Policy area 2: Increase product complexity by incentivizing value addition and innovation.

Increasing product complexity can improve diversification, expand trade to regional partners by overcoming the current limitation of strong product similarity in regional trade, and reduce the volatility of export prices. This requires increasing support for business R&D and knowledge sharing and continued investment in programs to improve the innovation environment (for example the Kigali Innovation City (KIC) technology innovation hub). This could be complemented by tailored public education and training courses (for example, extension of university programs and other educational initiatives such as technical and vocational education and training (TVET) programs to boost skills—see Annex 1.4 and Chapter 2 for an in-depth discussion on building Rwanda's human capital to facilitate growth).

Upgrade existing value chains while developing modern productive sectors. Recent successes in value-addition in the coffee value-chain through coffee washing stations show the potential for improving and upgrading in conventional industries. These efforts need to be accompanied by support for modern tradeable industries. Global innovator service industries, such as the ICT sector, employ the highest share of skilled labor and are R&D-intensive (See Chapter 2 for a more detailed discussion on the educational profile of workers across sectors). At the same time, innovating industries are significantly more productive than other low-skilled tradable sectors and more productive than the manufacturing sector. Expansion of these sectors, hence, will not only allow access to new markets as these sectors are highly tradeable, but offer to be a major driver of economic productivity. In this light, Rwanda could pursue initiatives to i) strengthen programs to foster and enable innovation and ii) identify the skills gap to design targeted education and training programs.

- Evaluate public innovation programs and scale up successful ones. Targeted incentives can help exporters in high-priority sectors overcome barriers such as lack of access to finance and difficulties in obtaining certification for international standards. In this regard, the Government of Rwanda could scale up the National Industrial Research and Development Agency (NIRDA) program, which has been successfully implementing upgrading programs for six major value chains since 2013 (Twum, 2022) and strengthen monitoring of existing export support programs such as the Export Growth Fund (EGF) and existing export strategies by the RDB, to ensure the targeting of the most productive and innovative firms and to facilitate integration into GVCs cross priority sectors.
- Align skill development programs with private sector demand through dialogue and fostered engagement with universities and TVET institutions. These include Rwanda's TVET Board, MINEDUC's Workforce Development Project, Skills Development Fund (SDF) and policies such as the Enhancing the Quality of Industrial Policy (EQUIP). The Government of Rwanda should leverage the Occupation on Demand List, updated in 2022, and the Sector Skills Councils (SSC) under the National Skills Development and Employment Promotion Strategy (NSDEPS) to understand persisting skills gap. Innovation efforts should be integrated between research/innovation institutions, the private sector and society coordinated by public institutions

such as the National Council for Science and Technology and the National Research Development Agency (Yongabo & Göransson, 2022). A key step towards this is an expansion of international partnerships with innovation and research institutions to learn from international experience such as the Carnegie Mellon University Africa or the establishment of four World Bank East-Africa Centers of Excellence, which provides training programs in the higher education sector.

- The consultation of the key skills development resources needs to be strongly aligned with Rwanda's main sectoral development strategies. These strategies lay out the pathway for Rwanda's future development through a range of modern industries such as Rwanda's growing financial sector whose skill-intensity is higher compared to traditional industries. To address this need, it is key to invest in universal skills, such as numerical skills and critical thinking as well as more specialized while transferable skills, in particular digital skills, which all are pivotal for modern, often service-based industries that are directly or indirectly needed for exports of goods and services. At the same time, the growth of modern industries will require a set of highly specialized, potentially non-transferable skills that are key to their respective employment. Examples include skills in business process services (BPS) or required in jobs in the electric-vehicle manufacturing and repair supply chain. Given the delay between skills development and eventual skills availability, Rwanda needs to act anticipatory and invest in skills programs today to equip the future industrial drivers of Rwanda's growth tomorrow with the required skilled labor force. A key step would be to build an integrated system between the public-private dialogue, as described above, and Rwanda's industrial strategies that informs the above skills-related resources and which could be leveraged through existing institutions, such as Rwanda's Labor Market Information System (LMIS) to develop targeted active labor market programs.

Policy area 3: Use trade policy to facilitate climate adaptation.

Trade can strengthen resilience to climate-related shocks by harnessing the opportunities for market substitution and enhancing access to essential inputs such as fertilizers, capital, and technology (Brenton & Chemutai, 2021; World Trade Organization (WTO), 2021). Establishing a consistent and stable policy environment to promote cross-border trade and regional fertilizer markets would involve harmonizing regulations and eliminating trade barriers, while strengthening institutions involved in standardization, quality control, and certification (For a broader discussion of climate resilience, please see Chapter 6).

3.4. Promote services exports and foster digital trade

Supporting firms' efforts to undertake digital transactions could increase productivity. Key steps include reducing restrictions on services trade, and particularly digital trade, and strengthening the legal framework for cross-border data transfers.

Services play a significant role in exports. Exports of services increased by about 9 percent per year between 2010 and 2019, reaching over US$2 billion. In 2019 (before the pandemic), the tourism sector, and in particular nature-based tourism, accounted for nearly 45 percent of service exports and air transport services around 20 percent. Nature-based tourism attracts a large share of Rwanda's foreign visitors, generates significant government revenues and tourism receipts, increases demand in other sectors and boosts formal job creation. While chapter 6 assesses extensively nature-based tourism, this section discusses policies to promote other critical services for Rwanda's exports.

As Rwanda plans its transition to middle-income status, it needs to be thinking ahead to eventually achieving high-income status—that is, transitioning to a knowledge-based, digital services-led economy.[3] Currently, Rwanda predominantly focuses on low skill-intensive services, such as construction and transport services (see Chapter 4 for worker distribution across sectors), and lacks specialization in high-value and skill-intensive services found further upstream, such as business and technical services. Modern services can facilitate scale economies through increasing market access (for example, through opportunities to sell

remotely), are characterized by innovation-driven improvements in labor productivity through the diffusion of digital technology and play an important role in providing intermediate inputs to other sectors (Nayyar et al., 2021). Thus, services could play a role similar to manufacturing in the growth miracles of countries in the 1990s, making services key for Rwanda's export and growth model (Newfarmer & Twum, 2022)[4]

More broadly, policies that promote services exports include improving market access, strengthening the legal framework, and promoting digital trade. Efforts to reduce barriers to services trade could involve further progress in trade agreements to ease restrictions on the entry of foreign workers and facilitating recognition of foreign professional qualifications to improve Rwandan firms' access to skilled workers and providing for cross-border digital payments interoperability. Complementary administrative efforts could involve simplifying government procedures, supplying information on services trade opportunities, and evaluating the impact of government programs. An easing of restrictions on data transfer while maintaining privacy and cybersecurity protections will be necessary to enable Rwandan firms to engage in trade in services that involve cross-border data flows. And the expansion of Rwandan firms' participation in digital transactions will require developing infrastructure and an appropriate legal/regulatory framework, in coordination with trade partners.

Policy area 1: Reduce remaining restrictions on services trade.

Lowering restrictions on services trade will play a pivotal role in driving Rwanda's export growth and resilience. Strengthening physical and digital connectivity through reduced restrictions enables greater diversification through expanded market access, it strengthens cross-border supply chains, promotes productivity through access to inputs, raises competition and attracts FDI (Arnold et al,, 2011; Arnold et al, 2016; Duggan et al, 2013; Fernandes et al, 2021; Nordås, 2011). Rwanda has actively pursued international agreements to liberalize the services sector. Additionally, Rwanda should consider including services in the Preferential Trade Agreement (PTA) with the India-Gulf Cooperation Council (GCC) to gain access to a higher-end services sector. Participation in discussions initiated by World Trade Organization (WTO) members on e-commerce, domestic regulation of services, and investment facilitation would help to learn from best practices. Rwanda might also want to explore the prospects for unifying the WTO's Trade Facilitation Agreement (TFA) efforts with African Union trade facilitation discussions—at present each EAC country has an inconsistent TFA commitment proposal (Twum, 2022). To maximize the benefits of the AfCFTA, Rwanda must implement its commitments to reduce remaining barriers to services trade.

Rwanda faces fewer restrictions on average compared to neighboring EAC countries, but significant trade barriers still persist.[5] Table 3.1 presents the results from the Services Trade Restrictiveness Index (STRI)[6] and Rwanda's commitments for liberalization made to the AfCFTA secretariat. An index value of 50 is indicative of major restrictions on services trade. Rwanda's STRI scores vary across sectors. Tourism and distribution services experience relatively low restrictions, while transport, business services, and particularly financial services encounter significant barriers that exceed the EAC average.

Rwanda imposes significant restrictions on Mode 4 trade, which refers to the presence of foreign workers in the country. Easing limits on permits for foreign workers[7] would help to supply key skills required for the development of modern services. In contrast, recent commitments submitted by Rwanda and the EAC toward service trade liberalization within the AfCFTA propose further restrictions on foreign workers. Recognizing the significant skills gap in the service sector,[8] Rwanda needs to take key actions to facilitate cross-border movement.

The cross-border movement of skilled labor could be supported through expansion of international agreements and liberalization of visa conditions. Rwanda could consider recognizing regional professional qualifications within the EAC and introducing more liberal visa and work permit conditions aligned with the tourism and MICE strategy and the AfCFTA's service commitment schedules. This could be coupled with requirements that employers have a plan for developing local staff and capturing foreign knowledge. A more liberal work permit regime could also incentivize short-term assignments in services, enhancing firm flexibility. Within the EAC, facilitation of movements would benefit from a recognition of

AfCFTA sector	Detailed sector	M1 (cross-border supply		M3 (Commercial presence/FDI)		M4 (Foreign workers)	
		STRI score	AfCFTA Offer	STRI score	AfCFTA Offer	STRI score	AfCFTA Offer
Business services	Accounting services	0	Fully open	0	Fully open	63	Partially open
	Architecture services	100	Fully open	0	Fully open	100	Partially open
	Computer and related services	0	Fully open	25	Fully open	50	Partially open
	Engineering services	100	Fully open	0	Fully open	100	Partially open
	Legal services (Host country advisory)	31.5	Fully open	81.2	Fully open	56.4	Partially open
Communication	Fixed-line telecommunication	96.3	Fully open	42.7	Fully open	53.9	Partially open
	Mobile telecommunication	85.9	Fully open	39.7	Fully open	53.9	Partially open
	Postal and courier services	75.1	Partially open	32.8	Partially open	50.3	Partially open
Financial services	Auditing services	0	Fully open	0	Fully open	63	Partially open
	Commercial banking	100	Partially open	55.8	Fully open	62.2	Partially open
	Life insurances	77.7	No change	36.6	No change	50	Partially open
	Non-life insurances	77.7	No change	36.6	No change	50	Partially open
	Reinsurances and retrocession	76.9	Partially open	32.1	Fully open	50	Partially open
Transport	Air freight international	38.9	No change	45.5	No change	50	Partially open
	Air passenger international	77.8	No change	45.5	No change	50	Partially open
	Road: freight transport	0	Partially open	25	Fully open	50	Partially open
Tourism	Hotel and lodging services	0	Fully open	25	Fully open	50	Partially open
	Travel and agencies/tour operators	75	Fully open	25	Fully open	50	Partially open
Distribution	Wholesale trade services	0	No change	25	No change	50	Partially open
	Retail services	0	No change	25	No change	50	Partially open

licenses and standards obtained in other EAC countries, adoption of common qualification criteria and a further expansion of mutual recognition agreements (MRAs) to include a broader range of services, such as financial services, health, and education (World Bank Group; Government of Rwanda, 2020). A more immediate step would be a unilateral recognition of qualifications for EAC-professionals through a liberalization of work permits in the absence of an EAC-wide MRA.

Rwanda should also focus on removing restrictions on Mode 1, referring to cross-border trade of services. Table 3.1 indicates strong commitments to full liberalization, primarily in professional services. Concrete actions aligned with these commitments need to be taken, and the level of commitment should be strengthened. Notably, the financial sector faces substantial restrictions, primarily driven by limitations in commercial banking, with the degree of commitment remaining small. Addressing this, Rwanda could promote the establishment of a regional mechanism to support cross-border digital payments (leveraging East African Payment System (EAPS) and on its version 2 – EAPS2), address governance, settlement, fees, currencies and standards.

Administrative procedures and requirements for service trade should be reduced and simplified, with regular evaluations of progress. Firms report a lack of transparency regarding regulations or government decisions, contract issues, unpredictable or unfair treatment by government officials, discrimination, currency restrictions and issues with appropriation (World Bank, 2022a). Simplifying procedures and documentation of administrative procedures and documentation requirements related to services trade would pose a significant step to improving the business environment. This includes implementing

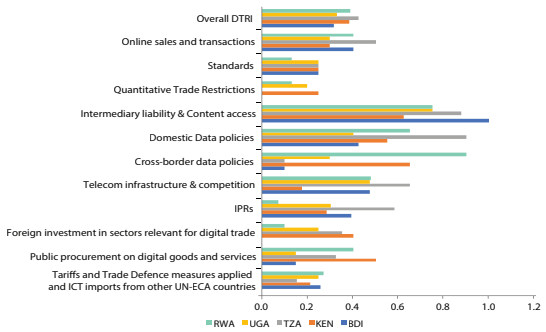
streamlined processes for obtaining permits and licenses, as well as harmonizing standards and regulations. This could be accompanied first by efforts to monitor and evaluate progress by tracking trade flows, collecting data on services exports and imports, and assessing the impact of policies and initiatives. And secondly by raising awareness and providing information among service providers, through workshops, seminars and training programs, about the benefits and opportunities of services trade, market access requirements, and available support mechanisms.

Policy area 2: Develop a legal framework to facilitate cross-border data transfers and data integration with major trading partners.

Digital trade policies play a crucial role in determining a country's access to export opportunities. Firms engaged in digital trade must comply with foreign data protection norms to access and process data required for providing services to clients. Restrictions on cross-border data flows can take various forms, including screening of inward-FDI and data localization requirements (Ferracane et al., 2018). Regulatory regimes, both domestic and international, that hinder domestic firms from participating in cross-border data flows and digital transactions are particularly significant in sectors prioritized by Rwanda, such as financial services.

Rwanda's data laws create a relatively restrictive regime for cross-border data transfers and domestic data processing. The government's National Data Revolution Policy (NDRP) mandates that data must be stored, processed locally, and accessible to relevant government authorities. Data collected by United Nations Economic Commission for Africa (UNECA, 2022) indicates that Rwanda has relatively restrictive data management regulations for both cross-border and domestic data, which contributes to an increased Digital Trade Restrictiveness Index (DTRI) for the country (Figure 3.4). While the adopted data protection regulations provide an opportunity to attract data-intensive services investment, several measures governing cross-border data flows are more restrictive than those in advanced economies (World Bank, 2022a). Regulations related to data transfers and processing can impede the ability of Rwandan firms to engage in trade in services that involve cross-border data flows.

Figure 3.4: DTRI and its components, available ECCAS countries



Source: Calculations based on UNECA (2022)

For Rwandan companies to benefit from economies of scale, the government has to develop a legal framework to facilitate cross-border transfers of non-critical data while addressing cybersecurity. To ensure a centralized and coordinated approach for streamlining data regulation, the government could expand and empower the Rwanda National Cybersecurity Authority (NCSA) to monitor the implementation of data protection laws and establish implementing regulations and guidelines at the national level.

To strengthen coordination, Rwanda should promote regional data integration by participating in the adoption of common policy principles, as well as regulatory guidelines and interoperability standards for data treatment and cybersecurity regulation, within regional networks such as EAC and AfCFTA. To further strengthen regional trade, the government could promote regional cross-border data flow instruments such as a regional voluntary mechanism (e.g., APEC, Privacy Shield), standard contractual clauses (SCCs), and common adequacy standards. In line with MRA regarding cross-border movement of people, Rwanda should advance the recognition of MRAs on regulatory regimes governing data privacy and protection within the AfCFTA context, as well as seek bilateral agreements with the European Union (EU) to give domestic regulators confidence that data flows will not affect their regulatory goals (Meltzer, 2019).

Policy area 3: Reduce barriers to digital trade and empower digital trade platforms.

Rwanda's restrictive DTRI score underscores the potential for the country to enhance its digital infrastructure and promote digital trade in services, crucial for integration within the EAC

and AfCFTA frameworks. The technical issues involved in digital trade will require Rwanda to strengthen institutional capacity for digital services and, crucially, harmonize standards and regulations with trading partners. One step towards this could be to consider joining the WTO Services Domestic Regulation Agreement to learn from best practices, signal a business-friendly environment, and foster conditions conducive to regional trade.

Rwanda could increase its efforts to promote the regional integration of the digital infrastructure and digital market by initiating discussions with AfCFTA, EAC, and ECCAS on harmonizing, mutually recognizing, and cooperating on digital regulations to facilitate digital trade. This should include discussion around the taxation of digital services without physical firm presence (Nayyar, Hallward-Driemeier, & Davies, 2021). The Government of Rwanda could also promote discussions on the development of a single digital market within the EAC, which involves fostering regional connectivity to avoid redundancies in network and data infrastructure investments. As described in the previous Future Drivers report, digital integration would be strengthened by a further expansion of the One Network Area (ONA) to allow others to join when ready and the preparation of firmer instruments on reporting, monitoring and dispute resolution.

Implementing technical innovations has the potential to facilitate trade, reduce costs and strengthen regional integration. Digital platforms present a significant opportunity to drive cross-border trade under AfCFTA, particularly by facilitating e-commerce of goods and services and streamlining payments for SMEs. Rwanda can leverage its strong ICT infrastructure and collaborate with regional partners to develop digital trade platforms that enhance access to regional markets. The government can play a key role in this process by fostering partnerships between fintech companies and e-commerce platforms, while also ensuring that regulatory frameworks support seamless cross-border transactions. One concrete example is Kenya's M-Pesa, which has successfully enabled cross-border payments across the EAC and partnered with platforms like Jumia to expand SME market reach. This model could be integrated with Rwanda's existing mobile money solutions provided by MTN Mobile Money and Airtel Money. By facilitating such collaborations, the government can provide targeted support to firms, particularly SMEs, ensuring they have the tools to scale and compete in the regional market. Further best-practice examples show that modern, data-based technologies offer vast opportunities to foster and enable trade (see Box 3.1). To make use of these, Rwanda could explore the following infrastructure and technology investments:

BOX 3.1: India's e-invoice system

India's e-Invoice system is a digital platform that authenticates business-to-business (B2B) invoices electronically. The system involves reporting B2B and Export invoices issued by taxpayers to their customers on the government of India portal, which generates a unique invoice reference number (IRN). It is a faceless system with a heavy emphasis on Application Programming Interface (API) integration, allowing for the exchange of data electronically. The e-Invoice Portal returns the signed QR code and signed invoice back to the taxpayers. The standardized e-invoice format, based on the international standard (UBL/PEPPOL), has led to machine readability, enhanced interoperability, and uniform interpretation in the eco-system.

E-invoice also allows the use of deep learning, machine learning, and artificial intelligence. Information such as the type of good (HS code), addresses, value, and tax information are collected in real-time. By utilizing AI intelligence tools, India can collect more taxes, reduce administrative costs, and minimize tax evasion*. This platform offers the potential to scale up digital payments and innovations necessary for a strong logistics hub, including identifying credible suppliers for supply chain financing.

** Tsai, CH. (2023). "Supply chain financing scheme based on blockchain technology from a business application perspective." Annals of Operations Research, 320, 441–472. https://doi.org/10.1007/s10479-022-05033-3*

** R. Kumar, R. K. Malholtra, R. Singh, S. Kathuria, R. Balyan and P. Pal, (2023) "Artificial Intelligence Role in Electronic Invoice Under Goods and Services Tax," International Conference on Computational Intelligence, Communication Technology and Networking (CICTN), Ghaziabad, India, 2023, pp. 140-143, doi: 10.1109/CICTN57981.2023.10140870.*

- Develop data centers and online market infrastructure, including investments in cloud infrastructure, to increase regional data market connectivity.
- Implement mutual recognition of national digital identification systems. This involves coordination of policy making and legislation on digital financial services, electronic money issuer and payment licensing, prudential measures, and fraud and anti-money laundering and countering the financing of terrorism (AML/CFT) systems.
- Ensure a domestic and regional competition framework, including merger control, regional coordination, information sharing and enforcement measures.
- Facilitate digital transactions through the expansion of electronic invoicing and the recognition of foreign e-invoices, aiming to reduce reliance on paper-based systems.
- Encourage the adoption of digital signatures in the private sector, particularly for cross-border contracts and transactions. The current system could be expanded to offer a more flexible and cost-effective digital signature option for private use. An implementing agency could be identified to issue licenses to private "trust providers" (such as Adobe) that can issue digital signatures for private use and recognize foreign digital signatures issued under equivalent levels of security.
- Encourage greater use of e-commerce (see Chapter 2) by strengthening consumer protection measures and clarifying rules for e-commerce and content platforms, particularly regarding products and content generated by users. Updating the 2020 law relating to electronic messages and transactions to expand safe harbor provisions related to intellectual property rights can be one way to achieve this.

3.4. Advance regional integration through coordination and trade liberalization

Strengthening regional integration would make an important contribution to increasing trade. Policies should focus on building closer trade links to the DRC, including coordinated investments in logistics and transport systems, and implementing measures to benefit from the African Continental Free Trade Agreement (AfCFTA).

As a small economy, regional integration is critical for Rwanda to reap the gains from trade. Integration into the EAC was important in supporting Rwanda's export success in the decade before the pandemic. The benefits from EAC membership have now been improved with the entry of the DRC into the agreement. This section considers how regional integration with the EAC and the AfCFTA can contribute to Rwanda's market access.

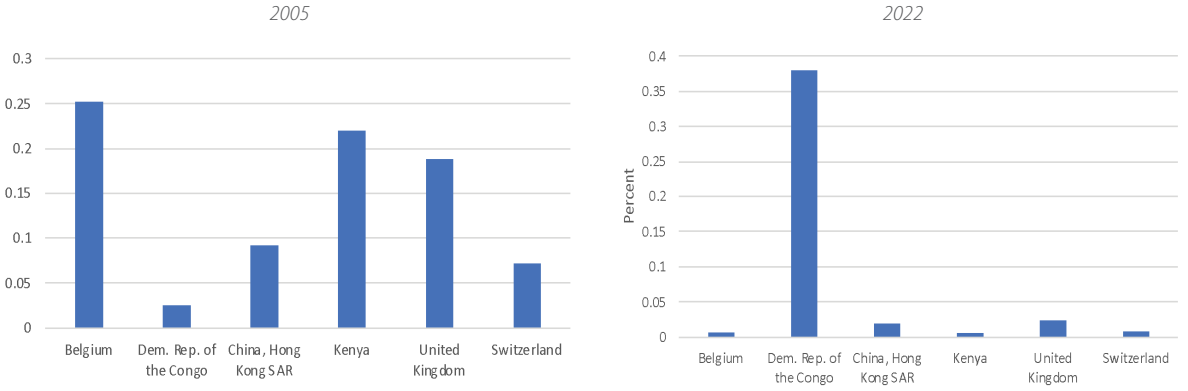
Rwanda can improve the role of regional integration in supporting exports through a more intensive discussion with the DRC and helping to shape the rules supporting the AfCFTA. Strengthening coordination with the DRC on trade regulations, complementing DRC efforts to implement trade reforms and promoting information exchanges could improve Rwanda's access to this critical market. Rwanda could cooperate with the DRC in expanding the infrastructure required to reduce trade costs and facilitate transit trade. Harnessing the benefits of the AfCFTA will require strengthening the capacity of relevant actors, engaging with African countries and regional economic communities, and supporting potential Rwandan exporters. Rwanda also can play an active role in shaping the AfCFTA to protect its interests and ensure transparent and efficient trade rules.

Background

Stronger integration into trade with the EAC was a key factor supporting Rwanda's exports. Exports of goods to EAC partners more than doubled in the three years following Rwanda's entry into the EAC customs union in 2009 (World Bank, 2022a), driven by lower tariffs, harmonization of trade policies and reduced non-tariff barriers (NTBs). In 2022, the DRC joined the EAC. Figure 3.5 shows that while a large share of exports went to the EAC, Rwanda's single most important export market is the DRC.

The inclusion of the DRC in the EAC presents a significant opportunity to boost Rwandan exports. In 2018, the DRC, alongside Ghana, imposed the highest tariffs on imports from Rwanda across African countries (Table 3.2, [Kamutando et al, 2024 2024]), which will now be reduced significantly. Trade between the DRC and Rwanda, mainly through Rwanda's Northern trade corridor, faces additional NTBs, implicitly imposing further tariffs on Rwanda's exports. Inadequate trade infrastructure, limitations in trade-related

Figure 3.5: Rwanda's exports market is increasingly concentrated on DRC



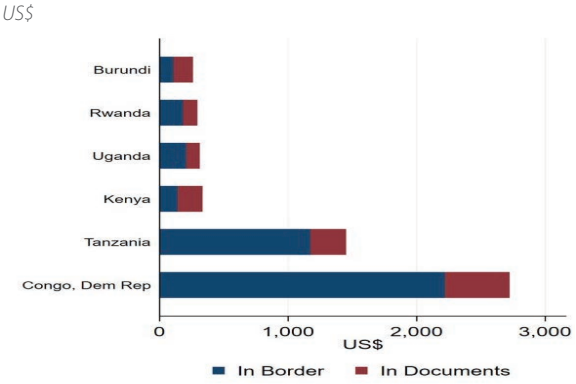
Source: Calculations based on COMTRADE

TABLE 3.2: Average applied statutory tariffs imposed by African countries on Rwanda exports, 2018

		Single average	Weighted average	Share Rwanda in country imports (%)
Importer	SACU	8.0	0.6	0.00
	Ghana	12.4	12.5	0.01
	Congo, Dem. Rep	12.9	11.6	7.86
	Rest EAC	0.0	0.0	0.26
	Rest Africa	3.2	1.3	0.00
	EAC preference margin	18.6	16.6	

Source: Calculations based on tariff data at the HS6-digit level obtained from TRAINS for 2018. Rest of Africa includes COMESA countries that provide preferential access to Rwanda. With the exception of DRC, imports from Uganda declared by each country or region are used to calculate the weighted average tariff rates. In the case of DRC, Uganda declared exports are used as weights

Figure 3.6: Cost to export



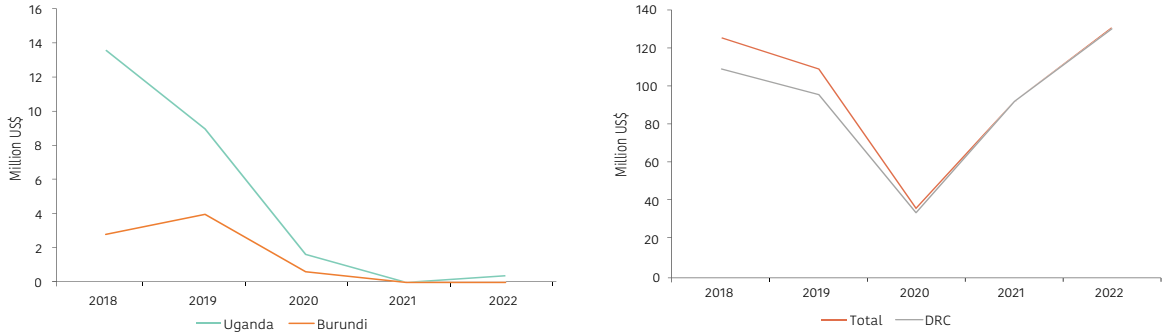
Source: Calculations based on WDIs

services and complex border procedures mean that trade costs with the DRC exceed those of all other regional partners by far (Figure 3.6). A swift alignment of the DRC's trade instruments and measures to increase trade facilitation would help Rwanda reap the full benefits from DRC's integration.

Informal cross-border trade emerged as a notable component of Rwanda's export trade, accounting for 9.7 percent of total goods exports with neighboring countries (Burundi, DRC, Tanzania, and Uganda). The DRC constituted 82 percent of Rwanda's informal exports to the four countries between 2012 and 2020, primarily consisting of agricultural commodities such as livestock and flour. Border closures in 2020 stalled this trade (left panel of Figure 3.7), but it has started to pick up again recently (right panel of Figure 3.7).

Further regional integration within Africa offers an important opportunity to improve diversification. As described above, new policies to foster diversification of export markets need to be paired to actions to diversify Rwanda's export basket by creating an enabling environment for more value-addition and thereby increased scope of integration into global value chains beyond final consumer goods. The EAC agreement had a smaller impact on regional trade than other free trade agreements (Figure 3.8), largely due to similarity of products exported by partners, but also due to inefficiencies of the Common External Tariff that affect adversely the competitiveness of local firms. This would be addressed by increased product diversification via the creation of new higher value-added goods and services industries. Also, the vulnerability of goods trade within the EAC was demonstrated by trade restrictions imposed during the COVID-19

Figure 3.7: Informal cross-border trade

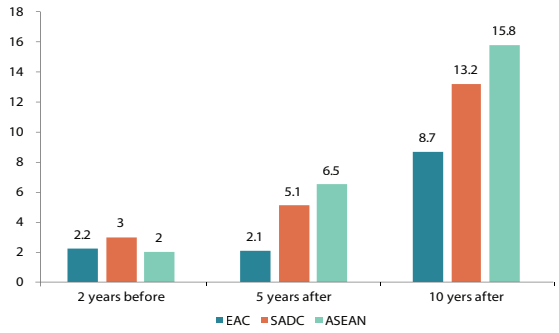


Source: Calculations based on NBR dataset

pandemic. Simulations indicate that the implementation of a free trade agreement between Southern African Customs Union (SACU), Ghana, Nigeria, the DRC, and the EAC could increase Rwanda's exports to these partners by 30 percent (Kamutando et al., 2024). And even with a moderate implementation of AfCFTA, Rwanda's real income could increase by 3.3 percent by 2035 (Figure 3.8), an estimated 180,000 to 320,000 individuals would be lifted out of poverty using the poverty lines of US$1.90 purchasing power parity and US$3.20 purchasing power parity a day, respectively (Figure 3.11),[9] and wage gaps would fall between skilled and non-skilled workers, as well as between males and females.

Figure 3.8: Intra-bloc goods imports before and after joining the bloc

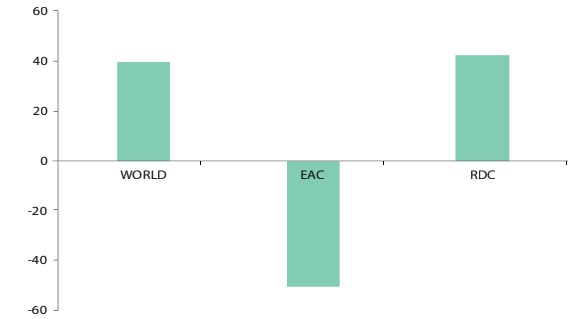
(Share of GDP)



Source: World Bank (2020)

Figure 3.9: Impact of COVID-19 on merchandises exports

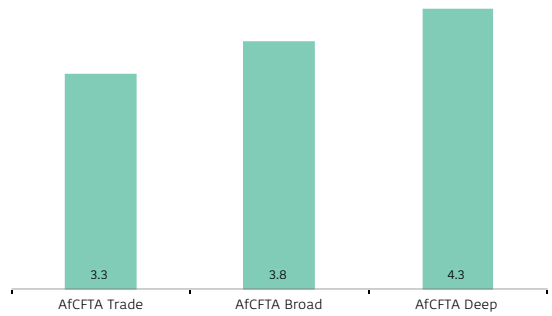
(Change in exports value in 2020 compared to 2019)



Source: Calculations based on COMTRADE data

Figure 3.10: Real income

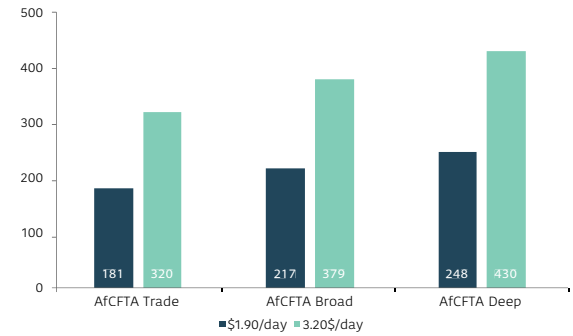
(% change w.r.t. baseline by 2035)



Source: Calculations using ENVISGE-GIDD model

Figure 3.11: People lifted from poverty

(Thousands, changes by 2035)



Source: Calculations using ENVISGE-GIDD model

Border closures have been an important challenge for regional integration in recent years. The Rwanda-Uganda border closure affected firms differently depending on their size.[10] Large firms that survived the closure swiftly found alternative international suppliers for their inputs, without adverse effects on their bottom line. On the other hand, not all firms were able to weather the closure, with those importing from Uganda before the closure experiencing a 2.5 times higher probability of going out of business compared to firms importing from other countries.

Policy area 1: Increase export potential with the DRC by aligning DRC trade instruments to EAC instruments standards and achieving further reductions in trade costs

Rwanda should actively promote for the DRC to harmonize its trade rules under the EAC. These should include a comprehensive review of the DRC's trade instruments such as examining its external tariff structure, regulatory systems concerning product and technical standards, and customs procedures and documentation. This could be supported by the establishment of mechanisms for information exchange on trade practices and trade-related information, market data and border management between the DRC and the EAC member countries to enhance transparency and enable monitoring and evaluation of progress in alignment. Strengthening diplomatic dialogue and negotiations between the DRC and the EAC member countries, for example through high-level meetings and trade forums, to discuss the benefits of trade alignment and foster mutual understanding, would add to an effective and efficient implementation.

To support this agenda, the World Bank's Great Lakes Trade Facilitation Project provides financial support for initiatives aligned with the objectives of regional and continental trade agreements, reflecting the DRC's commitment to improving trade relationships with neighboring countries and creating a clear, transparent, and predictable trade environment for cross-border traders (World Bank Group, 2015).

Policy area 2: To reduce trade and time costs and increase revenue from border, Rwanda together with the DRC should invest in improved logistics services and transport systems

Addressing high trade costs at Rwanda's border with the DRC offers a huge potential to increase Rwanda's export volume. The effect of this will be widespread. Especially at the Petite-Barriere border crossing between Rwanda and the DRC in Goma, one of the busiest borders in Africa, over 40,000 small-scale traders, predominantly young women, cross on a regular day (Echandi, Maliszewska, & Steenbergen, 2022). An immediate step towards reduction of trade cost would be to develop a strategy which is in line with the best-practice guide outlined in the WTO TFA, which would facilitate procedures to simplify and harmonize trade procedures, implement risk-based customs controls, and establish single-window systems for trade documentation.

Investing in cross-border trade infrastructure would increase the gains from trade with the DRC. This could involve investing in temporary storage and repackaging facilities, which is a crucial step toward capturing a larger share of the transit services market (World Bank, 2022a); and the expansion of investments in trade logistics such as a maritime highway between Rwanda and the DRC as well as the construction of modern border facilities exemplified by the World Bank supported project at work at Bunagana, Kasindi and Ruzizi. Rwanda has already invested in a local logistics hub at the DRC border, particularly concerning oil storage facilities operated by companies like Rubis, Vivo, and Sociéte Pétrolière (SP). There is further potential to expand these efforts to cover a wider range of goods. The building of a local logistics hub, along with improvements in trucking services, will be discussed in a separate section below.

Policy area 3: Implement measures to benefit from AfCFTA

Implementing AfCFTA will require significant political effort and a coordinated approach between government stakeholders within the AfCFTA. Coordinated integration among member states requires the adoption of relevant legislative changes aligned with the commitments and protocols. This includes areas such as investment, competition policy, e-commerce, and trade-related intellectual property rights. Clear, ambitious, and enforceable rules and disciplines should be incorporated into these policies. Implementation of the AfCFTA's annex on trade facilitation will be important

to harness the full potential benefits of the AfCFTA. Successful implementation will require strengthening the capacity of institutions involved in negotiations and of other public and private stakeholders.

Improvements in domestic coordination would support an effective implementation and reduction of trade barriers. Domestically the Government of Rwanda could develop a separate national trade facilitation strategy for the AfCFTA, based on studies of the scope and nature of barriers to trade with the continent (Twum, 2022) and supported by capacity building of relevant government officials and non-state actors. This can include training courses, seminars, provision of information through an online trade portal and establishing enquiry points in accordance with the TFA.

This should be complemented by providing information, credit, and technical support to potential exporters under the AfCFTA, including market intelligence and monitoring reports on NTBs from Rwandan traders (Twum, 2022). Existing government programs, such as the EGF, could be used to manage these projects. Further action could include establishing trade promotion agencies and initiatives to promote Rwandan products and services in the AfCFTA market such as organizing trade fairs, exhibitions, and business matchmaking events. The Government of Rwanda also should support workers that initially lose from tariff changes and introduce programs to facilitate the reallocation of workers between sectors (Kaminchia, 2020).

Regionally, Rwanda could engage actively with other African countries and regional economic communities, such as the EAC, ECCAS and COMESA, to foster cooperation, exchange best practices, and explore joint initiatives. This can involve participating in regional projects, sharing knowledge and expertise, and collaborating on infrastructure development and cross-border trade facilitation. Rwanda can play an active role in AfCFTA policy discussions and negotiations to ensure that its interests and priorities are adequately represented, political tensions are addressed, and decisions promote inclusive and sustainable economic growth. Reducing NTBs, in particular, has shown to foster export growth substantially.

To maximize the benefits from AfCFTA, Rwanda should promote rules that facilitate trade and reduce costs in line the domestic export environment. In this regard, Rwanda should negotiate for a tariff system that considers key inputs for Rwanda's economy and hence prevents unilateral deviation, as in experiences with CET deviations within the EAC. These should include norms and disciplines that enable, rather than hinder, the integration of African countries into global and regional value chains, learning from historical experiences in Africa and other parts of the world. In the same way, Rwanda should establish and streamline Rules-of-Origin that are neither too lax nor too restrictive to prohibit inputs for key sectors such as automotives and textiles. In addition, as outlined above, Rwanda could actively engage in discussion around trade integration using modern technologies and in particular digital trade platforms as effective matchmaking tools to accelerate trade in the region and amongst AfCFTA countries.

Regulations should facilitate trade through reduction of bureaucratic hurdles. Domestically, the Government of Rwanda should actively promote the elimination of all unnecessary export applications, licenses, and permits except when required for market access or to ensure health, safety, and security. As a significant step to reduce NTBs, Rwanda should advance the further streamlining of customs procedures, waiving of pre-shipment inspection requirements, and facilitate expedited clearance for food products and farming inputs.

Implementation could be improved through coordination mechanisms among the AfCFTA member states. This includes the swift implementation of dispute prevention mechanisms and the establishment of a national focal point through appropriate regulations or notifications. Implementation would further benefit from mechanisms to monitor and evaluate the impact of Rwanda's integration efforts into the AfCFTA. This involves tracking trade flows, investment patterns, persisting and emerging NTBs and the overall economic impact of the agreement, and using the findings to make informed decisions and adjustments in strategies and policies.

As further discussed in the next section, addressing policy barriers that impact transport routes will help reduce the cost of transporting goods on Rwanda's major trade routes and will reduce trade barriers towards within the AfCFTA. Rwanda could take an active position with regional partners and at the AfCFTA level to promote concrete steps for accelerated trade integration and reduction of persisting barriers. These could include:

- Simplifying Customs Procedures: Streamline customs by expanding the regional scope of the single customs territory (SCT) outside of EAC countries, which will allow AfCFTA countries to collect duties at the first point of entry and reducing repeated customs checks across borders, speeding up trade and lowering costs. Actively pursued by Rwanda at the AfCFTA level, main issues with the SCT could be addressed including partial implementation across trade routes, inconsistent application by different countries, limited integration with countries like the DRC, and technical or infrastructure gaps that hinder efficient customs clearance. By addressing such issues, Rwanda could position itself as a more efficient hub for transit trade, attracting more business and investment through streamlined trade processes, making it easier for businesses, especially SMEs, to engage in regional trade and hence enhance Rwanda's competitiveness in regional markets under AfCFTA.
- Harmonizing Axle Load Limits: Align axle load regulations across AfCFTA countries to ensure consistent weight limits for trucks, which will prevent delays and additional costs associated with offloading or load adjustments at border crossings. Currently, inconsistent axle load limits between countries create bottlenecks along major trade corridors, as trucks often need to meet different weight standards in each country. Rwanda can take an active role by advocating for uniform axle load standards within regional forums, while also working with neighboring countries to develop enforcement mechanisms that ensure compliance, thereby supporting smoother and more predictable trade across AfCFTA. By advocating for these standards and working with neighboring countries to enforce them, Rwanda could strengthen its position as a reliable and cost-effective transit point in the region.
- Addressing Technical and Infrastructure Gaps: Rwanda can help close technical and infrastructure gaps hindering trade by upgrading transport systems (roads, railways, air cargo) and expanding digital customs platforms like electronic data interchange (EDI) and automated customs clearance. While Rwanda has made progress with systems like Electronic Cargo Tracking System (eCTS), scaling these efforts across AfCFTA countries is crucial. Harmonizing digital platforms and improving infrastructure on key trade corridors will reduce delays, lower costs, and enhance Rwanda's position as a regional logistics hub, particularly for transit trade to the DRC.

3.5. Consolidate Rwanda's position as a regional logistics hub

Rwanda could reap considerable benefits from strengthening its role as a regional hub for transit trade. This would require increasing the efficiency of road transport, integrating multimodal transport into the national logistics infrastructure, and increased infrastructure investment.

Trade agreements with neighbors coupled with improvements in trade facilitation offer the potential for Rwanda to expand the benefits from trade by operating as a trade hub. Operating as a regional logistic hub could significantly expand Rwanda's goods exports and services revenues. Despite considerable progress in reducing costs, Rwanda continues to face high trade costs in several respects. Substantial investments in infrastructure to create a multimodal trade system that is integrated into regional trade links could significantly reduce costs, improve the resilience of trade and enhance Rwanda's role as a transit hub.

Background

The potential market for Rwanda as a regional logistic hub is large. In 2018, the latest year for which consistent trade data is available across the region, the size of the market for potential capture by Rwandan transport and logistics operators, which includes all goods either transiting or originating in

Rwanda, totaled 4.22 million tons, including: (i) 1.788 million tons in trade between Rwanda and regional partners; (ii) 1.846 million tons of seaborne trade either from or transiting through Rwanda; and (iii) 0.582 million tons transiting Rwanda between regional partners. Data available from a recently completed study for Afrieximbank on the Southern Africa Development Community (SADC) region provides a useful benchmark. Regional exports from any of the landlocked countries (i.e., Botswana, Malawi, Zambia, Zimbabwe, and DRC Copperbelt—as a landlocked region within DRC), to any other SADC state only surpasses 0. 5 million tons in three cases.[11] If South Africa, as a coastal state with a relatively large and diversified economy, is removed from this analysis, it is only the exports to/from the DRC Copperbelt and Zambia that rival the 0.5 million tons of regional exports from Rwanda to the eastern DRC.[12]

The most important target market around which to build a regional logistics hub in Rwanda is eastern DRC. The market involved is about 1.17 million tons. A sizeable portion of Rwanda's approximately half a million tons in exports to the eastern DRC are re-exports, which indicates that the country is already performing some functions of a regional logistics hub. The benefits would be particularly significant if the capacity and capability of such a hub can be integrated over time with multi-modal hubs at Kisangani and Kindu in the deep interior of DRC. Transit traffic is likely to be dominated by fleets from the country of origin. However, as the eastern DRC market becomes more accessible through infrastructure improvements and trade facilitation reform, a segment of the transit market may be attracted to a regional logistics hub in Rwanda because the distances from Uganda, Tanzania and Kenya to eastern DRC, and the associated cost of these trips, may prove increasingly burdensome.

Rwanda has achieved remarkable improvements in regional and global connectivity, leading to reduced trade time and costs as well as increased trade reliability, through key investments such as an Electronic Cargo Tracking System (eCTS). Declining costs have translated into annual transport savings of over US$35 million for Rwanda, equivalent to 3-4 percent of total import costs (Kunaka et al., 2018). However, certain costs remain high, particularly for raw materials and intermediate inputs. In addition, fluctuations in costs impact the predictability, confidence and competitiveness necessary for the development of regional value chains (World Bank 2022). Rwanda's export transport costs account for 40 percent of the value of imports and exports, which is higher compared to other countries in the region (for example 12 percent for Kenya and 36 percent for Uganda). In addition, fluctuations in costs impact the predictability, confidence and competitiveness necessary for the development of regional value chains (World Bank 2022). While the distance to the maritime ports in Kenya and Tanzania are certainly a driver of higher costs, key investments, public, private and through public-private partnerships in transport infrastructure and technology will be vital to further reduce costs and hence increase the competitiveness of Rwanda's products on international markets.

Policy area 1: Improve the efficiency of road cargo through increased road quality, upgrading the trucking system and incentivizing containerization

There is considerable potential to enhance trade through improving the road network. Currently, approximately 90 percent of Rwanda's cargo heavily relies on road transport, primarily along the Northern and Central trade corridors. However, only half of the national roads and a fraction of the district roads are paved. Kaminchia (2020) finds that transit road upgrading projects in the EAC between 2004–10 reduced bilateral trade costs by 18 percent, equivalent to a one-third reduction in bilateral distance and a 75 percent increase in bilateral trade volumes. These findings suggest immense potential for Rwanda to extend, upgrade, and maintain its road system to enhance road connectivity. For this it will be crucial to develop high-standard national, district, and feeder road networks that meet both regional and national sealed bitumen standards. A significant step in this direction is the ongoing preparation of the National Feeder Road Master Plan (NFRMP), which will assess the condition of Rwanda's feeder road network, evaluate construction market dynamics, and provide insights into transport demand factors.

To complement this, Rwanda needs to incentivize improvements in transport efficiency. The country's trucking services face challenges in competing with firms operating on regional corridors. Trucks registered in Rwanda account for only 20 percent of the flows, though the proportion is higher on the

Central Corridor where the Rwanda registered fleet accounts for more than 40 percent of lifting capacity. World Bank Group; Government of Rwanda, (2020) estimate the value of transport services from Kenya to Rwanda to be approximately US$50 million per annum. This compares with the total value of trade between the two countries in 2019 of US$290 million, offering an untapped revenue source and the potential to provide diversified services (World Bank, 2022a). Enhancing the efficiency of trucking firms and capitalizing on the potential for increased transit trade with the DRC could further improve trucking services and enable firms to provide more advanced services.

Efforts to address disadvantages faced by Rwanda's trucking services include:

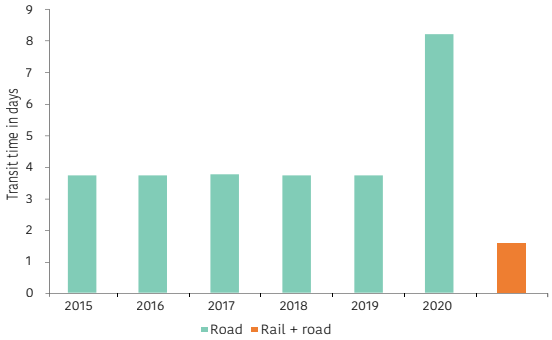
- Use targeted incentives to attract further collective truck investment groups. This would help to lower the average truck age and increase the fleet sizes.
- Regionally coordinate to allow more freedom for operators registered in all EAC countries. This would address an efficiency advantage of foreign trucks, as Rwanda's higher imports relative to exports mean that foreign trucks can charge for outbound cargo as well as for empty returns (World Bank, 2022a).
- Leverage Rwanda's location to carry more of the cargo that is moving in and out of Eastern DRC. A larger volume of export traffic from DRC would provide a larger demand for outbound traffic passing through Rwanda, providing greater opportunities for Rwandan trucking firms.

Rwanda should attract more partners for increased containerization and make further investments in inland facilities for handling containers, including the development of a well-integrated warehouse system to enhance logistics performance. The benefits of inland containerization can be substantial. Coşar & Demir, (2018) estimate that, based on data from Turkey and the United States, using containers reduced variable shipping costs by 16-22 percent for the median shipping distance, significantly impacting trade volumes. Rwanda has made significant progress in attracting logistics facilities such as MAGERWA and the Kigali Logistics Platform (KLP), which includes an inland container terminal with a modern warehouse capacity of 20,000m^2 and a container yard. Existing logistics operators like Dubai Port World, Bolloré Logistics and MAGERWA have continued their expansion, and shipping lines such as MAERSK and GCM have commenced operations in Rwanda.

Policy area 2: Integrate multimodal transport into the national and regional logistics infrastructure

Establishing an efficient multimodal freight transport system that integrates roads, planned railway lines, and air cargo, along with competitive logistics services, would improve the movement of goods, reduce costs, and enhance reliability. Rwanda's current trade connectivity is heavily reliant on air and road transport, as it is not yet connected to regional railway networks. Figure 3.12 shows that significant reductions in trade costs can be achieved through integration of road and rail systems, which would enhance the country's access to the Indian Ocean and international markets. However, the fiscal implications of railway investments will have to be carefully assessed, as the examples of Ethiopia and Kenya (despite much larger volumes that could sustain the line) show that financing such investments purely on the basis of traffic is challenging (World Bank, 2022a). In the medium term, Rwanda could connect to these new systems through dry ports in neighboring countries, particularly Isaka in Tanzania.

Figure 3.12: Rwanda: transit time between Dar-es-Salaam and Kigali
(Transit time in days)



Source: Calculations based on CCFA data

Rwanda has made significant progress in liberalizing air cargo through the open skies arrangement. The partnership with key players to build the Bugesera Airport and the expansion of RwandAir's network are crucial for connecting Rwanda and other African countries with the rest of the world.[13] This growth in the airline transport sector will not only enhance regional and international trade in

perishable products but also unlock opportunities for the export of high-value, low-volume/low-weight commodities. However, the financial viability of RwandAir remains a challenge, particularly as the cargo market is still relatively small (Bofinger, 2018). Previous years saw heavy subsidies for air cargo, which were not deemed competitive without such support. Rwanda should seek strategic partnerships with other airlines to expand the market and create opportunities for the export of new products.

Looking ahead, Rwanda should prioritize efficient and integrated logistics, seamless distribution channels, and competitively priced services to sustain the trend of increased connectivity. Several international examples showcase the successful integration of the domestic logistics infrastructure in a holistic approach. These include the development of an enabling regulatory framework and targeted capacity building (Box 3.2), investments in connecting roads and an efficient management system (see Box 3.3) and the institutionalized sharing of key information (Box 3.4).

The White Paper on logistics prepared in 2012 in collaboration with the World Bank outlined Rwanda's strategy to become a regional logistics hub. Key steps towards this include:

- Ensure an efficient integration of the new Bugesera industrial park, the Bugesera airport, and the KLP to road, air, and potentially rail transport. The envisioned extension of the standard gauge railway networks to Kigali will further complement this multimodal platform, enabling the free flow of traffic among road, rail, and air transport.
- Actively promote discussions with regional partners on the harmonization of regulatory laws, rules, and practices, as well as the design and maintenance of intermodal transport systems.
- Eliminate all roadblocks, taxes, and fees (including VAT) on the transit of goods.
- Expand the one-stop border post and electronic cargo tracking system (eCTS) to further reduce delays and lower costs for cross-border trade.
- Harmonize taxes, fees, and charges that hinder traditional air transport, such as landing rights or visa regimes beyond open skies arrangements.

Reducing cross-border taxes, such as transit fees and VAT, would significantly lower the cost of moving goods across borders, making trade more affordable for Rwandan businesses. By actively negotiating with regional partners under the AfCFTA framework to lower or eliminate these taxes and address remaining issues such as the taxation of informal cross-border trade and institutionalizing a dispute resolution mechanism, Rwanda could help streamline trade, reduce administrative burdens, and increase competitiveness for its exports. This would directly benefit Rwandan firms, particularly SMEs, by making it easier and cheaper to access regional markets.

BOX 3.2: Improving trade and logistics in Togo

The World Bank and Togo developed the Togo Trade and Logistics Services Competitiveness Project. The project aims to improve the country's efficiency of trade logistics services by adopting updated legislation on road transport. There are two main components to the project. The first component focuses on strengthening the legal and regulatory framework, as well as the formalization and professionalization of the road transport sub-sector. This component also aims to develop practical guides and training materials, capacity building for government officials, and delivery of equipment. The second component, "Improving Trade Facilitation," includes support for implementing measures and commitments under the World Trade Organization Trade Facilitation Agreement, as well as support for customs reform and road and transport committees.

See: https://projects.worldbank.org/en/projects-operations/project-detail/P158982?lang=en

BOX 3.3: The Xiaogan logistics infrastructure project in Hubei, China

The Xiaogan Logistics Port in Hubei Province* aimed to enhance its connectivity and efficiency through a project that had two key indicators: average travel time to improve connectivity and empty running to improve efficiency. The project also included additional 10 intermediate indicators. To achieve these goals, the project financed the construction of three new road connections and underground facilities to improve the connectivity of the logistics port. Additionally, a logistics information management center was constructed to host management and business service offices and community facilities, and a public logistics information platform was developed to address the efficiency element. Technical assistance and project management support were provided through training, capacity building, and research on logistics development, travel safety, among others.

Source: Hamedoun, Reda. China - CN-Hubei Xiaogan Logistics Infrastructure: P132562 - Implementation Status Results Report : Sequence 01 (English). Washington, D.C. : World Bank. http://documents.worldbank.org/curated/en/778411481957392056/China-CN-Hubei-Xiaogan-Logistics-Infrastructure-P132562-Implementation-Status-Results-Report-Sequence-01

BOX 3.4: Vietnam logistics statistical system

This grant project aims to strengthen the logistics statistical system in Vietnam by supporting activities related to strategic planning, evidence-based policymaking, and monitoring of logistics-related policies. The project creates a national system that collects, processes, and publishes logistics statistics annually in accordance with the country's National Logistics Action Plan. This initiative will define indicators and guidelines for collecting and reporting annual trade logistics data, conduct a comprehensive logistics survey report with processed data, publish an annual report on logistics statistics based on the survey results, and enhance the capacity of the Ministry of Transport for collecting and reporting trade logistics data. By establishing this system, Vietnam can make informed decisions that will help improve the country's logistics infrastructure and ultimately contribute to its economic growth.

Source: See Pham, Duc Minh. Implementation Completion and Results Report (ICR) Document - Vietnam Logistics Statistical System - P158817 (English). Washington, D.C.: World Bank. http://documents.worldbank.org/curated/en/955051617119480564/Implementation-Completion-and-Results-Report-ICR-Document-Vietnam-Logistics-Statistical-System-P158817

Box 3.5: Assessing logistics skills, competencies and training in the Dominican Republic

The World Bank conducted an in-depth qualitative logistics assessment in the Dominican Republic*. This study conducts interviews with key stakeholders including business organizations, educational institutions, government institutions, logistic service providers, shippers, professional associations, and recruitment agencies. The functional boundary of logistics was widely drawn around activities related to the movement, storage, and handling of goods and related information and communication technology (ICT). The study assessed the demand for personnel and their required skill levels, as well as the supply of trained individuals and the skills they possess upon entering the sector. The final report provides a thorough report of perceived constraints of the logistics sector in the country, an assessment of current skills, availability of recruitment centers, certifications, and establishes reasons for current shortages. The logistics assessment specified short to medium-term recommendations tailored to the Dominican logistics sector.

** The assessment is based on the toolkit developed by Jean-Francois Arvis and Christina Wiederer in cooperation with researchers at the Kuhne Logistics University Hamburg, Germany (Alan McKinnon, Kai Hoberg, and Christoph Flothmann). Source: World Bank. Dominican Republic: Assessment of logistics skills, competencies, and training - Final Report (English). Washington, D.C.: World Bank. http://documents.worldbank.org/curated/en/099062823125531766/P1785030ce87760eb08d43077ace597fbb0*

Policy area 3: Invest in hub infrastructure

Future Drivers highlighted the advantages of Rwanda establishing itself as a regional logistics hub, which would not only reduce trade costs but also generate significant revenue streams. This would serve to enable Rwanda to act as a land bridge for goods in particular entering the eastern DRC. Transport service firms in East Africa have expanded their range of services to include clearing, forwarding, and storage, in addition to transportation (Kunaka, et al., 2018). For Rwanda, the emergence of third- and fourth-party logistics services indicates how improvements in logistics can enhance export competitiveness and diversification of services. Ongoing investments include the logistics and distribution centers like KLP, and construction of the Bugesera Airport, through advances in the Single African Air Transport Market (SAATM) and new prime economic zones.[14] This could be complemented by further investment increasing the capacity of storage facilities, including cold chain systems, to minimize the scope for post-harvest losses.

Establishing an efficient Northern Corridor is crucial for Rwanda's logistics hub agenda, as a significant portion of the DRC traffic passing through Rwanda relies on this corridor. Rwanda has already positioned itself as a regional logistics hub for Congo and Burundi, with the DRC market alone accounting for approximately 1.17 million tons as indicated above. The development of the Northern Corridor also would reduce the dominance of the lower-cost Central Corridor, ensuring alternative routes in case of traffic disruptions. As outlined above, building a regional hub with the DRC would yield substantial benefits, especially if the capacity and capabilities of such a hub can be integrated with multimodal hubs at Kisangani and Kindu in the DRC.

To advance the plans for a regional hub, the Government of Rwanda should leverage existing logistic strategies and clarify details of the hub. In this regard, Rwanda should consult Rwanda's National Logistics and Distribution Services Strategy as a framework for developing an efficient logistics system, aligning logistics and distribution, and enabling Rwanda to export logistics services (World Bank, 2022a). To streamline the planning of the hub, the Government of Rwanda should improve clarity about the hub's form, as logistics clusters can exhibit various types of connectivity effects according to the National Export Strategy. Potential choices include serving as a logistics center to manage all the activities involved in freight movement, providing a network junction to transfer goods from road to rail or vice versa, establishing an inland port to supply all the services of a port except for the loading of cargo to and from seagoing ships, and provision of air cargo services.

Infrastructure and support capacity could be enhanced. To ensure effective connectivity between different logistics centers, such as industrial parks and the Bugesera airport, Rwanda should invest further in infrastructure that ensures an effective and efficient integration of logistic centers and transport systems. Infrastructural investments need to be complemented by regulatory clarity and sufficient human resources. As such, the expansion should be coordinated with neighboring countries, addressing factors such as vehicle specifications, axle load limits, and cross-border taxes. Moreover, Rwandan firms should broaden the logistics services they offer. To ensure the functionality of a hub requires investment in supporting managerial skills. Rwanda should develop degree programs and practical curricula for transport and logistics management training. Partnerships can also be established with programs such as the UNCTAD Port Management and Logistics Training Programs.

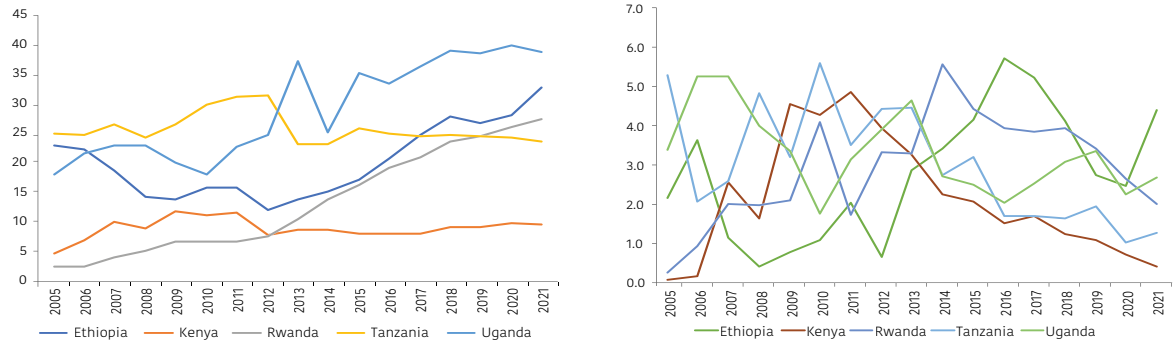
3.6. Leverage foreign investment to access international markets and promote green growth

Increasing foreign direct investment (FDI) to support export expansion will require investments and international agreements to attract FDI in modern sectors, and the use of incentives and stronger environmental regulation to attract green FDI.

Increased FDI could play an important role in expanding Rwanda's exports. Rwanda has implemented various policies and initiatives aimed at fostering a favorable climate for FDI. These efforts include the establishment of the RDB and the implementation of robust investor facilitation mechanisms. Additionally, Rwanda has enacted an investment code that includes provisions designed to incentivize FDI. Nevertheless, while the stock of FDI has increased substantially as a share of GDP, new FDI flows have declined relative to output since 2014 (Figure 3.13).

Figure 3.13: FDI stock (LHS) and net inflows (RHS)

(Share of GDP)



Source: Calculations based on UNCTADSTAT

Policy area 1: Attract FDI in modern priority sectors through investment and international cooperation

Attracting FDI in modern sectors will allow to expand Rwanda's product portfolio towards more complex products that can be exported digitally and hence increase diversification. FDI in global innovator industries often is linked with positive spillovers to the local economy through technology transfers (Newman, et al., 2019). An expanded Supplier Development Unit, managed by RDB, should target firms with the potential to be integrated in these sectors to exploit these effects. Steps to attract priority FDI and to counteract the recent slowdown in FDI could involve:

- Evaluate the effectiveness of the current tax-incentive scheme to attract FDI. Tax incentives for FDI cause significant tax losses while the benefits are not clearly established. In turn, studies on Rwanda and further countries in the region indicate that tax incentives might be an inefficient tool to attract FDI (Kronfol & Steenbergen, 2020) – while other factors such as the stability of the country and its infrastructure are more important drivers of decisions about FDI (Khachoo & Khan, 2012). To establish a continuous evaluation that contrast costs with benefits of tax incentives to attract FDI, Kronfol & Steenbergen (2020) suggest to i) systematically evaluate forgone revenue from tax incentives to increase transparency of public resources, ii) compare those costs with associated benefits (e.g. levels of investment and employment creation) to understand the opportunity costs and iii) analyze the targeting and design of incentives as the effectiveness of incentives can vary across different sectors and firm types. Conducting a cost-benefit analysis will enable the identification of investors who are most likely to be influenced by such incentives to make investment decisions. When implementing incentives, insights from this analysis can support in refining these programs, ensuring they offer the best possible return on investment.
- Develop an effective FDI tracking system to evaluate the effectiveness of existing and planned FDI projects to increase value for money of promotion efforts, including tax incentives (Twum, 2022). Actual investment flows from foreign firms have consistently fallen well below commitments made at the time of application for project approval. To support the above outlined cost-benefit analysis of tax incentives, Rwanda could develop an efficient investment tracking system at the firm level to improve monitoring and transparency of promised investment, with adequate internal reporting to Minicom and RDB management.
- Leveraging regional and global partnerships to attract more FDI. On a regional and global level, Rwanda should ensure that committed investment treaties enter into full force. These include the Economic Partnership Agreement between the EAC and several EU and bi-lateral partnerships, such as with Turkey, South Africa and Mauritius (World Bank, 2022b). Rwanda could further explore options to use the AfCFTA's investment potential for greater integration in investment policy, competition policy and intellectual property rights as drivers for FDI (Adams, 2010).

- Expanding investments in SEZs and integration of SEZs into a national logistics infrastructure. Domestic initiatives coordinated by the Special Economic Zone Authority of Rwanda has the potential to attract more investment and leverage export potential (Steenbergen & Javorcik, 2017). Investments can include upgrading of existing SEZs and the expansion of further industrial zones. Efforts to integrate SEZs will be particularly important in light of Rwanda's major infrastructure projects such as the Bugesera Airport.

Policy area 2: Use direct incentives and strengthened environmental regulation to attract green FDI

Rwanda's commitment to a Green Economy is evident in its policy framework, National Fund for Climate and Environment, and focus on private sector engagement, climate risk mitigation, and improved public procurement. Globally, FDI announcements in green sectors increased by 700 percent between 2003 and 2021. Multinational Enterprise (MNEs) thus offer an important source of finance for the climate transition. Approaches to attract green FDI and control MNEs' impact on climate change include patrolling (monitoring emissions), prescription (laws and regulations), penalties (taxes), persuasion (corporate commitments and information) and payments (incentives and fiscal support) (Steenbergen and Saurav, 2023).

Rwanda has utilized tax incentives as a means to attract FDI, which can be justified when investments bring positive spillover effects, particularly in reducing carbon emissions through green technology transfers (Harrison & Rodríguez-Clare, 2010; Margalioth, 2003, Wade, 1990). However, the impact of incentives on FDI has been mixed, sometimes resulting in minimal or no new investments (IMF et al. 2015). Nonetheless, incentives can play a role in the final negotiation stage between investors and governments when selecting investment locations (Freund & Moran, 2017). Rwanda's favorable business environment plays a crucial role in the effectiveness of firm subsidies. James (2013) demonstrates that tax incentives are eight times more effective in attracting FDI for countries with favorable investment climates.

Strengthening environmental regulation in light of the rise of global carbon border polices could improve Rwanda's agenda on green growth while simultaneously attracting FDI. There is no systematic evidence supporting the idea that differences in environmental standards and regulations influence investors' location decisions (Saurav & Viney, 2021) and the investment and production choices of most multinational enterprises (MNEs) are generally unaffected by environmental regulations (Koźluk & Timiliotis, 2016). The implementation of new initiatives, such as the EU's Carbon Border Adjustment Mechanism, results in higher costs for importing goods from countries with weak regulatory environments. This development undermines the intended goal of preventing carbon leakage (Brenton & Chemutai, 2021). As a consequence, the relevance of weak regulation as a measure of FDI-competitiveness is diminishing, even for the most polluting industries (Steenbergen and Saurav, 2023). In contrast, emerging evidence suggests that having robust and stable environmental regulations might attract and retain FDI flows. Countries adopting regulations that support climate goals can create a level playing field for foreign investments in low-carbon technologies, services, and infrastructure (OECD (Organisation for Economic Co-operation and Development), 2022). Some MNEs with strong corporate social responsibility mandates tend to avoid investing in countries with weak environmental regulations (Dam & Scholtens, 2008; Poelhekke & van der Ploeg, 2015), leading to findings of a positive effect of environmental regulation on inward FDI flows in specific cases (Kim & Rhee, 2019; Rivera & Oh, 2013).

In addition to direct subsidies, Rwanda should explore further options to attract green FDI. These include:

- Use investment promotion agencies (IPAs) to bridge information gaps that hinder the attraction of FDI.
- Strengthen environmental regulation in the light of the rise of global carbon border polices, such as the EU's Carbon Border Adjustment Mechanism, to reduce incentives for firms to engage in carbon leakage.
- Employ international best practices to attract green FDI included in:

- UNCTAD's World Investment Reports that includes important new analysis on sustainable investment dynamics (United Nations Conference on Trade and Development, 2022),
- WTO's investment facilitation agreement,
- The Columbia Center on Sustainable Investment's toolkit on investment facilitation for sustainable investment (Berger, Kagan, & Sauvant, 2022),
- World Investment for Development Alliance (WIDA) which is a new global platform dedicated to promoting investment for sustainable development.

Policy area 3: Implementing actions to address emerging risks from international trade regulations together with the private sector and NGOs.

Rwanda's exporters are increasingly facing new trade compliance challenges as key export markets adopt stringent climate mitigation and sustainability policies. These emerging regulations, particularly in the EU and the US, are aimed at minimizing environmental impacts and ensuring sustainability across supply chains. Failure to comply with these regulations could reduce Rwanda's market access, especially for major export products like coffee. However, by taking proactive measures to address these challenges, Rwanda has the opportunity to enhance its competitiveness and secure its position in these vital markets. Below are key regulations that Rwanda needs to address and the current state of readiness, potential impacts, and recommended actions.

- EU Deforestation Regulation (EUDR): It states that all entities placing commodities on the EU market, or exporting them from the EU, must ensure that they are deforestation-free and produced in accordance with the relevant legislation of the country of production. Currently, the commodities covered by the regulation are cattle, cocoa, coffee, palm oil, rubber, soy and wood, as well as derivatives such as leather, chocolate, tires and printed paper. Rwanda's coffee sector is already taking steps to comply with the EUDR, which came into force in June 2023, while its implementation has been delayed to 30 December 2025 for large companies and 30 June 2026 for micro- and small enterprises. The partnership between Rwanda's National Agricultural Export Board (NAEB), Enveritas, and JDE Peet's to monitor deforestation risks using AI and satellite imagery is a positive step. However, this initiative is focused mainly on coffee, leaving other commodities like cocoa and wood, which may also be affected by the regulation, vulnerable to non-compliance. As Rwanda's coffee exports heavily rely on the EU market, ensuring compliance is critical. Going forward, Rwanda should extend deforestation monitoring efforts to other commodities covered by the EUDR to safeguard broader market access.
- EU Packaging and Packaging Waste Regulation (PPWR): Rwanda's proactive approach with its 2022–27 Packaging Strategy, which promotes sustainable packaging, aligns well with the upcoming EU PPWR. Rwanda has already banned plastic bags and single-use plastics, giving it a head start in complying with these regulations. However, for full compliance, Rwanda needs to scale up its production capacity for recyclable and reusable packaging materials to meet EU standards. The likely impact on Rwanda's fast-moving consumer goods (FMCG) exports will be significant, but with continued investment in sustainable packaging production, Rwanda's exports could not only meet EU requirements but also position itself as a supplier of sustainable packaging solutions to neighboring countries.
- EU Corporate Sustainability Due Diligence Directive (CSDDD): The CSDDD requires businesses in EU supply chains to demonstrate due diligence in human rights and environmental sustainability. Rwanda's involvement in key supply chains puts its exporters at risk if compliance with this directive is not met. For example, while Rwanda has an enormous potential to export critical raw materials to the EU, the failure to demonstrate sustainable production under the CSDDD might dampen this potential. To mitigate the risk of losing access to EU markets, Rwanda needs to build capacity among producers and exporters to monitor, report, and improve sustainability practices across the supply chain.

- US Inflation Reduction Act (IRA): While the IRA's immediate impact on Rwanda is minimal, as the regulation prioritizes US domestic manufacturing, there is an opportunity for Rwanda to become a supplier of critical raw materials for green technologies. Currently, about 60% of Rwanda's EV component exports go to the US, and as the IRA stimulates demand for these components, Rwanda could increase its role as a key supplier. To capitalize on this, Rwanda should develop strategic partnerships with US manufacturers and invest in improving the extraction and sustainability of its raw materials to meet the growing demand for green technologies.
- EU Carbon Border Adjustment Mechanism (CBAM): CBAM targets emissions-intensive goods, requiring exporters to the EU to buy carbon certificates equivalent to the EU's carbon price. At present, Rwanda's main export sectors—such as coffee and tea—are not affected by CBAM, as the regulation focuses on sectors like steel, aluminum, and fertilizers. However, as Rwanda looks to diversify its exports into manufacturing and processed goods, it will need to be ready for potential future expansions of CBAM. Rwanda should begin assessing the carbon intensity of its industrial sectors and take steps to reduce emissions, positioning itself for compliance as the list of covered goods grows.

3.7. Conclusion

Rwanda relies on strong export growth to achieve its ambitious development goals. The pandemic recession and subsequent serial shocks have underscored the additional importance of not only increasing export growth but building resilience into the export portfolio through diversification. This review of performance and policy developments since 2018 has confirmed enormous progress.

The challenges facing Rwanda today focus on "second and third generation" reforms, which can be quite detailed and place a substantial burden on institutional effectiveness. The numerous ideas discussed in this report illustrate the challenge involved. Individually, they would probably have minor impact but implemented collectively as part of a bold and coordinated strategy, they could make a substantial difference in export performance over the next decade. The good news is that Rwanda, perhaps uniquely in Africa, has the capacity in government to implement such a complicated, forward-looking agenda.

Annex 3.1. Matrix of key policy recommendations: Growth and resilience through trade

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
2.3.1	**Policy Area 1: Build Resilience Through Diversification of Products and Markets, as well as Increased Product Complexity.**				
	Priority Area 1: Develop Products and Markets Through Targeted Traditional and Non-traditional Market Strategies as well as Identification and Support of High Priority Sectors				
	Combine traditional marketing strategies, along with innovative digital marketing approaches.	MINICOM, RDB, PSF	HP	MP	HF
	Combine traditional marketing strategies such as trade shows and through the targeted use of foreign embassies, along with innovative digital marketing approaches such as through the use of social media and trough further online marketing platforms				
	Assess the efficacy and effectiveness of trade offices and embassies in foreign export markets.				
	Strengthen the efficacy of Rwanda's trade and FDI promotion agency?				
	Assess the efficacy and effectiveness of trade offices and embassies in foreign export markets.	MINICOM, RDB, PSF	HP	MP	HF
	Combine traditional marketing strategies, along with Review existing export product and market priorities across various government strategies.				
	Conduct a study on nascent service export sectors and products with high growth potential.				
	Priority Area 2: Leverage Skills Development and Partnerships to Support the Supply of Skilled Labor.				
	Align public skills development programs with private sector demand by creating public-private dialogue with strategic partners and engaging universities and TVETs.				
	Align efforts of public skills development programs with industrial demand.				
	Leverage the Occupation on Demand List and the Sector Skills Councils (SSC) to identify skill gaps.				
	Expand partnerships with leading innovation and research institutions to learn from best international practice.				
	Priority Area 3: Foster Innovation and R&D.				
	Evaluate public innovation programs and scale up successful ones	MINICOM RDB	HP	LT	MF
	Scale up the National Industrial Research and Development Agency (NIRDA) program.				
	Strengthen monitoring of existing innovation and R&D support programs				

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Priority Area 3: Use Trade Policy to Facilitate Climate Mitigation and Adaptation.				
	Develop country platforms for promoting policy dialogue, accountability and collective action	MINICOM, MINAGRI	HP	MT	MF
	Facilitate agricultural climate change adaptation by reducing tariff and non-tariff costs on key inputs, promote smart agriculture through water and fertilizer/ pesticide reduction technological adoption and expanded agricultural trade				
	Reduce tariffs and NTBs on key agricultural inputs and current technologies				
	Facilitate access to new agricultural technologies through expedited seed release procedures + facilitated temporary entry of agricultural specialists.				
	Renew efforts to reduce barriers to agricultural trade				
	Use direct financial support to firms integrated in supply chains and affected by climate change to enhance resilience				
2.3.2	**Policy Area 2: Promote Services Exports and Foster Digital Trade.**				
	Priority Area 1: Facilitate the Cross-Border Entry of Skilled Labor Through Mutual Recognition Agreements and Relax Visa Conditions.				
	Consider recognizing regional professional qualifications and introducing more intentional visa and work permit conditions for qualified professionals in the context of commitment to AfCFTA trade liberalization	MINICOM	HP	MT	HF
	Recognize licenses and standards obtained in other EAC countries, adopt common qualification criteria, expand MRAs				
	Priority Area 2: Reduce Remaining Services Trade Restrictions by Lowering Administrative Burdens, Information Provision and Enhanced Regional Cooperation.				
	Reduce and simplify administrative procedures and requirements to simplify services trade and evaluate these efforts regularly.	MINICOM, EAC, AfCFTA	HP	MT	MF
	Address the remaining red tape and bureaucratic hurdles that affect the ease of doing business across services sectors (e.g., simplify procedures and documentation of administrative procedures and documentation requirements and facilitate obtaining permits and licenses)				
	Raise awareness and provide information among service providers about the benefits and opportunities of international trade				
	Establish a regional mechanism to support cross-border digital payments interoperability				
	Priority Area 3: Strengthen Regional Cooperation and Coordination of Digital Trade by Considering International Best Practice and Extended Regional Integration.				
	Join the WTO Joint Statement Initiatives on Services Domestic Regulation, Investment facilitation for Development and E-commerce	MINICOM, EAC, AfCFTA, ECCAS	MP	LT	MF
	Promote the adoption of regional standards the adoption of regional standards for digital trade, digital market integration and the creation of the One Network Area.				
	Initiate discussions with the AfCFTA, EAC, and ECCAS on harmonizing, mutually recognizing, and/or promoting trade facilitating convergence in digital regulations				

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Promote discussions on the development of a single digital market within the EAC.				
	Expand the One Network Area (ONA) to allow others to join when ready.				
	Priority Area 4: Foster E-Commerce Through Trade Promotion Agencies and Streamlined Laws and Regulations.				
	Use Trade Promotion Organizations to encourage e-commerce and digital services	MINICOM, EAC, AfCFTA, MINICT	HP	MT	MF
	Strengthen consumer protection measures and clarify rules for e-commerce and content platforms				
	Update the 2022 law on electronic messages and transactions.				
	Priority Area 5: Strengthen Rwanda's Domestic Digital Infrastructure Through Investments and Regional Cooperation.				
	Develop a modern digital and data infrastructure and digitize processes and transactions to increase regional market connectivity such as through an expansion of the One Network Area and expansion of access to reliable high-speed internet	MINICOM, MINICT, RURA, EAC, AfCFTA	MP	LT	MF
	Advance and coordinate regulation and legislation of digital identification and digital financial services and establish competition enforcement institutions.				
2.3.3	**Policy Area 3: Advance Regional Integration Through Cooperation and Trade Liberalization.**				
	Priority Area 1: Foster Trade with the DRC Through Alignment of DRC Trade Instruments to EAC Instrument Standards and Reduction of Trade Costs.				
	Strengthen the dialogue between the DRC and the EAC member states to share best practice examples and data and to improve coordination of trade polices	MINICOM, EAC	HP	MT	MF
	Leverage the dialogue with the DRC to promote alignment between DRC and EAC trade instruments through improved capacity of reform implementation as well as monitoring and reviewing efforts to align the DRC's trade instruments, such as its tariff system, to the EAC.				
	Promote measures aligned with the WTO's Trade Facilitation Agreement (TFA) to apply internationally best-practice measures	MINICOM, MININFRA, EAC	HP	LT	LF
	Invest in cross-border trade infrastructure to facilitate trade and increase gains from trade with DRC				
	Improve the efficiency of trucking firms such as through investments in border facilities				
	Priority Area 2: Realize the Benefits of the AfCFTA Through Strengthened Regional Cooperation and Negotiation, Reduction of Trade and Investment Barriers and Build Greater National Capacity.				
	Improve domestic and regional cooperation towards an effective implementation and trade barrier reduction through strategy and capacity development including the development of a separate national trade facilitation strategy and an institutionalization of an of exchange of information.	MINICOM, EAC, AfCFTA,	MP	MT	HF
	Facilitate trade through reduction of bureaucratic hurdles such as a streamlining of the process of obtaining export permission and limiting their cases where necessary to ensure health, safety, and security.	MINICOM, EAC, AfCFTA,	HP	MT	MF
	Foster implementation of AfCFTA protocols with particular attention to rules of origin in goods trade and services commitments.				

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Promote a tariff system that considers key inputs for Rwanda's economy				
	Establish mechanisms to monitor and evaluate the impact of Rwanda's integration efforts into the AfCFTA				
	Priority Area 3: Further actions.				
	Establish a trade promotion agency and initiatives to actively promote its products and services				
	Manage exchange rate with focus on regional macroeconomic developments to ensure competitiveness of exports				
	Provide support to workers initially losing from tariff changes and facilitate relocation of workers between sectors				
2.3.4	**Policy Area 4: Consolidate Rwanda's Position as a Regional Logistics Hub.**				
	Priority Area 1: Integrate Multimodal Transport into the National Logistics Infrastructure.				
	Promote domestic integration of trade infrastructure and regional harmonization of transport regulation.	MININFRA, MINICOM	MP	LT	LF
	Ensure efficient integration of the Bugesera industrial park, Bugesera airport, and KLP to road, air, potentially rail transport.				
	Promote discussions around the harmonization/convergence of regulatory laws, rules, practices, and the design & maintenance of intermodal transport systems with regional partners				
	Harmonize taxes, fees, and charges that hinder traditional air transport				
	Invest in both the central and southern trade corridor to increase resilience and facilitate transport through reduction of remaining barriers				
	Eliminate all roadblocks, taxes, and fees on the transit of goods.				
	Continue to invest in the Northern corridor as an alternative to the Central one.				
	Priority Area 2: Invest in Regional Logistics Hub Infrastructure.				
	Invest in infrastructure to ensure the effective integration of logistic centers and transport systems.	MININFRA, MINICOM	MP	LT	LF
	Leverage existing logistics strategies and advance the creation of a regional logistics hub through finalization of details and managerial capacity building				
	Consult Rwanda's existing National Logistics and Distribution Services Strategy				
	Gaining clarity about the hub's form and enhance support capacity and coordination				
	Ensure the functionality of a hub by scaling up logistics-related managerial skills.				

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT).
Feasibility: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
2.3.5	**Policy Area 5: Leverage Foreign Investment to Access International Markets and Promote Green Growth.**				
	Priority Area 1: Attract FDI in Priority Sectors Through Investment, International Cooperation and Infrastructure Integration.				
	Promote the effectiveness of investment partnerships such as with the EU and promote regional policy integration.	MINICOM, RDB, MININFRA	MP	LT	MF
	Ensure that investment treaties enter into full force.				
	Explore options to use the AfCFTA's investment potential for greater policy integration				
	Streamline investment promotion and transparency by establishing a firm level investment tracking system.				
	Evaluate existing and planned investment promotion efforts.				
	Use an efficient investment tracking system to improve monitoring and transparency of promised and realized investments; develop a dispute prevention mechanism.				
	Integrate SEZs into national logistic infrastructure				
	Priority Area 2: Use Direct Incentives and Strengthened Environmental Regulation to Attract Green FDI.				
	Use tax incentives to attract green FDI.	MINICOM, RDB	HP	MT	MF
	Learn from international best practice examples and strengthen environmental regulation that attracts green FDI.				
	Use the Rwandan investment promotion agency (IPA) to promote and attract low-carbon FDI.				

Annex 3.2. Export performance: Pre-shock structural trends and post-shock recovery challenges

Strong export performance in the first half of the last decade

Rwanda experienced robust export growth in both goods and services over 2010–19, surpassing global and SSA growth rates. Furthermore, Rwanda's export growth, both in goods and services, outpaced that of Ethiopia, Ghana, Kenya, Tanzania, and Uganda, which share similar export structures (Figure A3.1). The growth of merchandise trade was primarily driven by an expansion in commodities trade. Key exported goods included gold, metals, agricultural commodities, various food products, and mineral oils. Metals and mineral commodities, notably tantalum, tin, tungsten, and gold, accounted for more than half of Rwanda's goods exports in 2019. Services played a significant role in exports, with an annual growth rate of approximately 9 percent between 2010 and 2019, reaching over US$2 billion. This growth reflects the government's strategic emphasis on the service sector outlined in Vision 2020 and the NST-1. Prior to the pandemic, the tourism sector was the leading foreign exchange earner, contributing nearly 45 percent of service exports in 2019. Additionally, air transport exports, comprising around 20 percent of services exports in 2019, played a vital role in connecting landlocked Rwanda with the rest of the world.

Alongside export growth, Rwanda witnessed a shift in export composition, improved products and an increase in the number of markets (Figure A3.2). The number of export products and markets for Rwanda increased two to fourfold between 2010 and 2019 for exports exceeding $10,000 and US$1 million (Twum, 2022). Notably, the agriculture sector, including export crops, experienced the highest increase in the range of products and markets over the past decade. Re-exports, primarily to the Democratic Republic of the Congo (DRC), made a significant contribution to export growth: the share of re-exports in total exports increased from 5 percent in 2010 to 16.9 percent in 2019. Nevertheless, an analysis of export shares reveals a decline in product and market diversification, primarily driven by high export values of gold to one major market, the UAE.

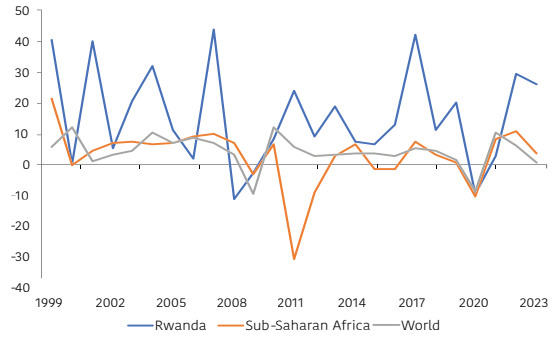
There was also a shift in primary export commodities favoring non-traditional exports. Coffee and tea, the two primary export products, accounted for 6.9 percent of exports in 2019, less than half the share in 2010. Over the decade, mining and mineral processing played an increasingly significant role in exports, driven by the surge in gold exports.

The stock of foreign direct investment (FDI) has seen a long-term steady growth as a share of GDP. FDI surpassed several regional economies (Figure A3.3). The top investors in Rwanda are African countries, including Mauritius (40 percent), Kenya (9.5 percent) and South Africa (7.1 percent). The leading sectors attracting FDI in 2021 were Financial and insurance activities (26.2 percent) followed by Tourism (16.1 percent) and Manufacturing (13.6 percent). The increase in FDI stock has been slowing down, as new FDI flows have declined steadily since 2014 (Figure A3.4).

Growth has been slowing down in time of global trade disruptions

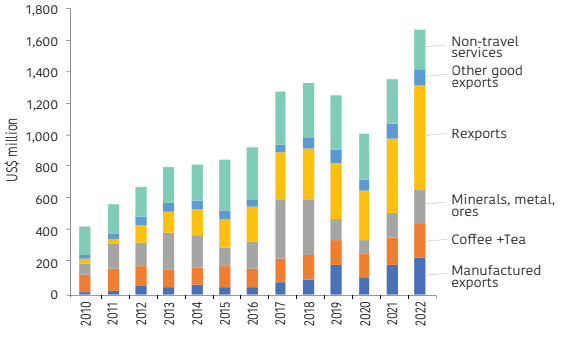
Rwanda's export performance slowed in the second half of the decade, and export receipts remain vulnerable to commodity price volatility. Exports increased by around 17 percent per year in the

Figure A3.1: Goods and services export, annual growth



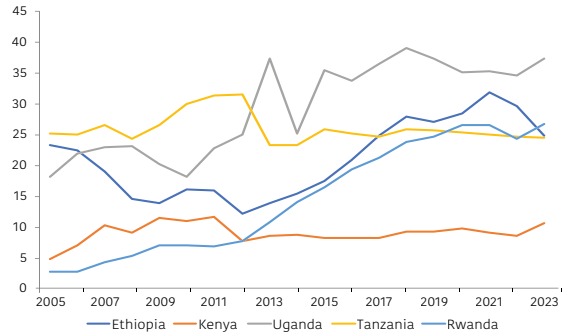
Source: Calculations based on WDIs

Figure A3.2: Export product composition has evolved over the past decade



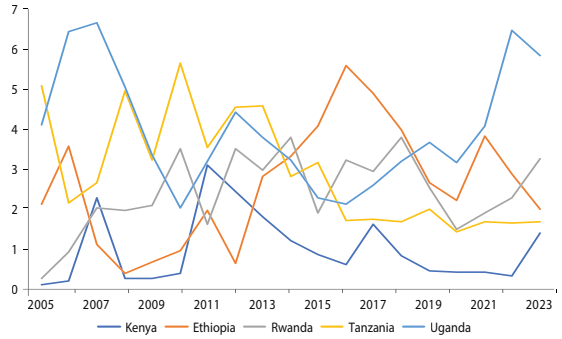
Source: Calculations based on data from the Government of Rwanda

Figure A3.3: FDI stock, percent of GDP



Source: World Bank staff estimates based on (TBA)

Figure A3.4: Net FDI inflows, percent of GDP



Source: World Bank staff estimates based on (TBA)

first half of the decade, underpinned by impressive performance in minerals, coffee, tea and tourism. But export growth fell to around 12 percent per year in the second half of the decade. In addition, Rwanda's growth performance has been driven by increasing global market prices of Rwanda's commodities exports. The 2022 drop in coffee prices highlights the vulnerability of a commodity-driven export sector.[15]

In recent years, the world has experienced a number of global shocks disrupting local production and international trade. The COVID-19 pandemic had a profound impact on global supply chains and the movement of people. Figure A3.6 illustrates the severe decline in Rwanda's tourism sector, resulting from travel restrictions imposed during the pandemic. While these restrictions are gradually being lifted, the sector continues to lag significantly behind its pre-COVID-19 levels, and this trend is expected to persist in the near future due to lingering uncertainties. Figure A3.6 provides a more optimistic outlook, comparing cumulative monthly export volumes over the recent year. Encouragingly, export volumes have rebounded and surpassed pre-pandemic levels, indicating a positive development for Rwanda's economy.

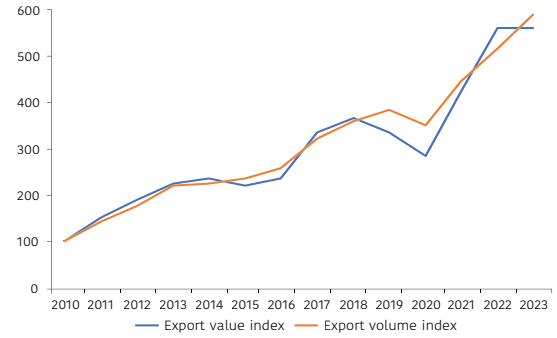
Another major global shock arises from the war in Ukraine. In addition to the inflationary effects caused by supply chain disruptions stemming from the pandemic, export restrictions on commodities, particularly wheat and fertilizers, have led to a surge in prices. In January 2023, food price inflation reached 26 percent, down from its peak of 62.6 percent in March of 2002, following an increase in interest rates to 7 percent (BNR, 2023) as reported by the World Bank (2023).

The convergence of these shocks introduces significant downside risks to any economic forecast. These risks include a prolonged challenging global environment characterized by higher inflation, tightening policy rates, financial stress, and deeper weaknesses in major economies leading to reduced external demand, along with the potential for severe climate- and weather-related shocks (World Bank REU, 2023).

Persistent Structural Weaknesses

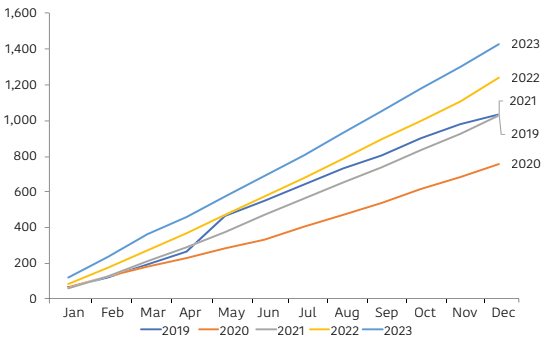
Rwanda became a more competitive exporter between 2010 and 2019, both in goods and services exports.[16] However, gains in service-sector competitiveness slowed down in the second half

Figure A3.5: Total Goods exports



Source: Calculations based on NBR database

Figure A3.6: Accumulated monthly export volumes



Source: World Bank staff estimates based on (TBA)

of the decade (Figure A3.7). This was partially symptomatic of persistent structural weakness, including over-reliance on just a few products and markets in merchandise trade, a lack of complexity in product exports, and a low survival rate for exports.

Some of these weaknesses are associated with high input costs. Despite gains in trade facilitation, imported production inputs suffer from high costs of transportation. The shipping costs for a 20-foot container from Shanghai to Mombasa is around US$500-1,000 while it costs around US$3,000-4,000 to transport it from Mombasa to Kigali (GIZ, 2020; World Bank, 2022b). High tariffs further raise input costs. The agricultural sector, for instance, faces import tariffs of between 14 percent and 22 percent on some imported goods that are then subject to further processing and exporting.[17] High tariffs also reflect inefficiencies in the EAC's Common External Tariffs (CET), which applies tariffs up to 100 percent on certain imports.

Another issue is the similarity of traded products in the region. The trade complementarity index (TCI), ranging from 0 to 100, shows that Rwanda's complementarity with regional economies is low and is further declining (with the exception of Uganda) (see Figure A3.8).

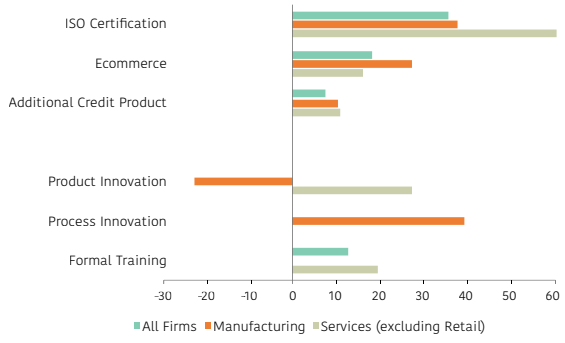
Low rates of ISO certification in Rwanda may constrain exports. Firms with ISO certification are 36 percent more likely to be exporters. In 2019, only 3 percent of firms had obtained ISO certification, which places Rwanda in the 9th percentile with a rank of 108 out of 119 (World Bank 2022). Other EAC countries perform 10 ppts higher, on average, at 13 percent.

While the adoption of e-commerce is a significant determinant of participation in international trade in Rwanda, its use is still limited among Rwandan firms. Manufacturers engaged in ecommerce are 27 percent more likely to be exporters. However, firms in Rwanda use ecommerce at a much lower rate than the majority of countries. In 2019, 43 percent of firms engaged in ecommerce, which places Rwanda in the 33rd percentile of countries with a rank of 82 out of 121.

Most of Rwanda's export growth has occurred through stronger performance in products with lower product complexity, such as agricultural commodities which are exposed to large fluctuations of international market prices. One reason is that firms in Rwanda lag behind in product innovation compared to those in most other countries (World Bank 2022). In 2019, only 15 percent of firms had introduced a new or significantly improved product or service during the last three years, which places Rwanda in the 14th percentile of countries with a rank of 103 out of 120.

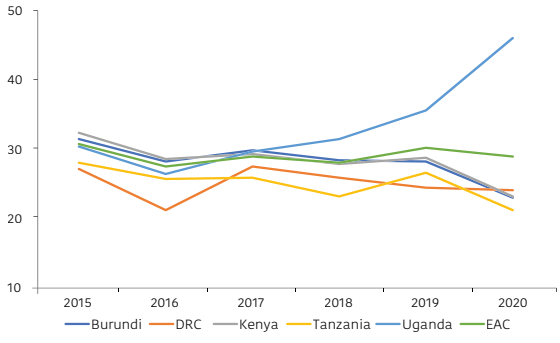
Low export survival rates continue to pose a challenge. Between 2010 and 2019, approximately 18.2 percent of Rwanda's potential export growth was lost due to a decrease in exports of existing products to established markets (6.7 percent) and the complete cessation of exports to established markets (11.5 percent). Rwanda should commission a study to examine the reasons behind the low survival rates, which could inform a support program for exporters struggling to maintain their export markets.

Figure A3.7: Probability of exporting by firm activity in 2019



Source: WBG staff calculations

Figure A3.8: Rwanda's trade complementarity with selected countries



Source: WBG staff calculations

Annex 3.3. Policy developments since future drivers of growth

Export growth and diversification

Since 2018, Rwanda has taken several steps to increase export growth and diversification. Launched in 2016 and later redesigned, the Export Growth Fund (EGF) under Rwanda's Development Bank (BRD) provides subsidized loans and matching grants to exporters and offers direct export support, including access to information on potential export markets targeted at high-potential firms. The Export Development Program, managed by Rwanda Development Board (RDB) and the National Agricultural Export Board (NAEB), provides further support and export market information. As part of Rwanda's import substitution strategy, Made-in-Rwanda, the RDB manages a Supplier Development Unit (SDU) aimed at promoting the growth and competitiveness of local businesses. The SDU facilitates the integration into domestic and global value chains, provides capacity-building efforts and facilitates access to finance.

Rwanda has built institutions that contribute to the development of new markets, including services. Rwanda launched the Kigali International Financial Centre (KIFC) aiming to transform Kigali into an international financial destination for investors seeking opportunities across the African continent. Rwanda Finance Limited, a company promoting Rwanda's financial sector, has established strategic partnerships with local and international partners to promote the KIFC through investment promotion, policy advocacy, and industry upskilling. Additionally, Rwanda is developing the Kigali Innovation City (KIC) within the special economic zone of Kigali, envisioned as a technology innovation hub to develop and attract the necessary skills to meet the future demands of the tech industry in Rwanda and the wider African region.

Rwanda has successfully attracted investments in modern and high-tech sectors, thereby improving its product portfolio with high-complexity products and expanding Rwanda's export capabilities in technologically advanced sectors. Notably, in 2021, the German firm BioNTech signed an agreement with the Rwandan government to start vaccine production using mRNA-messenger technology for the first time in Africa. Furthermore, the Aldango gold refinery, operational since March 2019, has the capacity to process significant quantities of gold not only from Rwanda but also from other countries in Africa. These investments contribute to the expansion of Rwanda's export capabilities in technologically advanced sectors. Still, more can be done.

Services exports

Rwanda has made significant strides to enhance the institutional capacity of tourism promotion. In 2022, RDB developed National Guidelines for Community-Based Tourism Enterprises (CBTEs) to govern the activities of various tourism enterprises and support product diversification. The introduction of the Visit Rwanda brand has also played a pivotal role in promoting tourism abroad, in particular Nature-Based Tourism (NBT), and new sectors such as religious, wellness, and cultural tourism experience.

Other efforts to promote high-skilled services are in initial stages. To address the skills gap that restricts services export development, Rwanda has initiated programs to leverage private sector knowledge and financing, but the results are yet to be fully realized, particularly in terms of engaging the private sector in skills development. To further promote the growth of high-skilled service sectors and foster competition in services, Future Drivers recommended the implementation of direct industrial policies, such as VAT exemptions on services exports. However, while this has been discussed on a case-by-case basis, there is currently no existing policy or law in place regarding this matter.

Regional integration

Since 2018, Rwanda has made significant strides in addressing barriers that hinder Rwanda's ability to fully benefit from regional integration. One notable achievement has been the harmonization

of standards within the EAC. Coordinated efforts between national standard boards have played a crucial role in aligning fees, charges, and levies across EAC states. The implementation of the updated product list through the Catalogue of East African Standards (CEAS) has been an important element in this process. Domestically, the Zamukana Ubuziranege program has been instrumental in supporting SMEs to comply with standard requirements.

Further efforts are needed to harmonize internal standards and fees, and to improve coordination between different agencies. In the past, unilateral deviations from the EAC's CET by member states signaled a departure from the customs union (Rauschendorfer and Twum, 2020). Rwanda has frequently utilized the Stays of Application mechanism to reduce input tariffs. In light of this, Future Drivers recommended establishing a coordinated system with improved transparency and consistency. In 2022, a reform was implemented to enhance flexibility, particularly for products susceptible to global economic disruptions. Notably, a fourth tariff band of 35 percent was introduced, primarily targeting sensitive products related to locally produced finished goods and specific industrial inputs for which Rwanda sought deviations through the Stays of Application mechanism. Rwanda stands to benefit if this reform successfully strengthens regional integration by reinforcing the customs union. Regarding the harmonization of standards, a crucial next step will be extending the benefits of the CET.

Trade logistics

Some progress has been made in integrating regional transport links, although Rwanda's heavy reliance on the road network continues to contribute to high trade costs. Future Drivers highlighted the potential benefits of a regionally integrated rail network, while the planning and implementation of such a large-scale infrastructure project should consider the associated risks to public finances. Rwanda has taken steps in this direction by conducting feasibility studies along both corridors and initiating discussions with the European Investment Bank for potential financing. The establishment of the National Trade Facilitation Committee (NTFC) in 2016 by Minicom is a significant milestone in ensuring transparent planning and execution processes and standardizing cross-border operations. Institutional innovations like the NTFC, as well as the East African Electronic Single Window, have proven highly effective in reducing transport time and costs by improving coordination in cargo clearance and tracking.

Rwanda has made notable progress in its ambition to become a regional logistics hub, particularly in improving institutional infrastructure for regional air cargo freight through pursuing open skies arrangements. Partnerships with Qatar Airways for the new Bugesera Airport and expansion of the Rwandair's network are steps in this direction. Additionally, Rwanda has signed the Yamoussoukro Decision (DC) within the African Union to liberalize air transport services and has been piloting the Single African Air Transport Market (SAATM) since 2018. Key logistics infrastructure projects in Rwanda include the opening of the KLP by DP World in 2019, the development of the Bugesera International Airport Cargo Center, and the ongoing construction of the Bugesera Special Economic Zone since 2022. These developments play a crucial role in enhancing Rwanda's logistics capabilities and supporting its position as a regional hub.

Foreign investment

Rwanda has undertaken various initiatives to focus FDI on priority sectors defined in the National Investment Policy (NIP). The establishment of a Deal Accelerator and Re-Investment team within the RDB, for instance, provides sector-specific expertise, investment facilitation, and promotes domestic re-investment. The Government of Rwanda also extended the Manufacturing and Build to Recover Program (MBRP), which aims to attract private sector investments in specific sectors such as manufacturing and agro-processing.

Actual investment flows from foreign firms have consistently fallen well below commitments made at the time of application for project approval. To address this issue, Rwanda has set up an investor tracking system at the macro-level through the Foreign Private Capital (FPC) census. The Government of Rwanda has further pursued initiatives to link tax and industrial policy to firm productivity and export performance while ensuring that incentives are time-bound. This approach is embedded in initiatives like the EGF and the MBRP. The newly enacted Investment Code in 2021 further supports this by linking corporate income tax to total turnover from exports.

Rwanda has further improved the investment environment. Legislation was approved in late 2020 and early 2021 to enhance the legal framework for investment, including amendments to the Investment Code, the Law on Anti-Money Laundering and Counter-Terrorism Financing.

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Notes

[1] These include the Revealed Comparative Advantage (RCA) approach and the use of complexity models (NTP II).

[2] In India, services reforms in the 1990s encouraged competition in telecommunications, transport, and energy markets. This led to downstream manufacturing firms diversifying their production. Similarly, in Honduras, competition policy reforms facilitated the entry of new firms in agricultural input markets, specifically fertilizers and pesticides. The reforms streamlined procedures, reducing registration time from three years to ninety days. As a result, three hundred new products were registered, and the price of certain pesticides decreased by 9 percent (OECD/WTO, 2019).

[3] These goals are articulated in Vision 2020 and the National Strategy of Transformation (NST1).

[4] See a detailed discussion of the literature on service sector-led growth models and evidence in Rwanda in Chapter 4.

[5] The average STRI for the EAC, including Rwanda, is 48, while for Rwanda it is approximately 40 (OECD, 2023)..

[6] The index includes five categories: completely open (0), virtually open but with minor restrictions (25), major restrictions (50), virtually closed with limited opportunities to enter and operate (75), and completely closed (100).

[7] See the World Bank and WTO Service Services Trade Restrictions Index (STRI)

[8] A skills assessment estimated that Rwanda has only 6 percent of the number of accountants needed to meet demand from the public and financial sectors (ICPAR (Institute of Certified Public Accountants of Rwanda), 2017). Rwanda is lagging behind the rest of the EAC in the number of professionals and is far behind African leaders in services exports such as Mauritius and South Africa (World Bank, 2022a).

[9] Relative to a baseline that does not contemplate the implementation of the AfCFTA, the scenario assumes reductions in tariffs and non-tariff barriers, as well as the implementation of trade facilitation measures that reduce transport costs across the continent (World Bank, 2022c). The results reflect Rwandan exporters' reduced tariff advantage in EAC markets vis-à-vis non-EAC countries, a fall in trade barriers on Rwandan exports to Africa outside of Rwanda's current trade agreements, and increased access to Rwanda's domestic market for more efficient producers from outside the EAC, potentially reducing Rwanda's import costs (de Melo & Regolo, 2014)..

[10] In March 2019, Rwanda unilaterally closed its border with Uganda. Prior to the closure, Ugandan imports accounted for a significant portion of Rwandan imports, totaling US$230 million in 2018 (8% of all imports value). The abrupt halt in goods flow from Uganda to Rwanda can be observed in Figure 3.1. Before the closure, around 1,000 Rwandan firms were importing from Uganda each month. However, this number quickly dropped to zero after the closure. In comparison, imports from Rwanda's other neighboring countries remained relatively stable and even gradually increasing by January 2022

[11] These are exports from Zimbabwe to South Africa (0.67 million tons), Zambian exports to the DRC (1.38 million tons), DRC exports to Zambia (0.7 million tons) and Botswana exports to South Africa (0.63 million tons).

[12] Furthermore, is it noteworthy that the nature of the exports to/from the DRC and Zambia (and vice versa) is largely driven by the demands of a minerals-based economy, particularly with respect to Zambian exports to the DRC Copperbelt. Hence, it can be reasonably concluded that the size of the current trade, estimated as 0.5 million tons, is significant by any objective measure in the eastern and southern African context.

[13] RwandAir air cargo traffic was 5136 tons in 2019, over 20 times the traffic in 2010. Its market share increased from 5 to 24 percent, compared with the other major airlines KLM (16%), Qatar Airways (15%), Brussels Airlines (13%), and Ethiopian Airlines (10%)

[14] The Kigali Logistics Platform (KLP) / DP World Kigali was inaugurated in in October 2019 and entailed a total estimated investment cost of US$35 million. The new Bugesera airport, with a 60 percent ownership of Qatar Airways, is estimated to open within the next three years and is projected to cost US$ 2 billion.

[15] https://tradingeconomics.com/commodity/coffee.

[16] Measured by relating its exports relative to global exports.

[17] Rwanda's live animal, meat and fish imports have around 22 percent tariff rate, and fresh produce imports have around 14 percent tariff rate.

PART 3:
BOOSTING JOBS AND INCLUSIVENESS

Structural transformation prior to the pandemic was led by the reallocation of labor away from agriculture and into services. Structural transformation contributed to economic growth and poverty reduction, though the benefits have not been shared widely. A series of recent shocks have interrupted the transformation of Rwanda's economy and have reversed gains in living standards. Policies to promote a more inclusive structural transformation could focus on domestic and foreign investments promotion to create off-farm jobs, reducing barriers to rural-urban migration, improving urbanization management, and modernizing further the social protection system, including stronger linkages with active labor market policies. Growth in agriculture is critical for inclusiveness, and Rwandan agriculture has high potential, including a comparative advantage in food crops, prospects for strong demand growth, and deep trade links with regional partners. However, the current approach to agricultural growth, which has involved substantial state intervention, is encountering financial and physical constraints. Continued, rapid growth will have to rely strongly on private sector efforts to increase scale economies through specialization and trade, shift towards more high-productivity activities with greater value added, improve the uptake of available technologies, and increase the coverage of irrigation. Key government support will include providing extension services, strengthening climate resilience, improving access to markets (for example by supporting cold chain storage), increasing access to finance and creating a more inclusive agriculture sector by strengthening food security and continuing work on ensuring gender equality.

CHAPTER 4
STRUCTURAL TRANSFORMATION AND INCLUSIVE PRODUCTIVITY GROWTH

4.1. Introduction

Structural transformation plays an essential role in achieving sustained economic growth and significant reductions in poverty. Structural transformation is the long-term process of reallocating resources and shifting economic activities from traditional, lower-productivity sectors like subsistence agriculture, to more modern, higher-productivity ones, such as manufacturing and services. It includes the evolution in the scale of production and innovation and the rise of formal sector jobs characterized by higher pay and expanded benefits. All these are pathways to sustained economic growth, off-farm employment and decent jobs, and movements out of poverty.

This chapter focuses on Rwanda's structural transformation and explores its welfare and distributional dimensions. It begins by examining the patterns of structural transformation in Rwanda over the past two decades and identifying its main drivers. We compare Rwanda's record with those of its African and Asian peers. We then analyze the distributional impacts of this transformation, as well as its effects on poverty reduction, looking specifically at which population groups, sectors, and locations benefited the most from new investment and employment growth. We examine recent shocks and how they have slowed down or reversed the rate of structural transformation, and we explore their poverty and distributional consequences. Finally, policy options available to the Government of Rwanda are discussed to foster a more inclusive structural transformation and put forward actionable policy recommendations to achieve it.

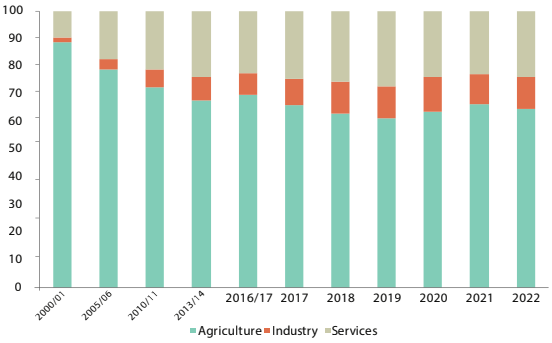
4.2. Patterns of structural transformation in Rwanda

This section summarizes patterns of structural transformation over the past two decades. The evidence suggests that structural transformation took place until just before the pandemic, led by the reallocation of labor away from agriculture and into services and industry.

Structural transformation in Rwanda accelerated over the past two decades, with substantial labor reallocation out of agriculture observed until 2019. Estimates combining the Integrated Household Survey on Living Conditions (EICV) data in earlier years and the more recent Labor Force Survey (LFS) data suggest that the agriculture share of employment fell by 24 ppts between 2000 and 2022 (Figure 4.1). As workers moved out of agriculture, employment in industry expanded to nearly 12 percent, while employment in services increased to 24 percent in 2022. In the Annex, we present summary figures suggesting an even deeper structural transformation between 2000 and 2021 (Figure A4.2 in Annex 4.2 using modeled ILO estimates) and in recent years (Figure A4.1 in Annex 4.2, using LFS data from the National Institute of Statistics Rwanda, NISR).[1] Structural transformation took place within sectors as well: within the services sector, in particular, there has been a reallocation towards more modern sub-sectors such as finance, at least up until just before the pandemic. In addition, the share of those engaged in subsistence agriculture dropped from 57 percent in 2016 to 42 percent in 2019.

Figure 4.1: Rwanda: Share of total employment by sector

(2000–21, in percent)



Source: Calculations based on NISR EICV reports using LFS microdata.
Note: All estimates are based on the definition of employment that includes subsistence agriculture.

The speed of structural transformation in the Rwandan labor market relative to its economic growth compares favorably to its peers. Rwanda's off-farm jobs-to-growth elasticity—the percentage change in off-farm employment for a one percent

change in GDP—compares well with its fast-growing counterparts (World Bank, 2020). In particular, the job elasticity of growth for Rwandan manufacturing ranges between 1.7 and 2.5. This is at par with the experience of many other countries, including the fastest-growing economies in East Asia. For example, the manufacturing job elasticity of growth in China ranges from 1.1 (1980 to 1990) to 2.0 (1970-1980). In Vietnam, the corresponding elasticity in recent years has been about 1.5.

Rwanda's structural transformation outpaces its African comparators. None of its African peers have achieved that same rate of transformation over the past two decades—though admittedly they are at different levels of development, with Botswana at the higher end of this distribution. Nonetheless, only Tanzania came close to this rate of transformation as its agriculture employment fell from 83 percent to 64 percent (Figure A4.3 in Annex 4.2). In contrast, Ethiopia, Kenya, and Uganda experienced a much slower reduction in agriculture employment, while in Botswana's case, the shift out of agriculture was reversed in recent years.

In addition, Rwanda's transformation is arguably comparable with its Asian peers. Between 2000 and 2021, structural transformation among Asian economies was led by China and Vietnam as these economies experienced 26 and 36 percentage-point reductions in agriculture employment, respectively. However, comparison with Asian economies is constrained by these economies being at a very different level of development relative to Rwanda and because its structural transformation began much earlier. One option is to use GDP per capita either in constant purchasing power parity terms or in constant dollar terms to determine at what point they had comparable levels of development. Data suggest that the economy of Rwanda now is more or less at the same level of development as the economies of China and Vietnam were between 1990 and 1995.[2] Compared to that point in China and Vietnam's economic transformation, the current structure of Rwanda's economy is comparable or better: In the mid-1990s, agriculture accounted for 52 percent of employment in China and 71 percent in Vietnam, compared with Rwanda's 55 percent.

4.2.1. Rwanda's services sector-led transformation is similar to that of African countries and different from the Asian growth model

Rwanda's structural transformation has been led by the services sector, as intended in its national strategy. As described in Hoekman et al (2022), the services sector now represents nearly half of all value-added and the overwhelming majority of enterprises in Rwanda are in the services sector, increasing in both absolute and relative terms, in keeping with Rwanda's national plan, the Vision 2020 strategy. Developed in 2000, the Vision 2020 strategy grew out of a recognition of the limits of a manufacturing export-led growth model, due to Rwanda's landlocked economy, constrained market size, and the high transport costs in the region. In contrast, a services sector-led growth model could allow the country to make full use of its resource endowments, led by the logistics, tourism, and ICT sectors.

Rwanda's services sector-led transformation is similar to its African comparators yet distinct from the Asian ones. On the eve of the pandemic, as previously noted, LFS data suggest that the services sector's share of employment was over 40 percent. Unlike Asian economies that had gone through a discrete industrialization phase—as evident from industry still accounting for a large proportion of employment, from a quarter to a third of all employment, even in this later phase of their transformation—it is the services sector, not the manufacturing or industrial sector, that has provided employment to workers outside of agriculture in many African countries. The services sector currently accounts for at least a quarter to over half of all employment in selected African economies. In fact, this services sector-oriented transformation is generally true among lower-income countries worldwide—what Rodrik (2016) calls "premature deindustrialization".

Unlike its African peers, Rwanda's services sector-led model has been higher skill-oriented. As previously described, Rwanda's Vision 2020 strategy prioritized the ICT and other modern services sectors, which generally require higher skills. More than half of those employed in Rwanda's services sector have at least secondary education, 20 ppts

more than Rwanda's labor force as a whole. This is also about 35 ppts more than the share of those with similar educational attainment in the services sectors of peer African economies. More generally, compared to its African peers excluding Botswana, Rwanda's services sector has the highest value added per worker (Figure A4.2 and Figure A4.3 in Annex 4.2).

4.2.2. The viability of a services sector-driven growth model is still an open question

The services sector-led growth model has important development consequences that are still not well understood. As summarized in Hoekman et al (2022), this growth strategy differs from the East Asian economic growth strategy of the 1960s and 1970s which was manufacturing export led. Its merits are currently being debated in the literature—in particular, whether this is a viable, long-term growth strategy because the modern services sector offers opportunities for job creation, scale, and innovation, or whether the productivity spillovers from the services sector will be markedly lower than the spillovers from the manufacturing sector (Rodrik, 2013 2013 and 2016; Nayyar et al, 2021).[3] A recent study of India's experience over three decades suggests that service-led growth is a feasible alternative to manufacturing led-growth and raises living standards, but its benefits have favored urban middle class households (Fan, Peters, & Zilibotti, 2023).[4]

The empirical evidence on Rwanda's experience with services sector-led transformation is, to date, inconclusive. Contrary to expectations of productivity gains from increased use of services inputs, a recent analysis of firm productivity found instead a negative association between average firm-level labor productivity and the increased use of services as inputs in production (Hoekman, Sanfilippo, & Ticku, 2022). However, there is evidence to show that trade activities can help dampen this negative relationship and that certain types of enterprises (agricultural firms and larger firms) seem to experience productivity gains from services intensity. Meanwhile, compared to the manufacturing sector, the services sector has not provided as many employment opportunities.[5] Together, these patterns suggest that services sector-led transformation might not yet be delivering on its long-term potential for job creation and productivity growth. Nonetheless, it is quite possible that efforts to digitalize could one day drive a service sector-led growth.[6]

Rwanda recently amended its national strategy and renewed its support for manufacturing and other strategic sectors. In response to the COVID-19 shock and its devastating effects on the economy and the services sector in particular (described more fully below), the government increased its support for the manufacturing sector and other strategic sectors such as agriculture processing and construction materials—with the goal of creating employment opportunities and supporting the economic rebound through the production of manufacturing exports and import substitutes (IMF, 2021, pp. 13, 17, 52). As articulated in the government's 2021 IMF program statement, "We are fine-tuning our growth strategy under NST-1 to ensure a sustainable and inclusive recovery. While continuing to see opportunities in tourism for growth and job creation, especially Meetings, Incentives, Conventions, and Exhibitions (MICE) tourism, we are stepping up our interventions to support the manufacturing sector in tandem with the recovering global demand."

4.3. Determinants of structural transformation in Rwanda

Rwanda's structural transformation has been fueled by four long-term drivers: productivity growth, formal enterprise creation, foreign direct investments, and urbanization. This section examines the experience related to each driver, including opportunities for reform and improvement.

First, productivity changes across sectors have led to significant labor reallocation towards employment opportunities characterized by higher value-added per worker. Figure A4.2 (in Annex 4.2) presents data on value-added per worker by sector from 2000 to 2021. The charts suggest that workers have moved from agriculture, characterized by relatively low value-added per worker, to industry and services, with considerably higher value-added per worker, in some cases multiples of that of agriculture. Chapter 5 explores the many reasons

why productivity in agriculture is low. However, although most sub-sectors within industry have value-added per worker double that of agriculture, many workers in the industrial sector are employed in construction where value-added per worker is comparable to, or even lower than agriculture. As a result, the (weighted) average industry value-added per worker is only slightly larger than that of agriculture. In contrast, the services sector value-added per worker is much higher than that of agriculture, about 50 percent more.[7]

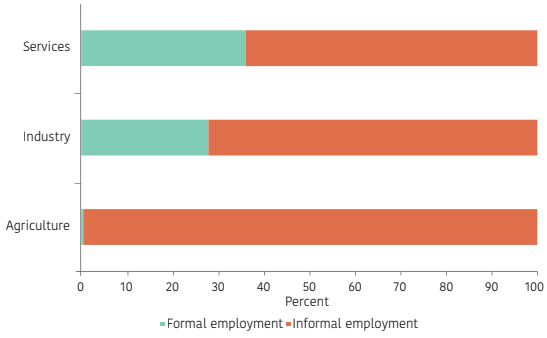
Second, the number of formal business establishments has been increasing in recent years. Between 2017 and 2020, the total number of establishments rose from 190,288 to over 232,280—equivalent to an over 22 percent increase (National Insitute of Statistics of Rwanda (NISR), 2021). This rapid growth was observed across the board, including both smaller and larger firms. In fact, micro firms (1–3 workers) and large firms (100+ workers) experienced the fastest growth. As a result, the number of workers employed by registered businesses has also increased sharply, particularly in recent years (Figure 4.2). Looking

Figure 4.2: Number of employees in establishments

Source: Calculations based on NISR (2021)

Figure 4.3: Formal and informal employment by sector

(Percentage shares in 2022)

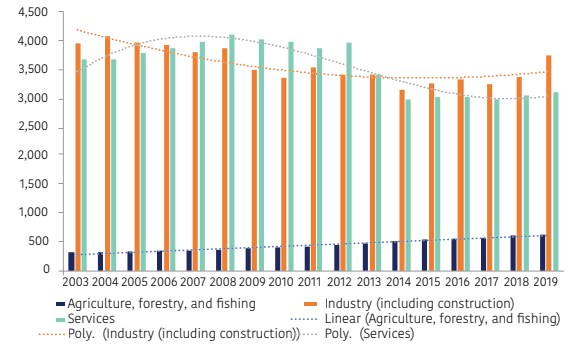


Source: Calculations based on NISR (2021)

across sectors, though, informality remains pervasive, and Chapter 2 delves deeper into the patterns and drivers of stubbornly high enterprise informality. While both industry and services have seen higher rates of formal employment (Figure 4.3), nearly all agricultural employment remains informal, reflecting its persistently low productivity (Figure 4.4). The continued expansion of formal businesses will thus be vital for a shift towards a more structured and regulated economy. By reducing informality, the Government of Rwanda stands to address issues like inadequate social protection, limited access to credit, and lack of legal and regulatory frameworks. Ultimately, the growth of formal enterprises will be key to promoting inclusive and sustainable economic development in Rwanda.

Figure 4.4: Value added per worker, broad sectors

(Constant 2015US$)



Sources: Rwanda Labor Force Surveys, various issues; and staff calculations (left). Rwanda's Poverty Assessment 2020 (right).

Kigali in particular has seen a concentration of investments and formal job creation. This has especially benefited women in the capital; other regions of the country have not been able to attract similar levels of investment. The Kigali region's districts, namely Gasabo, Kicukiro, and Nyarugenge, have exhibited a notable concentration of economic activity. From 2016 to 2022, these districts accounted for a significant portion of projects (81 percent), investments (72 percent), and projected jobs (82 percent) (World Bank, 2023a). This, despite the most recent establishment census revealing that less than a quarter of total business establishments, both formal and informal, were located within these three districts (National Insitute of Statistics of Rwanda (NISR), 2021). Similarly, social safety net expenditures are concentrated in the capital: the latest public expenditure review shows they are lowest in poor districts and highest in the capital city (World Bank, forthcoming).

Third, foreign direct investment (FDI) has been a crucial driver of formal employment growth. Between 2010 and 2021, the stock of FDI in Rwanda grew rapidly, creating new jobs in industry and services. Starting from about 6 percent of GDP in 2010, it increased to 27 percent by 2021 (Figure 4.5). This expansion in FDI stock outpaces those of Burundi, Malawi, and Tanzania and is at par with Ethiopia (Rogatschnig *et al*, forthcoming). In the process, these flows have created many new jobs in industry and services. An overwhelming majority of new FDI projects are in sectors outside of agriculture. Between 2018 and 2020, for example, the agriculture sector accounted for only 7 percent of FDI inflows. This trend continued in 2021, with the sector accounting for an even lower percentage of FDI inflows (5.8 percent) (National Bank of Rwanda (NBR), 2023). As FDI has flowed into industry and services, thousands of new jobs have been created. Although the number of jobs announced from registered investments tends to be overestimated, it is nonetheless clear that FDI firms employ considerably more than local firms—according to one estimate, for example, FDI firms employ 170 percent more workers than their local counterparts (see Box 4.1, and World Bank, 2023b).

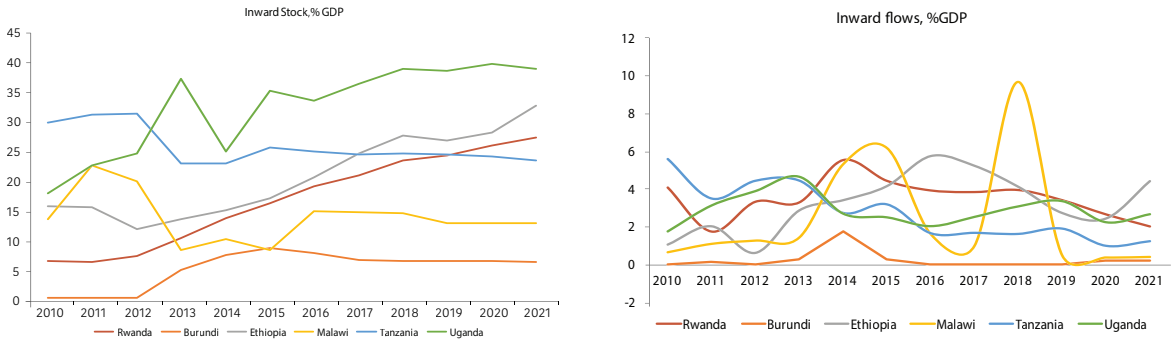
More than just creating more jobs, FDI flows have created higher-quality jobs. Measures of job quality include the ability of firms to offer full-time employment, contracts, higher pay, and non-remuneration benefits, such as pensions, unemployment or medical insurance. Econometric evidence indicates that compared to domestic firms, FDI firms in Rwanda are 11 ppts more likely to offer social security (World Bank, 2023a). In addition, the social security contributions of FDI firms are over 300 percent larger than those of domestic firms.

However, FDI flows have declined in recent years. Data suggest that FDI flows have been falling steadily after peaking in 2014, with particularly sharp decreases during the pandemic (Figure 4.5, [Rogatschnig et al, forthcoming]). Both in percent of GDP and in absolute terms, FDI has been falling; but there are signs of a stable recovery, with net FDI inflows reaching US$ 399 million in 2021 and 2022. Rwanda's comparators, such as Uganda, have already experienced a steady recovery of FDI inflows, and Rwanda is well placed to do so too.

Rwanda has struggled to attract sustainable investments (Rogatschnig et al, forthcoming). New investments in polluting sectors have exceeded investments in green sectors for two decades (Figure 4.6). In fact, cumulatively, investments in green sectors since 2007 have been small, summing up to only about half a billion dollars. In stark contrast, globally, FDI flows in polluting sectors have seen a very strong decline, plunging by 80 percent during more or less the same period. Similarly, rising from about 5 percent of new FDI flows, green sector investments have reached about a third of all recent flows globally. Chapter 3 discusses measures to attract green FDI in greater detail.

Figure 4.5: FDI stock and inflows

(In percent of GDP) *(In percent of GDP)*



Source: Calculations based on UNCTAD database.

BOX 4.1: Foreign Direct Investment (FDI) and inclusiveness

FDI directly creates jobs in Rwanda. FDI has helped create numerous new employment opportunities in Rwanda. Though the actual number of jobs generated by FDI falls below what was initially announced through the Rwanda Development Board (RDB), recent analysis indicates that FDI creates jobs immediately upon entry and in the years after. Overall, compared to their domestic counterparts, FDI firms are estimated to employ almost twice as many workers and generate 370 percent more sales. The manufacturing sector represents a very large share of all these jobs created directly by FDI, accounting for about 8,000 out of 12,000 jobs.

FDI also creates jobs indirectly. FDI creates additional local employment opportunities, as the increase in hiring may also stimulate demand for goods and services produced by firms within a certain locality. This "multiplier effect" is particularly strong among manufacturing firms. In addition, FDI firms are more likely to create domestic linkages in their supply chains. Econometric evidence indicates that FDI firms are more likely to have corporate buyers compared to their domestic counterparts.

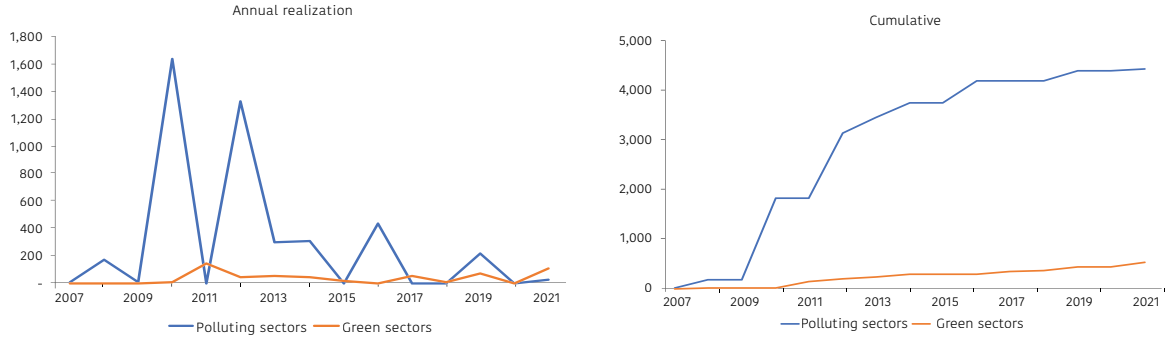
FDI creates higher-quality jobs. Compared to their domestic counterparts, FDI firms were more likely to offer benefits, such as social security contributions. In particular, there is evidence indicating that FDI firms are more likely to provide social contributions and contribute over 300 percent more than domestic firms.

FDI creates relatively less inclusive jobs. Despite manufacturing FDI having a significant potential for both direct and indirect employment creation, FDI inflows have generally been concentrated among other sectors with more limited potential for sustained job creation, such as construction, real estate, and utilities. FDI flows have also tended to be concentrated in Kigali and in richer districts, though the potential for more inclusive job creation could be larger in areas outside the capital, including in poorer districts.

Sources: World Bank (2023b)

Figure 4.6: Rwanda: greenfield investment announced in polluting and green sectors

(Estimated capex, US$ millions), 2007–21



Source: Calculation based on (TBA).

Fourth, urbanization, particularly internal migration flows from rural areas to Kigali, have also driven structural transformation in Rwanda. In fact, urbanization is a key driver of economic growth and could propel the country to middle-income status (see Box 4.2). As explained in the most recent poverty assessment, migration raises productivity as workers move to cities. The density of economic activities in cities promotes the spillover of ideas, facilitates the recruitment of workers with requisite skills, and allows specialization and economies of scale. Although up until recently the movement within rural areas represented the largest flow, flows into rural and urban Kigali have been rising in recent years. Movement from rural to urban areas remains lower compared to Rwanda's African peers—in no small part due to low levels of agricultural productivity and education—which renders the realization of potential agglomeration benefits difficult.

BOX 4.2: The benefits and challenges of agglomeration in Rwanda

Urbanization and agglomeration are key priorities for the Government of Rwanda. The Government of Rwanda is committed to inclusive and sustained growth, and its key strategic document, Vision 2050, acknowledges the role that urbanization and agglomeration will play in fulfilling its ambition to reach upper middle-income status by 2035 and high-income status by 2050.

Successful urbanization will be key to achieving agglomeration economies and spurring economic growth. The proximity of individuals and businesses creates significant opportunities for productivity growth and allows firms to leverage specialized labor clusters, tailored institutions, and more efficient input procurement, resulting in increased efficiency. Due to these agglomeration economies, urban Rwandan workers have enjoyed higher wage rates compared to their rural counterparts. Few countries have graduated to middle-income status without at least half of their population living in dense urban spaces. However, agglomeration benefits have not been realized to their full potential. The challenges related to urban sprawl, inefficient use of land, informality, and high costs of infrastructure serving a small share of the population make agglomeration benefits difficult to capture. These benefits will remain unrealized as long as the surrounding areas are not sufficiently closely linked to the urban center, forming a single economy under a 'system of cities' approach.

Even within Kigali, the labor market and the enterprise sector have not enjoyed the full benefits of agglomeration. The majority of employment in the city is informal, concentrated largely in non-tradable activities like retail, personal services, and construction. Informal workers in these sectors have few to no incentives for skill development, which greatly limits their productivity. The prevalence of informality also restricts the flow of knowledge and ideas, inhibits the potential for economies of scale and specialization, and hinders firms' access to essential services and a diverse pool of skilled labor. In addition, peripheral settlements surrounding the main urban centers are not well connected to the cities, further impeding the realization of any potential agglomeration benefits.

Sources: World Bank (2023b)

The concentration of economic activity and formal employment in Kigali has drawn in more workers, at the expense of other cities. Investment opportunities are primarily centered around the capital, and economic activity in the city accounts for almost half of the national GDP (World Bank, 2023b). The economy is thus heavily dependent on Kigali, potentially diverting investments for balanced development from other cities. Secondary cities and smaller district towns across the country remain largely underdeveloped. Yet they already contribute about 13 percent to the national GDP, with a little more than half a million residents (World Bank, 2022). To grow and become competitive, these cities will require the right set of measures promoting urban planning and investment.

In addition to Kigali's dominance, broader urbanization remains constrained by a number of interrelated challenges that contribute to low economic vibrancy in other Rwandan cities. An important issue is the prevalence of informal labor sectors, which encompass nearly 38 percent of the total workforce in urban areas. Moreover, the quality of services provided within cities, as well as the lack of affordable housing, directly affects labor conditions and the draw of urban environments. In addition, local governments often face limitations in their authority and responsibilities, relying heavily on the central government for support, with the exception of the City of Kigali. The reliance on public funds hinders the ability of local governments to incentivize private sector investment in infrastructure, resulting in limited development opportunities (World Bank, 2023b).

Several other factors could potentially be limiting rural–urban migration in Rwanda. First is affordability. As seen in many other countries, the cost of moving prevents many of the lowest-income households from taking advantage of economic opportunities in urban areas. These could include non-monetary dimensions such as the lack of labor market networks among such households. Second, because formal jobs created by foreign investment flows often require higher educational credentials, then these jobs are less accessible to less-educated workers from rural areas. Third, many off-farm jobs that have been created in recent years have been in rural areas—pre-covid, for example, nearly a quarter of rural employment was in construction,

wholesale, and retail—thus likely encouraging rural-rural migration rather than rural-urban migration. Finally, strict regulations against street vendors in Kigali might limit the informal job opportunities available to rural workers and thus discourage rural–urban migration.

Nevertheless, urbanization can help the Government of Rwanda achieve sustainable and inclusive economic growth. To complement the Government of Rwanda's ambitious plan of achieving 70 percent urbanization by 2050, a comprehensive understanding of the current policies and state of cities is crucial. Progress has been made in the development of policy documents like the National Urbanization Policy (NUP) that was developed under the TA component of the Second Rwanda Urban Development Project (RUDP II), which emphasizes the importance of fostering secondary and satellite cities for balanced and equitable development. Furthermore, creating an enabling environment that promotes a system of cities' approach will be vital for enhancing productivity, facilitating labor mobility, and expanding market access, thereby maximizing the benefits of the urbanization process (World Bank, 2023b).

4.4. Poverty and distributional implications of structural transformation

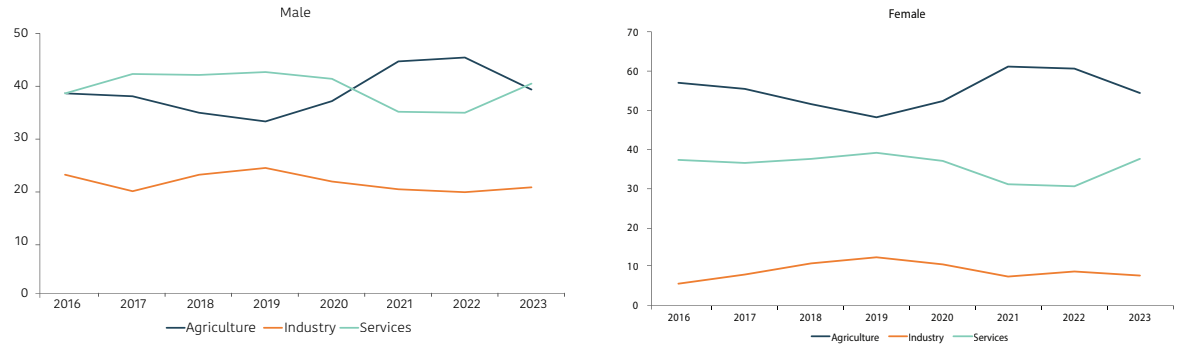
This section explores the welfare dimensions of structural transformation. Rwanda's transformation contributed to economic growth and poverty reduction, though the benefits have not been shared widely. A series of recent shocks have interrupted the transformation of Rwanda's economy and have reversed gains in living standards.

Structural transformation has translated into substantial gains for the Rwandan economy, creating quality jobs and trimming poverty rates. Data since 2017 show that decent and productive jobs—proxied by the NISR as off-farm or non-agricultural work—increased steadily during the pre-pandemic period, but still far from the NST-1 goal of 215,000 decent and productive jobs per year. By 2019, decent jobs had reached nearly two-thirds of total employment, a broad-based increase across all age groups, for younger and older workers alike, and for both men and women. The population has been able to successfully diversify its sources of income outside of agriculture in response to increasing economic opportunities. Similarly, the country saw substantial reductions in poverty, as well as a dramatic increase in the standards of living for its population. From 2000 to 2016, the poverty rate dropped from 59 percent to approximately 38 percent, reflecting improved opportunities and substantial progress in poverty reduction efforts.

Structural transformation has benefited both men and women. Up until 2019, the agriculture's share of employment fell for both male and female workers to about 35 percent and 50 percent, respectively (Figure 4.7). In the case of female workers, in fact, the drop was substantial, down about 10 ppts since 2016. Meanwhile, the industry share of employment increased for women, while flattening for men. Services sector employment increased for both. Together these suggest that both male and female workers—and female workers, in particular, in a number of cases—have managed to move to sectors that have higher value-added and higher rates of formal employment.

Figure 4.7: Sector of employment: male and female

(In percent of total employment; Q1 data by year as indicated)



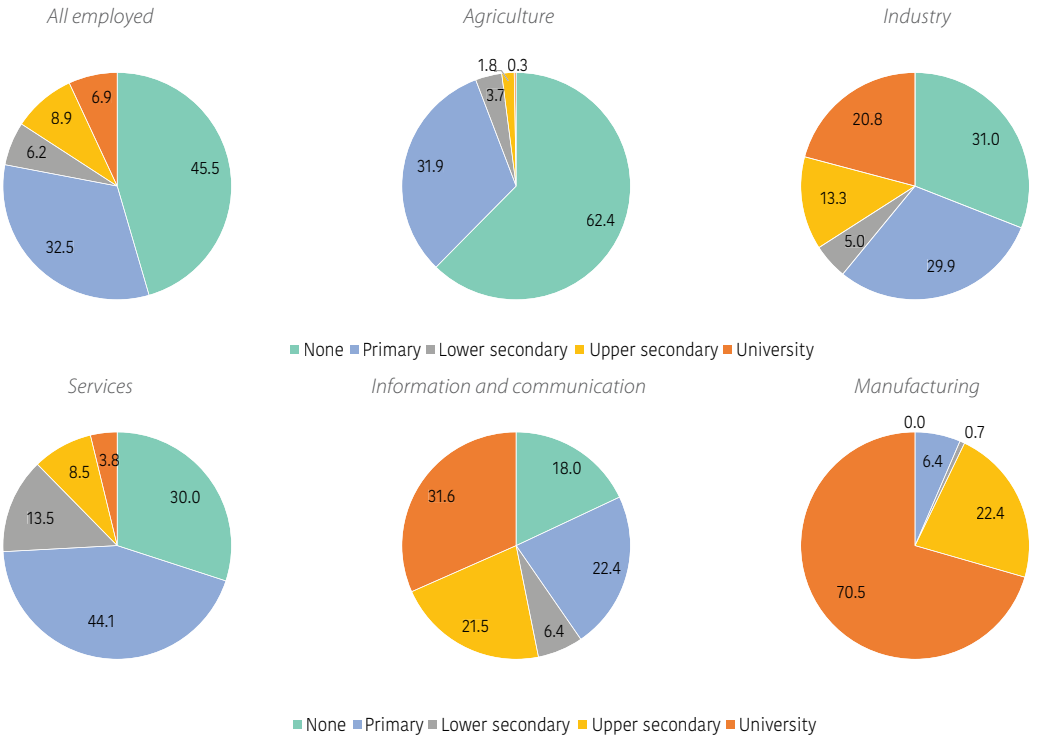
Sources: Calculations based on various Rwanda Labor Force Surveys

However, the benefits of structural transformation have tended to accrue to more educated workers, exacerbating inequality of opportunity in the country. Although for Rwanda as a whole, those with upper secondary or university education represent only about 15 percent of all employed workers, they represent about a third to over half of those who have found employment in industry and services (Figure 4.8). Nearly all agriculture workers have primary education or none, while only 40 percent of services sector workers share this education profile. Of the sub-sectors in services with the highest value-added per worker, for example, the majority of employment opportunities have benefited those with a university education (70 percent in the case of the information and communications sector). This, despite the university-educated accounting for only about 7 percent of all employed workers. The analysis in the latest poverty assessment lends support to this trend, highlighting that higher levels of education dramatically increase individuals' access to off-farm employment opportunities. Specifically, having some primary schooling increases the probability that a household head primarily works off the farm by 20 percent. However, completing tertiary education significantly boosts this likelihood, making it three times more probable for them to work off the farm, compared to having no education (Bizoza, Jäger, & Simons, 2018).[8]

4.4.1. The manufacturing sector has played a significant role in inclusive job creation

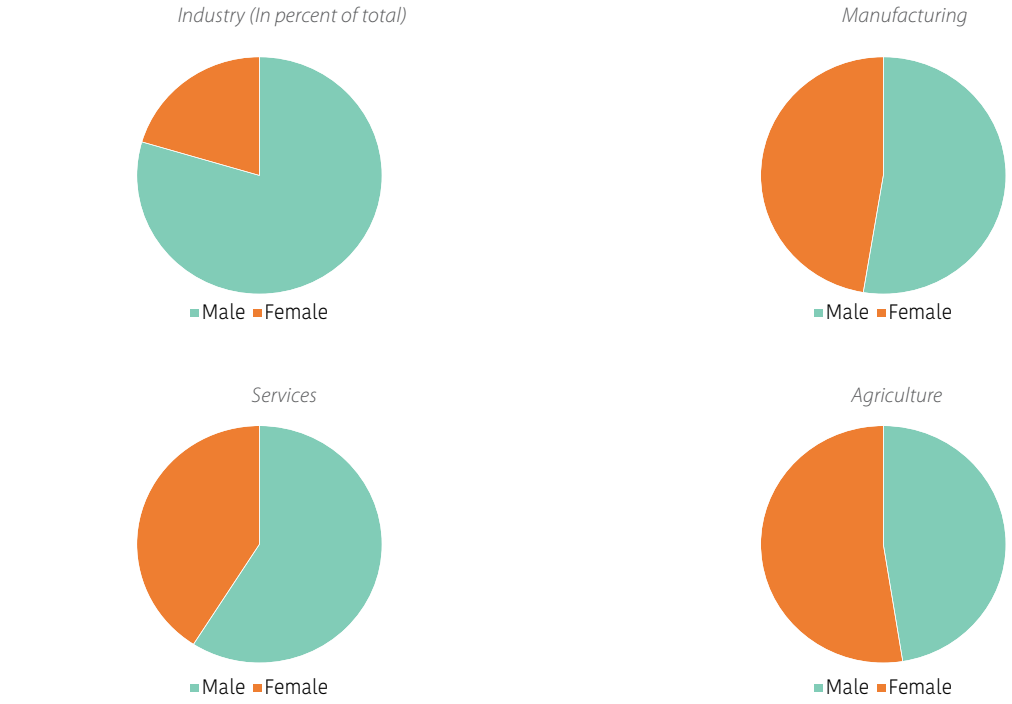
Manufacturing firms employ more workers, and these jobs tend to be more accessible to all, irrespective of location, educational attainment, and gender. As described by Hoekman et al (2022), manufacturing firms employ more workers than services sector firms and tend to be less concentrated in urban areas. In addition, data from the LFS suggest that the benefits of manufacturing jobs have been more widely distributed in contrast to other sectors (Figure 4.8). Nearly 75 percent of manufacturing workers have primary education or less, mirroring the overall educational profile of the labor force in Rwanda. In addition, nearly half of those employed in manufacturing are women, reflecting the gender distribution in agriculture (Figure 4.9). In contrast, only 20 to

Figure 4.8: Educational attainment by sector 2022



Sources: Calculations based on various Rwanda Labor Force Surveys

Figure 4.9: Male and female shares of employment by selected sectors



Sources: Calculations based on various Rwanda Labor Force Surveys.

40 percent of workers for industry and services as a whole are female. In the information and communications sector—the leading sub-sector in services in terms of value-added per worker—only a little over a fraction of workers are women (not shown). All of these together suggest that the manufacturing sector represents a significant potential for boosting inclusive structural transformation.

In addition, manufacturing jobs help generate additional employment in the domestic services sector. For example, the rise in employment resulting from foreign direct investment within a district can lead to an increased demand for goods and services provided by local firms, consequently fostering additional hiring by these businesses. This multiplier effect is driven by the influx of domestic migrant workers and those with higher levels of education, and it is particularly evident in the context of manufacturing FDI. Every new job created by manufacturing FDI has a significant potential to stimulate the demand for local non-manufacturing products, particularly services, a key source of employment (World Bank, 2023a).[9] This emphasizes the crucial role played by the manufacturing sector as a catalyst for local job creation.[10]

However, FDI flows to manufacturing have been limited. Despite the substantial employment-generating effects of manufacturing projects, investment flows have primarily been concentrated in a handful of sectors within industry and services, specifically construction, real estate, utilities, and financial services (World Bank, 2023a). Between 2019–2021, the financial sector absorbed almost a third of FDI inflows, followed by ICT (19 percent). Manufacturing attracted a much smaller share of inflows over the same period, receiving only around 10 percent. This, despite empirical evidence that manufacturing has a much larger potential to drive job growth that is inclusive. Manufacturing investment projects in sectors such as textiles, for instance, have the potential to deliver inclusive impact through significant

investment size by generating exports and creating employment opportunities for underrepresented groups, especially low-skilled women (Rogatschnig, Obadia, & Steenbergen, forthcoming).

Furthermore, though manufacturing has provided inclusive employment to date, its scale is limited by Rwanda's domestic market. Manufacturing is currently concentrated on food and beverage processing, together with tobacco manufacturing and, to a lesser extent, textiles, chemicals, non-metallic mineral products. In addition, currently, only a small fraction of manufacturing output is exported—about 15 percent, according to the Rwanda Association of Manufacturers. Data from the latest enterprise survey also suggest that, of the manufacturing enterprises in the sample, less than 30 percent export (i.e., exports account for a non-zero portion of sales). As the exporting potential of Rwanda improves, as explored in Chapter 3 in the report, manufacturing employment could be even more inclusive.

4.4.2. Rwanda's structural transformation was interrupted by the covid crisis

Off-farm jobs have been the primary driver of poverty reduction in Rwanda. In a study analyzing factors influencing household consumption in 2016–2017, controlling for household characteristics, it was found that for each percentage point increase in the average daily wage, household consumption increased by 0.30 percent. Moreover, according to the latest poverty assessment, workers who shifted from agriculture to non-agricultural sectors experienced a significant increase of 12 percent in their consumption levels, while those moving in the opposite direction witnessed a decline of more than 9 percent in their consumption. The promotion of off-farm employment opportunities and income growth thus remains crucial for sustained poverty reduction and improved well-being in Rwanda.

However, the poverty elasticity of growth slowed down in recent years. As discussed in Chapter 1, the relationship between poverty and growth began to weaken between 2014–2017, reflecting the lower job-creating potential of growth driven by capital-intensive sectors (World Bank, Forthcoming). While the poverty headcount rate fell by around 2.4 ppts each year in the early 2000s, at a time when Rwanda's economy expanded at a rate of 6.2 percent per year, the pace of poverty reduction decelerated after 2010, as did economic growth. Rwanda's poverty rate remains somewhat higher than expected, given its income levels per capita. It is also approximately 8 ppts higher than what would be expected relative to mean consumption per capita within SSA (World Bank, 2020). In part, the weakened rate of poverty reduction is due to the slowdown in growth in 2016/17 and the weather shocks, with almost a quarter of households reporting either droughts or rainfall shocks (World Bank, 2020).

Structural transformation was unfortunately reversed during the COVID-19 pandemic. The reversal is more or less pronounced depending on the data source. Agriculture employment rose during the pandemic period, likely reflecting coping strategies during a period of economic hardship, while industry employment fell or flattened. As of 2021–2022, the agriculture share of employment was about 50 percent while the industry share of employment was about 15 percent (using Q1 LFS data). In fact, among male workers, while industrial employment exceeded agricultural employment in the pre-pandemic period, that was reversed from 2020 on. In contrast, using modeled ILO estimates, the reversal is less pronounced, with the agriculture share of employment flattening during the pandemic period and the industry share of employment continuing to increase (see Figure A4.1 and Figure A4.4 in Annex 4.2).

In fact, some slowdown in structural transformation could already be seen even prior to the pandemic. This is reflected in the flatter movement of workers out of the agriculture sector beginning around 2013 (Figure 4.1). Part of the pattern might reflect the break in data series, as the figure combines data from two different sources. In part, it also likely reflects the slowdown in FDI flows described earlier. Because FDI flows have been driving off-farm job creation, their slowdown would have meant fewer employment opportunities outside of the agriculture sector.

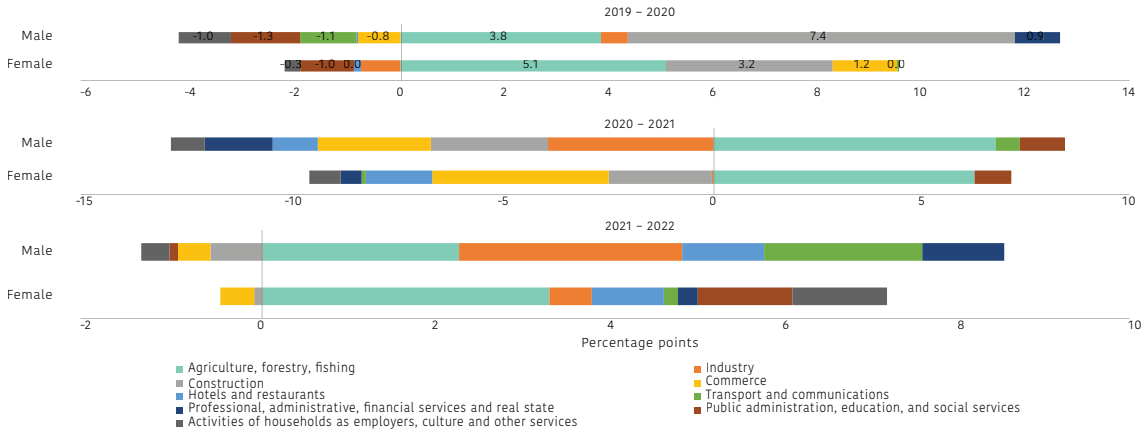
During the pandemic, the Rwandan economy moved away from its target number of decent and productive jobs (World Bank, 2023c). A recent analysis of job creation by sector suggests that only the agriculture sector consistently created employment opportunities during the pandemic (Figure 4.10).[11] Construction contributed to job creation at the beginning of the pandemic but contracted between 2021 and 2022. Commerce experienced large job losses early in the pandemic and then recovered slightly after. As such, since only the agricultural sector contributed consistently to job creation during the entire pandemic period, both the number and share of decent jobs have fallen since the eve of the pandemic. In particular, the share of decent jobs plunged nearly 10 ppts, from nearly 63 percent in 2019 to 53 percent in 2022. Nonetheless, this suggests that agriculture was an important safety net during the pandemic and will continue to employ a large proportion of Rwanda's workers for the foreseeable future. (Chapter 5 explores the reforms necessary to modernize and improve the productivity of the sector).

More generally, there has been an increase in dependent workers and a rising share of temporary contracts (World Bank, 2023c). Dependent workers are employees and paid apprentices, in contrast to employers, who either hire other workers or largely work on their own. The data suggest that dependent workers increased from 67 percent to 73 percent. Alongside the rising measures of dependent workers, the quality of jobs has decreased. The share of dependent workers with temporary contracts has increased to 80 percent in 2021, up from 70 percent just before COVID-19.

Overall, the distribution of covid-induced losses mirrored the distribution of employment gains before the pandemic. Both men and women, rural and urban areas saw substantial reductions in employment (Figure 4.11), with women and youth particularly affected. Youth largely drove the covid-induced drop in labor force participation in 2021, representing more than 170,000 individuals exiting the labor force. However, the labor market is beginning to show signs of recovery.

Figure 4.10: Decomposition of changes in employment by sector and sex

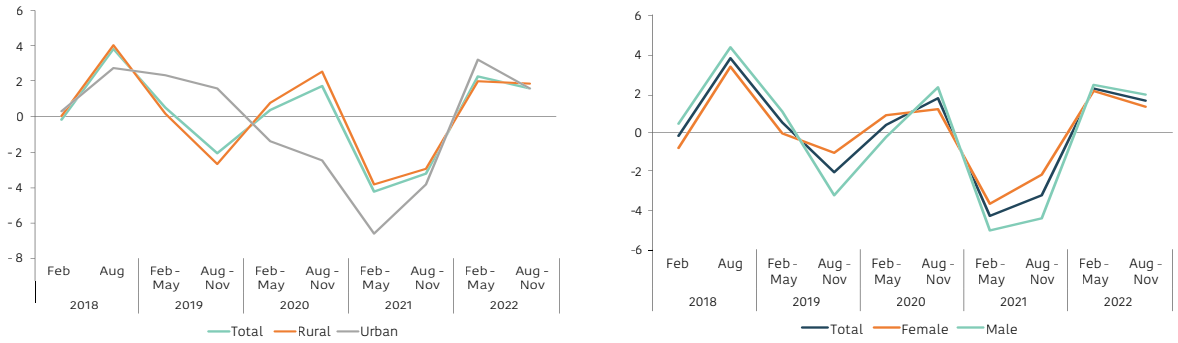
II semester (2019 – 2022)



Source: Calculations based on Rwanda labor force surveys.

Figure 4.11: Change in employment rate: urban-rural, male-female

II semester (2019 – 2022)



Source: Calculations based on Rwanda labor force surveys.

The pandemic-induced crisis has had serious implications on poverty and threatens to reverse the gains from structural transformation. Rural areas have been particularly affected: while urban areas saw a greater rise in poverty, the number of new poor rural households in 2021 was triple that of urban areas (World Bank, 2021). This disparity can be attributed to the fact that initially, rural areas had a higher concentration of impoverished individuals, with more than 90 percent of the poor residing in those areas. In addition, COVID-19 has had a disproportionate impact on women in Rwanda, partly due to their higher likelihood to undertake seasonal work and care for sick relatives (Box 4.3). Some of the impacts on poverty can be offset by social protection measures—but not completely. Without significant interventions, the lasting effects of the pandemic and the anticipated lower post-pandemic growth trajectory threaten to decrease Rwanda's GDP by over 20 percent by 2030, compared to a scenario unaffected by covid (World Bank, 2021).

BOX 4.3: Effect of COVID-19 on the labor market

A recent note analyzes developments in Rwanda's labor market from 2017 to 2022, including the adverse effects of COVID-19. The analysis uses data from both the repeated cross-sections and the panel component of the Rwanda Labor Force Survey (RLFS). Below are some of the main findings:

Unemployment increased and job quality worsened after 2019. Unemployment started increasing in the second half of 2019, with the number of unemployed growing without interruption since then, and the rate of unemployment decreasing only slightly in 2022. There was a shift to temporary contracts, with more than half of all Rwandan workers under a daily contract agreement. The increase in temporary contracts was especially pronounced for men and workers in urban areas. The higher prevalence of temporary work arrangements was accompanied by a reduction in real labor earnings. These two changes point to lower quality of jobs. Not only the availability of jobs decreased since 2019, but people who find jobs are now more likely to have more temporary arrangements (as opposed to longer more stable contracts) and lower pay (in real terms) than in 2019.

Agriculture has sustained job creation. The creation of jobs outside agriculture was cut in half in 2019 and plummeted in 2020 (8,000 jobs created) and 2021 (340,000 jobs lost). Unexpectedly large job creation in agriculture in 2020 and 2021 prevented larger economy-wide job losses. Compared to more than 400,000 jobs created in agriculture, a total of 150,000 jobs were created outside agriculture in the 5 years between 2017 and 2022, compared to a goal of more than 1 million outside agriculture for that period according to the National Strategy for Transformation.

Women and youth have worse employment outcomes. Despite much lower labor force participation rates, women and youth have higher unemployment rates than men and other age groups. They also have much lower employment rates, with a large decline in the youth employment rate in 2021. Using the panel component of the RFLS we find that women are more likely to drop out of the labor force and youth are more likely to be and stay out of the labor force. It has also become increasingly difficult for youth to enter the labor market and there are signs of discouragement with a lower share of youth wanting to work after 2020. According to econometric estimations, during the first phase of the pandemic (second half of 2020), married women in households with children under 5 were disproportionately affected in terms of employment, and unemployment rates for women increased more than for men in the second half of 2020 and the first half of 2021.

Source: Reproduced verbatim from World Bank (2023e).

4.4.3. External and domestic shocks threaten to reverse the gains from structural transformation and exacerbate poverty

The war in Ukraine has sent food and energy prices soaring. Despite having limited direct trade and financial connections with Russia and Ukraine, Rwanda has suffered substantially due to a broader decline in global demand and inflationary pressures through rising commodity prices and ongoing supply disruptions. In particular, Rwanda's economy has been affected by higher oil prices, resulting in elevated import costs for energy products and increased transportation costs for all other imported goods, including food items. If the war in Ukraine continues for an extended period, it could aggravate the pressures on energy, fertilizer, and food prices, posing a serious threat to food security. Furthermore, external tourism demand may weaken further, and there could be potential disruptions in the supply chain. Taken together, the effects of the war in Ukraine on prices in Rwanda will have a particularly detrimental effect on the poor (World Bank, 2023d).[12]

The increasing frequency and severity of weather shocks are harming Rwanda's agricultural output, decreasing production and raising food prices. Adverse weather conditions in 2022 negatively impacted Rwanda's food production. In addition, higher prices caused by disruptions in the global supply chain lowered the utilization of key inputs, such as fertilizer, to the detriment of agricultural productivity. More recently, the flooding in Rwanda in early May 2023 led to a decline in the estimated gross domestic product due to the associated losses, with the services sector suffering over half of all losses. As the disaster had a limited effect on food crops (0.5 percent of planted area and 0.19 percent of pre-disaster food crop GDP), the related inflationary effects will be similarly muted. However, the losses in the environment and water resources (representing approximately 12 percent of pre-disaster water and waste management GDP) could exert significant inflationary pressures due to their crucial role in agricultural production. Health-related losses, resulting in a 3.18 percent contraction in human health and social work activities, may further add to these inflationary pressures (World Bank, 2023a).

Taken together, weather shocks and the war in Ukraine have put upward pressure on food prices, with potentially devastating effects on poverty. Estimates indicate that inflation has been highly regressive: since the poor allocate a larger proportion of their income towards food purchases, food price inflation has had disproportionate effects on this group. The recent food price increases thus pose an important threat to food security and the human capital of the most vulnerable segments of Rwandan society. High inflation is anticipated to exacerbate geographical inequality as well, with the poorest districts being disproportionately affected. Estimates indicate that out of the 19 surveyed districts, 11 districts, which have a poverty rate exceeding the national average of 38.2 percent, experienced food inflation rates higher than the national average. This disparity in inflation rates among districts underscores the potential for increased inequality and challenges in addressing the impact of inflation on the most vulnerable populations (World Bank, 2023d).

The Government of Rwanda has been able to wield an effective response to tame the crisis, thanks to Rwanda's comprehensive social protection system. Notably, the Government of Rwanda expanded the coverage of existing social safety nets and deployed emergency cash transfers for those working in the informal sector in urban areas who were affected by mobility restrictions.[13] Social protection has significant poverty-reducing potential in Rwanda. For example, simulations indicate that

the scaling up of social protection initiatives since 2016, coupled with additional expansions implemented between March and September 2020, contributed to a poverty reduction of approximately 1.43 ppts in 2020 (compared to a scenario without the expansions). This indicates that moving to universal lifecycle social protection coverage, would have an even higher poverty-reducing effect.

There is ample room for improvement in the social protection system to mitigate the effect of future shocks. Beside the need for universal and categorical lifecycle social protection, it is critical that the social protection benefits remain adequate and keep up pace with inflationary trends. Likewise, the effectiveness of social protection will be dependent on how flexible programs allow for mitigation, adaptation, and response to shocks and hence the need for a well-functioning adaptive social protection (ASP) including at policy, programs and institutional level. This becomes increasingly important considering the escalating frequency and intensity of natural disasters caused by climate change. Rwanda, in particular, faces significant challenges related to droughts, flooding, and landslides, underscoring the need for the social protection system to be well-prepared and responsive in mitigating the impacts of these events (World Bank, 2020). A recent move by the Government of Rwanda to introduce shock responsive cash transfer is commendable and its implementation should be prioritized. It is worth noting that the move is aligned with the 2020 Social Protection Policy for which one of the policy priority objectives is to ensure that all affected or likely to be affected populations are supported to cope with and recover from disasters and shocks. Fully implementing the dynamic social registry, including activating its on-demand registration feature is among others an important element of ASP in addition to its expected role on improving effectiveness of poverty targeting. To create a continuum of social protection and reduce the "missing middle," it is critical to continue innovating to find ways (including incentives) through which more people can join the schemes such as the Long-Term Savings Scheme (LTSS) Ejo Heza, including the poorest who are Social Safety Net (SSN) beneficiaries. In addition, social protection will require innovative solutions for urban vulnerable groups, especially women and youth. To ensure social protection's contribution to the poverty graduation agenda, the approved multi-sectoral graduation strategy will have to be implemented through a multi-sector graduation plan. Finally, owing to the importance of the community-based workforce in the delivery of social protection and other social services, streamlining their work is critical, including harmonizing their capacity building. The main social protection challenges are discussed in greater detail in Box 4.4, while Section 4.5 offers concrete recommendations.

BOX 4.4: Main social protection challenges in Rwanda

The Vision Umurenge Program (VUP) is the flagship social protection program. Launched in 2008, the VUP includes several transfer programs and supports nearly 500,000 households or about 2 million individuals. The Ministry of Local Government (MINALOC) oversees the social protection policy and strategy while a specialized agency, the Local Administrative Entities Development Agency (LODA), carries out the implementation of VUP together with local decentralized units (Districts, Sectors, Cells, Villages) and other stakeholders.

Notwithstanding the significant improvement of social protection system since the introduction of the VUP, several key challenges remain:

Coverage gap. Although the VUP has been gradually expanding coverage since 2018, significant gaps remain. Overall, the VUP covers 13 percent of the population: in particular, 35 percent of those in the poorest quintile and about 14 percent of those in the second quintile live in a household that receives at least one VUP transfer. It also covers only 27 percent of households considered extremely poor and 23 percent of households considered poor. In addition, the per capita social safety net expenditures are highest in the districts of Kigali city. This might be due to the higher cost per capita for the Government of Rwanda Genocide Survivors Assistance Fund (FARG), which has more beneficiaries in the city of Kigali and which includes activities such as providing housing and shelter, education grants, medical fees, which are not part of the VUP package.

Adequacy gap. Overall, VUP transfers are equivalent to just 5 percent of consumption; in particular, transfers are equal to 9 percent and 5 percent of consumption among those in the poorest two quintiles, respectively. Across VUP transfer programs, the unconditional cash transfer (DS) performs best, though still accounting for only 11 percent of consumption overall and 13 and 10 percent of consumption in the poorest two quintiles, respectively.

Financing gap. Between 2016/17 and 2020/21, social safety net expenditures increased slightly from 1.36 percent of GDP to 1.61 percent of GDP. The analysis of funding sources indicates that the share of expenditures funded by external sources nearly doubled, from 17.4 percent to 30.5 percent during this period. In addition, recent analyses led by UNICEF suggest that the budgetary allocation to social protection is falling in nominal terms, equivalent to a 21 percent reduction in 2023/24—including reduced budgetary allocations for disability inclusion and programs to reduce stunting. Together, these trends suggest inadequate domestic financing for social protection.

Flexibility gap. Recent shocks due to the COVID-19 pandemic, food inflation, and climate change emphasize the importance of having ASP. A flexible social protection system can help promote mitigation, adaptation, and a timely and effective response to a shock.

Source: Elaborated based on World Bank Group (2022)

4.5. Conclusion and policy recommendations for a more inclusive structural transformation

This section concludes the chapter and discusses policy options available to the Government of Rwanda to promote a more inclusive structural transformation. It focuses on three policy levers—investment promotion, Rwanda's urbanization policy, and Rwanda's social protection system, including public employment services.

This chapter has thoroughly investigated Rwanda's structural transformation, examining its impact on welfare and distribution. Through our analysis of the patterns and drivers of this economic transformation over the past two decades, we observe a significant shift away from agriculture towards services, up until the onset of the pandemic. Indeed, Rwanda has succeeded where many other comparator countries have failed in moving labor out of agriculture and into higher productivity jobs in both manufacturing and services. Four key drivers—productivity growth, formal enterprise creation, foreign direct investments, and urbanization—have been pivotal in propelling and sustaining Rwanda's structural transformation. However, each driver holds potential opportunities for reform and enhancement, which are discussed in detail.

Moreover, we delve into the welfare dimensions of this transformation, acknowledging its contributions to economic growth and poverty reduction, albeit with limited shared benefits. Recent shocks risk disrupting and reversing Rwanda's economic transformation, eroding the progress made in living standards. As such, this final section puts forward a set of policy recommendations for a continued and more inclusive economic transformation.

Below we discuss broadly two sets of policy recommendations–one to reinvigorate and promote structural transformation and the other to ensure that the transformation is inclusive. First, economic policy can help foster structural transformation, to make up for the reversal of the pandemic period. This includes, for example, invest promotion to attract more foreign direct investment. It also includes efforts to remove barriers to the free flow of the factors of production, such as urbanization policy to facilitate the sustainable migration of labor, from rural to urban areas, including to Kigali and secondary and satellite cities. Second, social policy and other related measures to promote inclusiveness can help ensure that the benefits of structural transformation are shared widely.

Beyond the policy recommendations outlined below, other policy measures to promote structural transformation are described more fully in the other chapters. Chapter 1 describes the investment in human capital–that is improvements in education and health services–necessary to support long-term economic growth. In addition, because the agriculture sector will remain a major driver of economic activity and employment, Chapter 5 explores the policy measures needed to support the sector, including expanding market access among farmers, facilitating investments in new technology, and promoting private sector investments in general. It also discusses the role of agriculture insurance. Chapters 2 and 3 outline policy reforms critical to off-farm job creation through improved competitiveness of the enterprise sector (Including through increased access to finance and more public-private partnerships and skills upgrading echoing the earlier discussion of human capital investments) and trade openness (including through increased digital and service exports and by setting up Rwanda as a regional logistics hub).

4.5.1. Sustained poverty reduction depends on revitalized structural transformation and new opportunities for off-farm employment, particularly in the manufacturing sector

Structural transformation in Rwanda reallocated labor away from agriculture into more productive, better-paid sectors, spurring significant poverty reduction in the process. As the most recent poverty assessment concluded, "a shift in the mix of jobs to more productive work propelled increases in incomes and welfare," and in particular, becoming employed off-farm was associated with a 12 percent increase in consumption. And the results of policy simulations suggest that rapid structural transformation—more off-farm employment opportunities and associated wage increases—is a key driver of consumption growth and poverty reduction (World Bank, 2020, p. 98). Employment in the manufacturing sector has played a critical role in inclusive structural transformation by creating jobs for women, for those living outside Kigali and for both skilled and unskilled workers. As documented in the 2020 poverty assessment, the elasticity of off-farm manufacturing jobs to economic growth in Rwanda has been strong, larger than the services sector elasticity, and comparable with the earlier record of Asian economies. Value-added per worker in manufacturing is higher than other industrial sector jobs, including construction. In addition, recent analyses suggest that the benefits of manufacturing jobs are shared widely—these opportunities are

available to both men and women, outside of the capital city, and for all workers regardless of educational attainment—in contrast to other sectors that have primarily benefited men, the more educated workers, or those in Kigali.

Manufacturing FDI has created jobs directly as well as indirectly. Manufacturing FDI created 8,000 of the estimated 12,000 jobs due to foreign investments. In addition to playing a key role in direct formal job creation, there is strong evidence indicating that manufacturing FDI creates jobs both directly and indirectly, by spurring increased local demand for non-manufacturing goods and services. As such the recalibration of Rwanda's growth model in 2021 and the renewed support for the manufacturing sector and other strategic, tradable sectors is welcome.

4.5.2. Given the substantial employment generating effects of FDI, policy should focus on attracting more of such investments

More generally, FDI has been a key driver of formal job creation—it generates high-quality jobs immediately and over time, directly and indirectly. Foreign investment projects have contributed strongly to both capital formation and job creation in Rwanda. FDI projects create jobs as soon as they are initiated, as well as in subsequent years. They create jobs directly as well as indirectly, through the additional demand for goods and services that they stimulate.

However, FDI flows have slowed down in recent years and policy should attract more FDI. The inflow of FDI slowed down even prior to the beginning of the pandemic. There has been a recovery of FDI after covid, with the amounts of FDI inflows above the pre-pandemic level but below the peak of 2014. Programs to attract more foreign investment projects should be enhanced, as explained in the latest Rwanda Economic Update—including through the full use of trade and investment treaties and selected investments in transport infrastructure.

Where feasible and economically viable, policy can help attract investments that benefit women, young workers, and poorer districts. At the same time, it can help develop more local content and economic linkages. As recommended by World Bank (2023a), providing incentives to nudge investors towards activities that benefit women and young workers and that are located in poorer communities would help spur more inclusive foreign investments. In addition, consistent with the critical role of manufacturing in inclusive job creation, investment promotion strategies could prioritize manufacturing to add to the accumulated investments in the construction, real estate, and utilities sectors. Finally, policy can create incentives for foreign investors to work more with domestic suppliers.

4.5.3. The Rwanda Development Board (RDB) can help promote more strategic investments

In general, Investment Promotion Agencies (IPAs) all over the world help attract significantly more FDI, including in manufacturing and other strategic sectors (Rogatschnig, Obadia, & Steenbergen, forthcoming). The literature suggests, for example, that every $1 dollar of investment promotion can help generate nearly $190 more of new investments. The literature also provides evidence that IPAs can increase FDI flows by over 150 percent, with numerous new jobs created in strategic or selected sectors. In Rwanda's case, a targeted sector could be manufacturing, which the previous section showed could help generate many more jobs, in particular jobs that require educational qualifications that the Rwandan workforce currently possesses and generate second-round employment opportunities. This is also consistent with the government's increased support for the manufacturing sector in the post-covid period, along with other strategic sectors like agro-processing and construction

materials (IMF, 2021). Nonetheless, IPAs do vary worldwide in terms of their structure and their actual performance, and four elements have been identified as helping explain why some IPAs perform better than others, namely: institutional arrangements, strategic alignment and focus, organizational framework and resourcing, and investor service delivery.

On the one hand, RDB has characteristics consistent with the best-performing IPAs in the world. A recent assessment concluded that RDB has elements similar to those of the best IPAs worldwide, such as a Board of Directors led overwhelmingly by private sector representatives (equivalent to nearly 90 percent of board membership). Its investor service delivery system includes databases and tools that are comparable with the world's best systems—including a customer relationship management (CRM) system; standard operating procedures (SOPs) to manage institutional relationships; an information system that documents critical general and sectoral data; and many others.

On the other hand, RDB has room to enhance its autonomy, institutional arrangements, and internal coordination. In particular, supervision by the Office of the President constrains the independence of RDB, including regarding staff appointments and compensation. The assessment also found that information sharing and integration across departments could be improved with the view to avoiding potential duplication of the mandates of departments and clearly indicating the contact points for each type of service. The recommendations proposed to promote the effectiveness of RDB include facilitating more private sector perspectives in the decision-making process, setting compensation levels that are comparable to those of the private sector and recruiting more staff with private sector experience, and enhancing the sharing of information and coordination across departments.

The RDB can play a role in attracting more green investments. As documented in the previous section, green investments have been dwarfed by investments in polluting sectors over the past two decades. The recent assessment of RDB concluded, however, that RDB can improve its green development outcomes along several dimensions. These include ensuring that RDB's vision and strategy are consistent with green and sustainable objectives; actively seeking FDI projects that promote green objectives; preserving existing green investments and enlarging them; identifying key performance indicators that are consistent with green and sustainable objectives; and monitoring progress accordingly.

4.5.4. Well-managed urbanization can help promote a more balanced approach to structural transformation

Rwanda needs an investment program that advances a more balanced approach across cities. This begins with a recognition of the diverse roles and resources of Kigali as well as the satellite and secondary cities to establish economic growth poles to build Rwanda's overall competitiveness. In addition, this investment program needs to account for climate change and environmental challenges as urbanization increases impervious surface area and creates new challenges e.g., urban floods. To support Rwanda's ambitious urbanization goals, a hierarchy of recommendations is proposed going from the national to regional to city level approaches and recommendations. The specific policy options identified by a recent assessment of urbanization in Rwanda include the following:

First, Rwanda needs to roll out and implement its Spatial Data Framework (SDF) and create a Spatial Data Information System (SDIS) at the national level. Rwanda currently lacks real-time urban data and statistics to fully understand cities and trends in urban expansion. Comprehensive geospatial data at the city

level can help policymakers understand urban growth—in particular, urban population and built-up area, land use, housing and property ownership, transport, and infrastructure —and can help forecast trends, facilitate planning, and serve as a powerful tool to engage local communities to help prioritize investments based on local needs. and to potentially attract private investment that can complement public investment in infrastructure. An important step toward the creation of the Rwanda SDIS include the ongoing initiative to implement the existing SDF by providing secondary and satellite cities with Decision Rooms equipped with Urban Dynamic Maps. This will enable District Councils to access real-time spatial (and non-spatial) data for planning, implementation, and M&E purposes. The initiative is at the development, testing, and user acceptance phase after having recently completed the software and hardware delivery phase.

Second, to support regional development, Rwanda needs to strengthen the 'system of cities' approach by developing satellite and secondary cities. Considering the geographic concentration of structural transformation and job creation to date, Rwanda needs a more geographically balanced and more equitable approach to urban planning. As described in the National Urbanization Policy, it would be important to develop secondary and satellite cities. Towards this end, policies that promote a 'system of cities' approach will be essential, including policies that enhance connections between cities, including cross-border linkages for border cities (e.g., Rubavu and Nyagatare) to facilitate better access to markets and improved mobility. Identifying investments based on city-level economic transformation strategies in the updated masterplans could align urbanization policy with the National Industrialization Policy. Labor markets in cities should also be strengthened with targeted skill building in sectors of comparative advantage. Strengthening local governments through the creation of City Management Offices will help accelerate the development of satellite and secondary cities and spur economic growth as cities become better equipped to predict and respond to local level needs and opportunities.

Third, at the city level, densification can help leverage more fully the benefits created by urban growth. As Kigali has experienced rapid growth, along with some of the secondary cities, some cities are seeing rapid urbanization alongside low-density development in outlying areas. Densification and more compact urban growth could help maximize the benefits of urbanization, enhance agglomeration economies, promote efficiency in resource use, and improve the quality of life by lowering the cost-of-service delivery. In addition, it can create environmental benefits by requiring less transport use, improving air quality, preserving wetlands and biodiversity, and creating more room for green spaces, to name a few. All of these together suggest the urgency of promoting dense communities in urban areas. Investing in affordable housing and upgrading of unplanned settlements, adopting a national strategy for sites and services to improve access to services, and looking at international examples of upgrading to lower the cost of the process will all be critical for Rwanda. Additional, Rwanda should complement its densification efforts with disaster risk identification and reduction to ensure sites selected for densification are not prone to flood/landslide and other risks to prevent any loss of life and damage to infrastructure.

Finally, to complement the point on densification, Rwanda needs to upgrade settlements, as well as invest in new infrastructure to improve economic opportunities and quality of life. In the city of Kigali, a majority of its residents live in unplanned settlements that are often constructed in hazard-prone areas. In addition, such settlements typically lack access to basic

services and infrastructure. The Government of Rwanda currently has several policies and strategies aimed at reducing the share of urban residents in unplanned settlements. However, given the number of unplanned settlements in Kigali as well as satellite and secondary cities, it is critical to develop a list of priority settlements so the upgrading efforts can ensure access to jobs and markets as well as improved service delivery as investments in water, sanitation, education, and health can help improve productivity. In situ upgrading can support densification and ensure that people remain close to their jobs and vital social networks. Access to affordable housing also needs to be prioritized so that residents are not pushed to unplanned settlements, particularly those in hazard-prone areas that tend to be built on cheaper land. Urban upgrading investments need to be implemented together with new investments in infrastructure, including strategic infrastructure that complements the specific drivers of growth in a city and transport infrastructure that promotes greater connection among cities.

Overall, it is crucial to ensure climate compatibility alongside rapid urbanization. Since migration to cities increases impervious surfaces and raises the risk of flash floods, the Government of Rwanda should prioritize zoning to avoid settlements in flood-prone areas and invest in resilient infrastructure, including drainage, nature-based solutions for flood-attenuation, and effective solid waste management to prevent drain blockage. In addition, to minimize the growth of unplanned settlements and increase the resilience of urban households to climate change hazards, the Government of Rwanda should promote land readjustment, which involves dividing peripheral urban land into well-connected grids before settlement. These measures will promote inclusivity and boost economic participation among a broader population (World Bank Group, 2022).

4.5.4. Rwanda's social protection system will be critical in promoting inclusive structural transformation

In recent years, the Government of Rwanda has made considerable efforts to improve the social protection system. In particular, it has been promoting greater equity and expanding coverage, introducing shock-responsive cash transfers, and strengthening delivery systems, among other reforms.

Of these recent efforts, social protection for the informal sector will be critical, as many workers remain informally employed despite structural transformation. Until significant structural transformation takes place, and until considerably more workers move to higher value-added sectors characterized by greater formal employment, the overwhelming majority of workers in Rwanda will remain informally employed. In fact, though industry and services sector employment are more likely to be formal than agriculture, currently the majority of jobs in these sectors are informal. As such, both workers and members of their households will be vulnerable to two economic risks—health shocks in the absence of health insurance and the risk of falling into poverty during old age in the absence of social security. Two informal sector programs are important: the community-based health insurance program and a new social insurance scheme. First, community-based health insurance (CBHI), otherwise known as Mutuelle de Santé, provides health coverage to informal sector workers and their households. In this system, all household members are required to pay contributions in order to access health care, with the exception of household members already insured under an existing medical insurance program. The Government of Rwanda provides generous subsidies to help defray the contributions of the poorest households (equivalent to Ubudehe category 1). First introduced in 2007, the coverage of CBHI has grown to 86.6 percent of the population as of 2022. Second, the Ejo

Heza Long Term Savings Scheme (Ejo Heza LTSS), a social insurance scheme, promotes savings for retirement. It is a voluntary saving scheme available to all—including both formal and informal workers, self-employed and wage-employed, currently employed, as well as those who are not, and both children and adults. The Government of Rwanda pays for the operating cost of the scheme and provides matching contributions for the poorest households (equivalent to Ubudehe categories 1 and 2) who meet eligibility conditions. First introduced in 2018, Ejo Heza covers 22 percent of the population, or about 37 percent of the working-age population as of 2022. The two programs have significantly contributed to improving access to healthcare and promoting retirement savings for both formal and informal sector workers in Rwanda. Continuing innovation specially to ensure long term sustainability for these programs and their improved accessibility by the poor and vulnerable households and their members will be paramount.

In addition, and as is clear from the reversals and job losses of the pandemic years and the vulnerability to various shocks, there is an urgent need for ASP. In general, a social protection system for the future will have to be flexible—one that can be expanded horizontally (to cover more people as needed) and increased vertically (to provide more support as warranted) in response to crises and shocks. The recent food inflation and the vulnerability to climate shocks in the foreseeable future emphasize the need for an adaptive system and to build resilience among households and to prevent them from adopting negative coping strategies such as sell of a productive asset. The specific features of ASP will vary by country but investment in four areas will be important: (i) programs and their delivery systems; (ii) data and information systems; (iii) finance; and (iv) institutional arrangements and partnerships. Rwanda has been advancing new initiatives in all four areas: under programs and delivery systems, for example, the Government of Rwanda is building a dynamic social registry that can be used for various targeting purposes; under data and information systems, the dynamic social registry is being integrated with other information systems; under finance, the Government of Rwanda is putting together a disaster risk fund; and under institutional arrangements and partnerships, the Government of Rwanda has an ongoing dialogue with various stakeholders. Social protection coverage gap will need to be addressed for it to play its goals of building resilience, creating opportunities and promoting equity. It I very well documented that investment in social protection can be extremely effective in reducing poverty and vulnerabilities, as well as poverty persistence across time and generations. Countries with stronger SP system with good coverage show lower rates of poverty and vulnerabilities and are more resilient to economic and social shocks. The right to social protection is clearly established within the 2015 Constitution of the Republic of Rwanda and social protection has various instruments like the ones contributing to economic inclusion through job creation (for those able to work) but also those providing social assistance to those unable to work such as vulnerable children, people with disabilities (PWDs), elderly, etc. Without stronger SP system and good coverage, the principle of "leave no one behind" would be a myth. The objective should be to gradually achieve universal social protection following the lifecycle approach that aims at protecting the income security of every individual when they require it during key lifecycle and labor market contingencies. The recent move by the Government of Rwanda in approving individual lifecycle grants (child grant, disability grant and old age grant) design and guidelines documents is in the right direction and commendable. Their implementation should follow suit.

Quality implementation of the recently approved National Strategy for Sustainable Graduation can contribute to addressing the stagnation in poverty reduction observed over

the last years. Not only the objective would be to deliver a complete package of interventions (contrary to previous graduation attempts) informed by the household assessment but also to learn and course correct along the way. To allow this, building a robust monitoring and evaluation system for the graduation agenda is a must. The success of the graduation agenda will also hinge on how wider enabling environment constraints are addressed. The multisectoral nature of the graduation agenda requires a coordinated efforts across sectors and this could be facilitated through multisectoral graduation action plan which would clearly set out roles and responsibilities of each sector and respective entities.

Another key goal is to promote the use of cashless modes of payment, advance digitalization of government to persons (G2P) payments and support the poorest to realize the benefits of these improvements in service delivery. The use of mobile money has increased substantially in Rwanda over the last few years. However, access lags behind in rural areas and among the poorest households. As the government improves digital services, it would be important to also ensure that extra efforts are made to include rural areas and those in the poorer segments of the population.

Addressing the social protection gaps highlighted would be inconceivable without commensurate and predictable financing. Current financing arrangement skewed towards unpredictable external financing is not sustainable and would not deliver envisaged social protection reforms, hence the need to explore other financing modalities that prioritize predictable domestic financing.

4.5.6. Stronger linkages across active labor market policies can facilitate integration into the labor market

Active Labor Market Policies (ALMPs) help improve the functioning of the labor market by facilitating smooth and faster deployment and redeployment of jobseekers and by enhancing labor market mobility and adjustment. Internationally, Active Labor Market Policies are normally classified into five groups namely, a) employment services, b) labor market training, c) entrepreneurship and self-employment, d) employment subsidies and e) direct job creation through employment programs. Their importance is recognized in the revised National Employment Policy (2019) as well as in the National Skills Development and Employment Promotion Strategy (2019–2024). Challenges and opportunities about training and skills programs, entrepreneurship development and employment programs have already been raised in the previous sectors.

Public Employment Services (PES) can facilitate the employment of opportunity in the country by providing critical labor market support. PES programs include job search assistance, career counseling, and employment training. However, few PES programs exist in Rwanda. Currently, there are employment service centers (ESC) only in Huye, Kigali, and Musanze. Less than 5 percent of all unemployed workers use employment services and less than 2 percent of new graduates find employment through PES. In a labor market where the majority of workers are informally employed and unskilled, job search support is arguably even more critical. In the absence of recognized credentials, unskilled workers have particular needs, and the employment opportunities that best match their qualifications will not be obvious. Neither is it clear how best to provide training to those with very little or no education. As documented in the ILO assessment, for example, the existing online job platform in Rwanda is in English and accessible only to more educated workers. Improving the accessibility of PES programs including through stronger linkages with employment focal points at district and lower levels could enhance the job search capabilities of less educated workers and promote their integration into the labor market.

PES should be strengthened to facilitate access to labor market information and effective referral to appropriate support and training services A recent assessment by the ILO outlines the policy options for strengthening the role of PES in Rwanda, including through the creation of its legal and policy frameworks, by building the capacity of existing ESCs, and by ensuring the accessibility and inclusiveness of programs (including by making it more geographically accessible and useful to less educated workers and by strengthening linkages with employment support services at local level). However, before making large investments in PES, these services would benefit from an assessment, potentially on a pilot basis, to evaluate the extent of their impact and ensure their integration into the larger employment ecosystem.

4.5.6. Improve the country readiness for future health crises

Rwanda was reasonably well prepared and managed the response to the COVID-19 pandemic much better than many other countries with greater capacities, while minimizing the adverse impact on essential health services. But Rwanda can be even better prepared for the next outbreak, take steps to strengthen the health care system, and advance critical reforms in the national community health insurance scheme and in human resources for health, part of the longer-term agenda to bolster human capital. The main policy recommendations are summarized below.

- Strengthen health security to further enhance pandemic preparedness. Rwanda needs to 'stay on course' with the ongoing management of the COVID-19 pandemic in the short term, the government needs to have systems in place to promptly identify new infections and contain localized surges without disrupting essential health services and impeding livelihoods. In addition to continuing with mass testing and tracing, Rwanda may consider a number of additional strategies used by other well performing countries, such as: (i) undertaking serological surveys to study infection rates in different population/occupation groups and get a better handle on the trajectory of the pandemic; (ii) introducing blood observatories to routinely track evolving infections by testing blood donations; (iii) leveraging molecular diagnostics such as the GeneXpert for COVID-19 testing in remote areas which have lower volumes of tests; and (iv) modifying the COVID-19 Preparedness and Response Plan to include explicit measures to protect essential health and nutrition services and target the most vulnerable groups (i.e. individuals with co-morbidities).
- Ensure optimal allocation for pandemic preparedness. Rwandese authorities recognize that investing in health security both depends on and complements broader efforts to strengthen the health system. Rwanda's JEE score highlighted important persistent gaps in the prevention, detection and rapid response to public health threats. The government has prepared a costed National Action Plan for Health Security based on the JEE with a set of prioritized interventions and a One Health, whole of government approach. The costed plan is estimated at US$61.5 million (US$12.3 million/year or roughly US$1 per person), not a huge amount compared to the costs associated with the loss of lives and livelihoods associated with pandemics. The main priority at this stage is to ensure that the plan is fully funded and effectively implemented. To enhance prospects for sustainability, it is preferable to prioritize domestic financing. To this end, the government needs to consider several options: (i) explore feasibility of expanding the fiscal space (i.e., through efficiency gains in taxation and/or earmarked taxes); (ii) engage private sector firms through their corporate social responsibility spending on pandemic preparedness; and (iii) incorporate metrics of country readiness to deal with pandemics in national plans to attract foreign investors, making Rwanda an even more attractive destination for investors.

Annex 4.1. Matrix of key policy recommendations: growth and resilience through trade

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
3.5.1	**Policy Area 1: Attract More Strategic Investments with Proven Substantial Employment-Generating Effects.**				
	Priority Area 1: Focus on Attracting More Inclusive Foreign Direct Investments (FDI), Benefiting Women and Young Workers, as Well as Poorer Districts.				
	Develop investment promotion strategies that prioritize the manufacturing sector over construction, real estate, and utilities, given the inclusive job creation effects of manufacturing.	RDB	HP	LT	
	Maximize the full use of trade and investment treaties and selected investments in transport infrastructure.	RDB	HP	LT	
	Priority Area 2: Promote More Strategic Investments Via the Rwanda Development Board (RDB).				
	Attract more inclusive and green investments by prioritizing the following activities:				
	Ensure that RDB's vision and strategy are consistent with green and sustainable objectives.	RDB	HP	LT	
	Seek more actively FDI projects that promote inclusive and green objectives.	RDB	HP	LT	
	Preserve existing inclusive and green investments and enlarge them.	RDB	HP	LT	
	Identify key performance indicators that are consistent with green and sustainable objectives.	RDB	HP	LT	
	Monitoring progress accordingly.	RDB	HP	LT	
3.5.2	**Policy Area 2: Promote a More Balanced Approach to Structural Transformation Through Spatial and Territorial Planning.**				
	Priority Area 1: Roll out and implement the Spatial Development Framework (SDF) for an in-depth understanding of Urban Expansion				
	Develop in all satellite and secondary cities an integrated and shared spatial data platform to analyze trends in growth in urban population and built-up area, land use, housing and property ownership, transport, and infrastructure.	MININFRA, National Land Authority (NLA), NISR	HP	MT	HF
	Forecast trends and facilitate planning using the SDF in development of key urban infrastructure e.g., housing, transport routes, urban upgrading, extending access to services etc.	MININFRA, Local Authorities	HP	MT	MF
	Share spatial data in a manner that supports citizen engagement and community participation on the development of priority urban infrastructure and services	MININFRA, Local Authorities with the involvement of community leaders	HP	MT	MF
	Priority Area 2: Strengthen the System of Cities Approach by Developing Secondary and Satellite Cities.				
	Support decentralization efforts and the empowerment of local authorities in terms of roles, responsibilities, management capabilities through the establishment of City Management Offices as well as generation and utilization of own-source revenues	MININFRA, MINALOC	HP	ST	HF
	Enhance inter-city connections and cross-border linkages for border cities to facilitate market access and mobility	MININFRA, RTDA	HP	LT	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Strengthen the labor market in Kigali as well as satellite and secondary cities by focusing on skill building in sectors of comparative advantage based on economic transformation strategies noted in city masterplans	MININFRA, Local Authorities, MINFOTRA	MP	LT	MF
	Priority Area 3: Pursue Densification (i.e., dense communities in urban areas) and More Compact and Inclusive Urban Growth to Maximize the Benefits of Urbanization.				
	Undertake climate- and disaster-risk sensitive planning to identify parts of the city where in situ upgrading would be feasible to increase densification	MININFRA	HP	ST	HF
	Adopt a national strategy for sites & services to promote access to service delivery in brownfield and greenfield sites to improve livability in cities	MININFRA	HP	ST	HF
	Study successful international examples of city planning, infrastructure development, and financing to promote densification, lower the cost of upgrading, and attract private sector financing	MININFRA	MP	MT	HF
	Priority Area 4: Upgrade Settlements and Invest in New Infrastructure.				
	Invest in the upgrading of priority settlements identified based on population density, proximity to other dense settlements, transport routes, and/or jobs to support densification	MININFRA	HP	MT	MF
	Provide adequate housing to prevent expansion of unplanned settlements.	MININFRA, RHA	HP	MT/LT	LF
	Identify and invest in strategic infrastructure that complements the specific drivers of growth in a city.	MININFRA	MP	MT	MF
	Prioritize transport infrastructure that promotes greater connection between and within cities.	MININFRA	MP	MT	MF
3.5.3	**Policy Area 3: Improving the Role of the Social Protection System in Promoting Inclusive Structural Transformation.**				
	Priority Area 1: Boost Inclusiveness.				
	Have a time-bound plan to achieve a universal SP coverage[15] following a lifecycle approach[16]	MINALOC/ MINECOFIN	HP	MT	MF
	Work on a purposely designed urban social safety net including a diversified implementation model adapted to household mobility	LODA	MP	MT	HF
	Devise / update strategies to facilitate poor households and broadly the informal sector workers to uninterrupted access to contributory social insurance schemes such as Ejo Heza.	RSSB / MINECOFIN	HP	ST	HF
	Long term commitment to school feeding program[17]- Budget commitments enforced through increase in capitation grants to lessen burden of parental contributions.	MINEDUC / MINECOFIN	HP	MT	MF
	Priority Area 2: Address Financing Gaps.				
	Work on a social protection financing strategy that would ensure adequate and predictable financing for the social protection sector	MINALOC / MINECOFIN	HP	MT	HF
	Priority Area 3: Address Flexibility Gaps to Cement an Adaptive Social Protection in Rwanda.				
	Fully implement the "dynamic" features of the social registry, including allowing "on demand" registration	MINALOC	HP	ST	HF
	Full digitization of cash transfers which allows multiple payment options for beneficiaries	LODA / RISA	HP	ST	HF
	Operationalize shock responsive cash transfers	LODA	HP	ST	HF
	Operationalization of a Disaster Risk Fund	MINECOFIN	HP	MT	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Priority Area 4: Address Adequacy Gaps.				
	Setting adequate and regular review of benefit levels for all social protection components, especially taking into account household size and number of children	MINALOC/ RSSB?	HP	ST	MF
	Priority Area 5: Address Opportunity Gaps.				
	Work and implement a Multi-sectoral Graduation Plan	LODA	HP	ST	HF
	Streamline the work of proximity advisors and develop a roadmap for harmonized capacity building of the community workforce (Para social Workers, Community Health Workers, Farmer Promoters and Friends of Family)	MINALOC	HP	ST	HF
3.5.4	**Policy Area 4: Public Employment Services (PES) in Rwanda – General Observations and Recommendations.**				
	Priority Area 1: Strengthen PES and Institutions Promoting Job creation.				
	Create a legal and policy framework for PES within the broader framework of ALMP	MIFOTRA	HP	MT	MF
			HP	MT	MF
			HP	ST	MF
			MP	MT	HF
	Strengthen the national PES structure including the further development of the KORA job portal in collaboration with the private sector	RDB	MP	ST	LF
	Policy Area 2: Address the Challenges Toward Building an Inclusive Labor Market in Rwanda.				
	Ensure inclusiveness of ALMP and especially job promotion services provided services.	MIFOTRA/ RDB	HP	ST	HF
	Take into consideration the needs of unskilled job seekers.		HP	ST	MF
	Decentralize availability of PES.	MIFOTRA/ LODA	HP	ST	HF
	Strengthen social dialogue and collaboration with the private sector.	MIFOTRA/ PSF/ Trade Unions/ National Labor Council	HP	ST	HF
3.5.5	**Policy Area 5: Making Rwanda's Investment Promotion More Inclusive and Green.**				
	Priority Area 1: Improving RDB's Overall Effectiveness in Attracting Foreign Direct Investment.				
	Institutional arrangement				
	Further examine RDB's current institutional structure to determine how it can be more agile and allow more private sector inputs in terms of decision-making.				
	Improve internal coordination and information sharing and minimize overlap between departments.	Strategy Department / Board of Directors / CEO Strategy Department			

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Strategic alignment and focus				
	Consider prioritizing the development of an FDI strategy with clearly indicated priority sectors for investment promotion and retention.				
	Ensure the investment promotion mandate receives sufficient attention, including focusing additional resources on FDI promotion.				
	Organizational framework and resourcing				
	Consider increasing staff compensation levels to be competitive with the private sector.	Board of Directors / CEO / Strategy Department			
	Allow for the recruitment of qualified staff with private sector experience.	Board of Directors / CEO / Strategy Department			
	Allocate a greater number of staff dedicated to investment promotion.	Board of Directors / CEO / Strategy Department			
	Investor service delivery				
	Improve sectoral research and marketing.	Marketing Department/ Strategy Department			
	Utilize more fully the existing CRM to enhance data collection and information sharing.	Marketing Department/ Strategy Department			
	Priority Area 2: Improving RDB's Impact to Achieve Inclusive and Green Development Outcomes.				
	Develop a Vision and a Strategy.				
	Undertake FDI sector scan diagnostics to identify priority sectors for inclusive and sustainable FDI attraction and expansion.	Strategy Department			
	Increase attraction and promotion.				
	Identify leads for foreign investment in priority sectors that can contribute to inclusive and green goals.				
	Identify investment opportunities within and outside of Kigali through a formalized process and aggregate this information within RDB to support targeted lead generation focused on Kigali as well as satellite and secondary cities.	Department of the Chief Investment Office, MININFRA, MINALOC	MP	MT/LT	MF
P	*Improve retention and expansion.*				
	Conduct proactive investor expansion and reinvestment outreach to existing investors in priority inclusive and green sectors.				
	Develop an investor dispute prevention mechanism with a legal basis that prioritizes expediting and anticipating solutions for inclusive and green investors.	Investor Aftercare Department			
	Undertake data collection and sharing.				
	Collect employment outcome data on a more granular level (e.g., Investment amounts (RRA – CIT annexes), Employment by age/ gender (RSSB), Employment of persons with disability (potential source: RSSB social insurance schemes data).				

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Systematically integrate data from One Stop Centre on investor characteristics into the CRM.				
	Track data on the green vs. polluting classification of FDI projects in order to develop targets aimed at greening investment attraction.	Strategy Department / One Stop Centre / Aftercare Department			
	Encourage target setting.				
	Develop specific targets, KPIs or Imihigo focused on inclusive and sustainable objectives to ensure that these dimensions are prioritized in its activities.	Strategy Department			

Annex 4.2. Supplementary data and figures

Figure A4.1, Figure A4.2, and Figure A4.3 present summary information on employment and value added per worker by sector for selected countries.

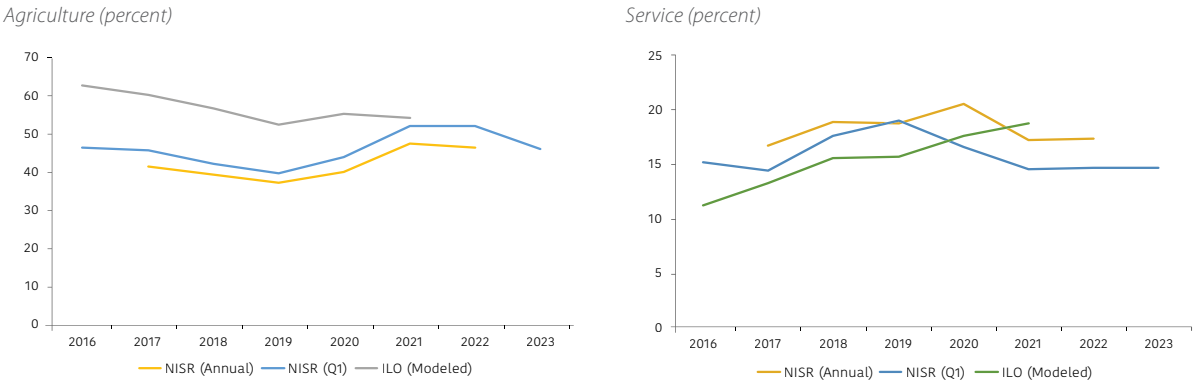
Employment by sector. There are two main data sources on employment by sector in this annex:

First, "modeled" International Labor Organization (ILO) estimates from the World Development Indicators (WDI) span the longest time period for the purposes of our comparison, from 2000 to 2021. The data are also comparable with the African and Asian peers included in the benchmarking exercise. In the case of Rwanda, this ILO series combines different data sources—Rwanda's Labor Force Survey (RLFS) in recent years, the Integrated Household Survey on Living Conditions (IHSLC) in earlier years—and, according to the metadata, uses imputation and projection methods.

Second, RLFS data from the NISR either using quarterly data[18] or annual data. Because the ILO data are "modeled," they are not consistent with RLFS data from the NISR and total employment from the ILO tends to be much larger than NISR data.

Value added per worker by sector. Value added per worker by sector is calculated using national accounts data on value added by sector from the WDI divided by the modeled ILO estimates of employment by sector, described above. For a select number of years, WDI directly provides data on value added per worker by sector. These have many missing observations, and they appear to be calculated based on national estimates of employment by sector. As such, they are different in absolute terms from our estimates of value-added per worker by sector, though the two series are very strongly correlated (about 0.99 correlation coefficient, for the years in which we have both sets of estimates). This suggests that the difference is due to the employment numbers used in the denominator and the relative rankings and the cross-country comparisons should still be consistent.

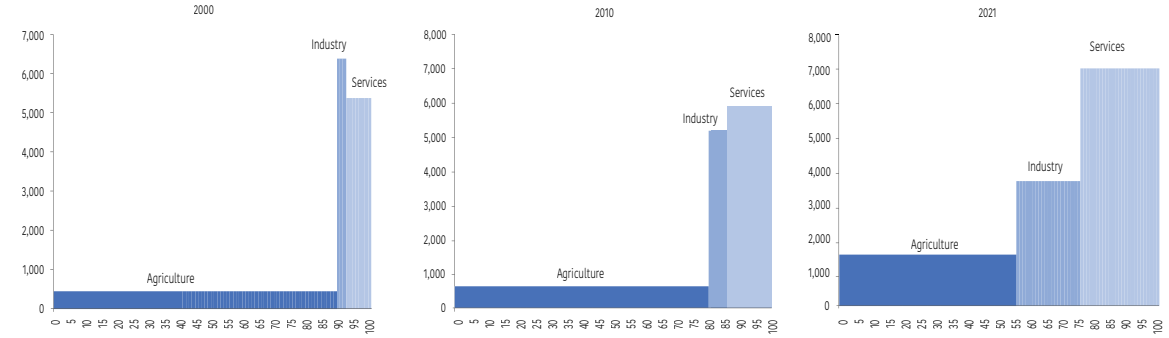
Figure A4.1: Agriculture and services share of employment by data source



Sources: Calculations based on Rwanda labor force surveys and WDIs.

Figure A4.2: Structural transformation: Rwanda 2000, 2010, and 2021

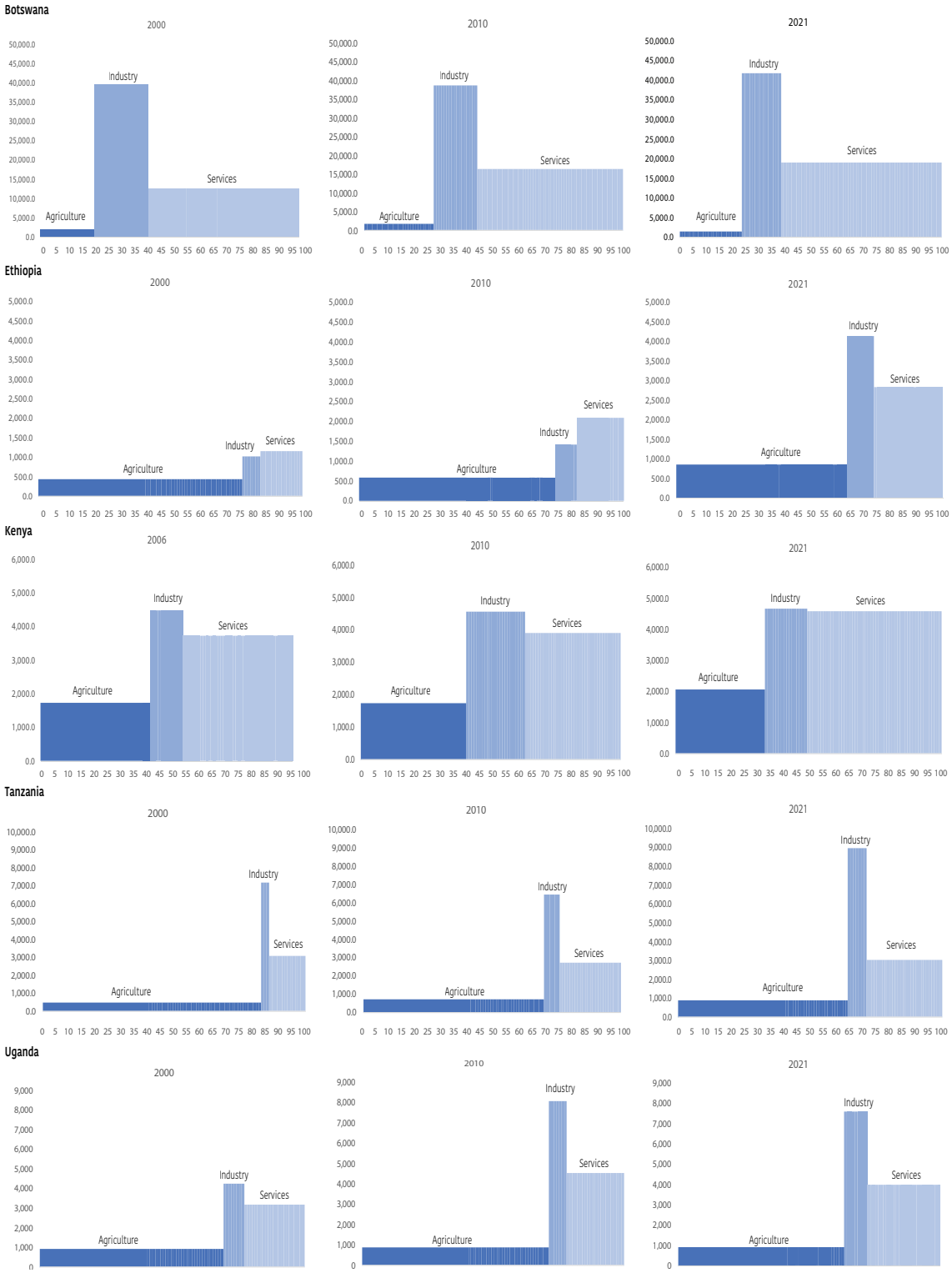
(Value-added per worker in 2015 US$; employment share in percent)



Source: Calculations based on WDI, National Accounts and Modeled ILO Estimates and staff calculations.

Figure A4.3: Structural transformation: Selected African peers 2000, 2010 and 2021

(Value-added per worker in 2015 US$; employment share in percent; Y-axis scales are comparable within countries)

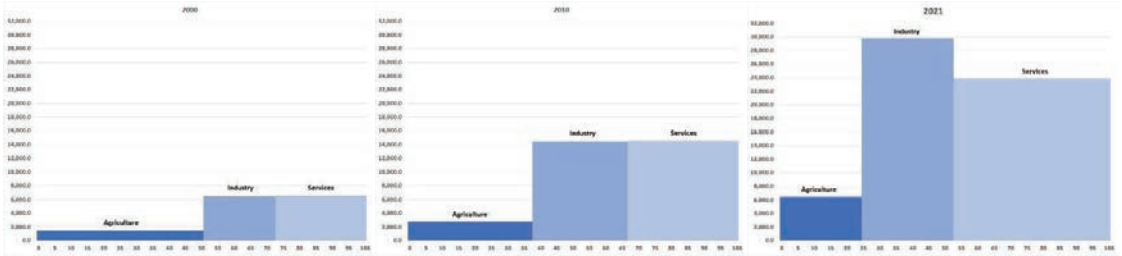


Source: Calculations based on WDI, National Accounts and Modeled ILO Estimates and staff calculations. Kenya uses 2006 data in place of 2000 data in the absence of older data on services sector value added.

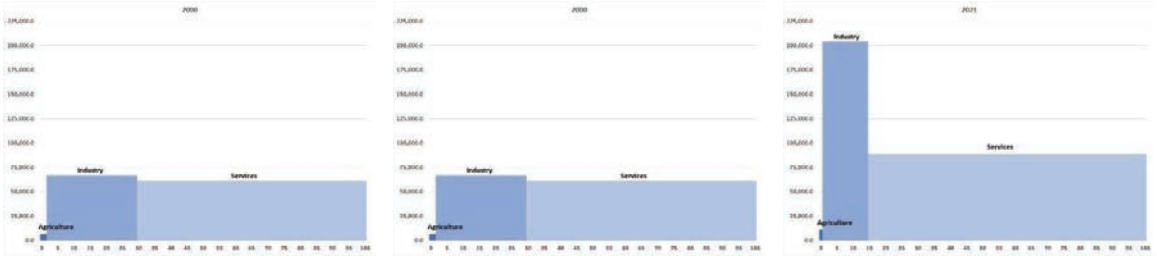
Figure A4.4: Structural transformation: Selected Asian peers 2000, 2010 and 2021

(Value-added per worker in 2015 US$; employment share in percent; Y-axis scales are comparable within countries)

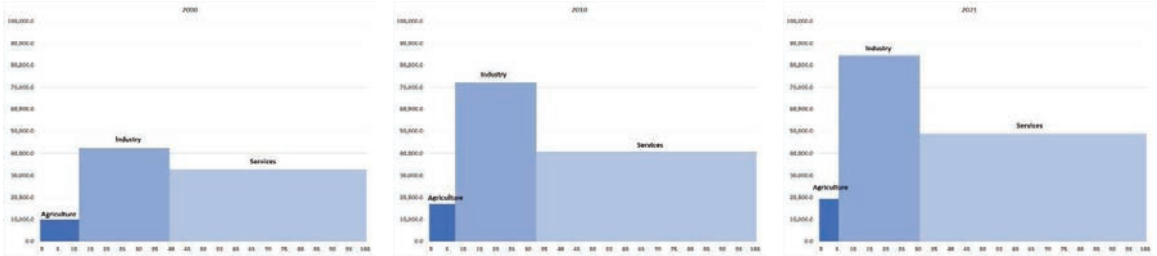
China



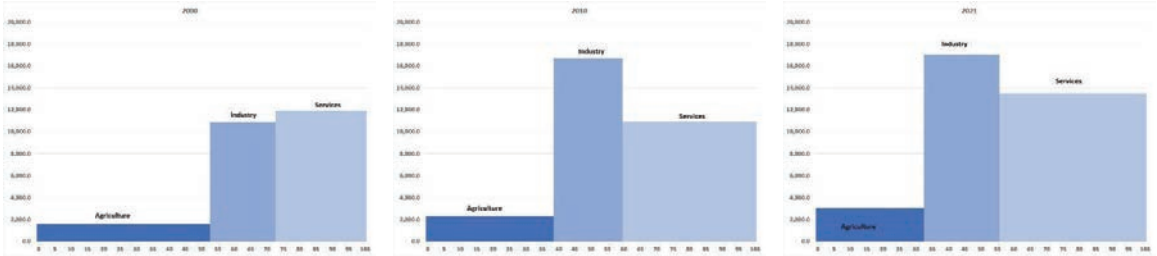
Singapore



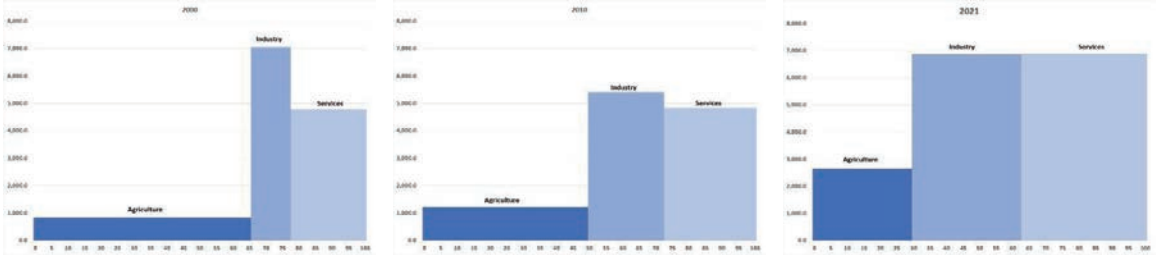
South Korea



Thailand



Vietnam



Source: Calculations based on WDI, National Accounts and Modeled ILO Estimates and staff calculations.

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Notes

[1] We present three different series drawn from different data sources, the first is presented here in the main text, the others are in the Annex: First, we use the NISR Integrated Household Survey on Living Conditions (EICV) reports and World Bank estimates using LFS microdata based on the definition of employment that includes subsistence agriculture. Second, the "modeled" International Labor Organization (ILO) estimates span the longest time period for the purposes of our comparison, from 2000 to 2021. This series combines different data sources—Rwanda's Labor Force Survey (LFS) in recent years and the Integrated Household Survey on Living Conditions (EICV-IHSLC) in earlier years—and includes imputation and projection methods. Third, the LFS data from the NISR either uses 1st quarter data or annual data. The use of first quarter data provides a slightly longer time series because annual data are not available for 2016. The use of 1st quarter data ensures that we are in effect comparing year-on-year changes and the comparisons are not affected by seasonal fluctuations. However, because the ILO data are "modeled", they are not fully consistent with LFS data and total employment tends to be much larger than LFS data. For an overview of data sources and assumptions, please see the Annex.

[2] Rwanda's real GDP per capita (in constant 2015 US dollars) is 890 in 2021. Vietnam's was 906 in 1995 and China's was 905 in 1990. In constant PPP terms (2017 international dollars), Rwanda's GDP per capita is 2,238 in 2021, comparable to China in 1995 (2,391) and Vietnam also in 1990 (2,825).

[3] An older literature on economic growth also associates service sector-led growth with slower growth due to a smaller scope for productivity gains compared to the industrial sector (Baumol, 1967). However, Nayyar et al (2021) provide evidence that scale economies, innovation and productivity growth, and productivity spillovers are all possible in the service sector though "services-led development perhaps cannot deliver rapid productivity growth and good jobs within the same activity in the way that manufacturing once did."

[4] A very recent assessment of India's growth experience between 1987 and 2011 (Fan, Peters, & Zilibotti, 2023) provides evidence of rapid productivity growth in consumer services underpinning a third of the increase in living standards. This suggests that "low employment growth in the manufacturing sector could be less of a threat to the sustainability of future growth than economists previously thought," according to the authors. However, they also found that the welfare impact was strongly unequal, benefiting mostly the middle class residents of urban areas.

[5] "Relative to manufacturing, a much larger share of firms in services employ a very small number of workers." (Hoekman, Sanfilippo, & Ticku, 2022). This pattern was documented earlier by (Fox et al, 2013)

[6] See for example a think piece by Baldwin & Forsli (2023). A policy brief by Newfarmer and Twum (2018) discusses the critical role played by services in industrialization. Heitzig and Newfarmer (2023) provide a nuanced view of structural transformation in several African countries including Rwanda and offer evidence that the service sector could drive both employment creation and productivity growth.

[7] Ideally, we would compare value-added per worker in manufacturing sub-sectors with value-added per worker in other sectors. However, disaggregated value-added data on the manufacturing sector are not available.

[8] The authors also find that the less educated are more likely to fall into poverty.

[9] The multiplier effect is calculated in the appendix of the report and estimated to be about 4.3 for FDI as a whole and higher for manufacturing.

[10] A parsimonious econometric analysis of the 2021 World Bank Enterprise Survey for Rwanda suggests that employment growth has been driven by large and medium-sized firms in the manufacturing sector, as well as firms owned by women. We did not find any evidence that export-focused firms in manufacturing performed better in terms of employment growth, which is potentially attributable to depressed trade conditions during the global pandemic.

[11] The calculation of job creation and job destruction rates in Rwanda used sectoral employment data and followed the methodology used by Mensah et al (2023). These rates tend to be lower than those calculated from panel data on firms. Nonetheless, the direction is instructive: On the eve of the pandemic, industry and services led job creation (0.10 and 0.09, respectively) while agriculture experienced job destruction (0.03). These were reversed the following year as the pandemic started.

[12] World Bank (2023) Rwanda Economic Update No. 20: Making the Most of Nature-Based Tourism in Rwanda. (Washington: The World Bank)

[13] World Bank (2023) "Social Protection of the Future" (Washington: The World Bank).

[14] Unless otherwise indicated, this section is based on World Bank (2023) Urbanization Chapter (Washington: The World Bank).

[15] Ensuring access to SP for all, whenever and however they need it

[16] Including a progressive model introducing non-operational components of the lifecycle (aligned to SP policy), leaving no one behind.

[17] Key to potential increase in household income & productivity (of parents at present and of children in their later years) – measured through increased hours of work; improve school attendance (measured through net attendance rates) and reduce malnutrition.

[18] To address seasonal fluctuation, we use 1st quarter data throughout. The results should then be interpreted as changes, year-on-year.

CHAPTER 5

CREATING THE ENVIRONMENT FOR GROWTH, INCOMES, AND EMPLOYMENT IN THE AGRI-FOOD SECTOR

5.1. Introduction

The agriculture sector is central to national income, growth, and poverty reduction for Rwanda. It engages 53.4 percent of the labor force and almost 80 percent of the female labor force, generates a third of all new jobs, and accounts for half of total exports. 82 percent of the population live in rural areas, and 69 percent of all households are engaged in crop or livestock production. Farming also accounts for 33 percent of all new jobs created in the Rwandan economy and there are high expectations for agriculture to not just provide employment for a growing rural population but also to generate higher-quality jobs that will reduce poverty. Further, the country very much relies on domestic food production for consumption. Rwanda's vision of becoming an upper-middle-income country by 2035 and a high-income country by 2050 will not be achieved without continued high growth rates in Rwanda's agri-food sector (over the past 15 years, agricultural value-added rose more than 5 percent a year).

For continued growth going forward, transformation of the agriculture sector will be essential. Just like for growth in the industry and service sectors, agriculture will need to build on competition and innovation and achieve higher productivity rates through sector-led investment and development. As laid out in the 2020 Future Drivers of Growth (FDG) report, future growth in the sector will come from productivity-increasing innovations and technical and allocative efficiency in resource use. However, Rwanda's experience shows that investments in the sector can't be supply driven but that in order for investments in the sector to be sustainable, they need to be demand driven and in response to existing market opportunities and aligned with retail requirements and consumer demand. Box 5.1. outlines international experience for economic transformation and the role of the agri-food sector in going from an agricultural economy to a high-income economy.

Box 5.1: Agriculture is central for economic transformation

Agricultural development is central for economic – or structural – transformation, i.e. the shift in the relative contribution of sectors to the overall economy, or GDP where agriculture diminishes in its contribution while the share of manufacturing and services grow. International experience shows that this transformation occurs as agricultural productivity increases and allows for a) income increases in the agriculture sector to generate demand in other sectors, and b) labor to be released from the agricultural sector into other sectors. This growth is generally driven by improved technology in a conducive production and market environment. i.e. farmers have access to improved seeds and other inputs suitable for the local context, water, and extension and advisory services, but also to markets. Investment in R&D is an important component for this to take place.

Further, even as structural transformation occurs and primary agricultural production becomes smaller as a share of GDP, the food sector remains important in the economy but a larger share of economic activity and of employment now occur in value addition, logistics, retail and food services. USDA's Food Industry Group Dollar visualizes the share of the different activities in the U.S. agri-food sector for every dollar spent on food:

Thus, the agri-food sector continues to contribute to economic growth and to be an important source of employment – in addition to a provider of nutritious food for human capital growth – but in order to optimize these opportunities, the right environment needs to be in place and strategic choices on where to focus scarce resources may have to made.

Sources: IFPRI; USDA

Figure 5.1: 2022 food dollar per industry group (nominal)

Note: Other include Agribusiness and Legal and accounting.
Source: USDA, accessed February, 2024

Rwanda's Fourth Strategic Plan for Agriculture Transformation (PSTA-4), 2018–24, articulates a bold vision for the country's agricultural development. The PSTA-4 envisages Rwanda's agriculture sector transforming "from a subsistence sector to a knowledge-based value-creating sector, that contributes to the national economy and ensures food and nutrition security in a sustainable and resilient manner". The PSTA-4 aims to (i) increase productivity by promoting the adoption of modern technologies, improving access to finance, and enhancing extension services; (ii) promote value addition by developing agro-processing industries, improving post-harvest handling and promoting the production of high-value crops; (iii) enhance market access by improving infrastructure, reducing trade barriers, and promoting regional integration; (iv) develop agribusiness by promoting private sector investment, improving access to finance, and enhancing the business environment; (v) promote sustainable land management practices by improving soil conservation, promoting agroforestry, and enhancing land use planning; (vi) enhance resilience to climate change by promoting climate smart agriculture (CSA), improving water management, and promoting the adoption of drought-resistant crops; and (vii) promote gender equality by increasing women's access to land, finance, and training, and promoting their participation in decision-making processes. Despite substantial public investment, the results to date have been mixed, with low productivity growth and a slight increase in food insecurity from 19.5 percent in 2018 to 20.6 percent in 2021. The mid-term review of the PSTA-4 provides an assessment of the results and gaps in the agricultural sector that has informed the policy recommendations toward sustainable, productive, and inclusive transformation going forward.

The recommendations from the 2020 FDG for the agriculture sector have not been fully implemented, with a consistent challenge reportedly being finance (World Bank Group; Government of Rwanda, 2020). However, in addition to outstanding recommendations, this chapter will also emphasize the importance of market access for private sector investments in improved technology, and the new global context of poly risks that the Rwanda agri-food sector operates in. Good progress has been made in improving agricultural extension services, while the country has laid and begun to implement ambitious plans for climate adaptation in the agriculture sector which needs continued financing. Similarly, some progress has been made on access to finance and significant effort has been made to scale up agricultural insurance. However, while foundations have been laid on improving access to markets for actors along the value chains, further effort is required in order to drive investments and growth in the sector.

The COVID-19 pandemic and the war in Ukraine had a significant impact on agriculture. The 2020 recession reduced demand for agricultural products and disrupted agricultural projects. The rise in fuel and fertilizer prices, driven in large part by the fallout from the ongoing war in Ukraine and the sanctions imposed on Russia (IFPRI, 2022), in conjunction with a poor harvest, led to dramatic increases in food prices. As of May 2023, Rwanda was among seven countries with the highest food inflation in the world (NISR, 2023, p. 1) and between May 2022 and May 2023, the Consumer Price Index (CPI) increased by 14.1 percent (28.2 percent in rural areas) on an annual basis (World Bank, 2022, p. 13), particularly affecting the purchasing power of vulnerable groups. In comparison with 2018, the food security situation in Rwanda deteriorated by 2 percent (NISR, 2022). Box 5.2 provides more examples of impacts from COVID-19 on investments and market access in the agriculture sector.

The Rwanda Economic Recovery Plan (RERP) was developed in 2021 to address the challenges presented by impacts of COVID-19 and the ongoing war in Ukraine. One priority of the plan is to: "Ensure Food Self-Sufficiency by increasing Agricultural production." The RERP provides among other things for concerted efforts in seasonal crop intensification, subsidies for agricultural inputs (e.g., seeds and fertilizer) and irrigation equipment, maintenance and rehabilitation of marshlands, support for mechanization, and increasing resources for the National Strategic Food Reserves (NSFR) to guarantee food security for the Rwandan population, targeting youth and women. The plan also calls for increased national

Box 5.2: Examples of impacts from COVID-19 on investments and market access in the agriculture sector

- Implementation of Small-Scale Irrigation Technologies (SSIT); The pandemic reduced farmers' incomes, and this slowed down the uptake of the SSIT program because farmers' participation requires a contribution. Additionally, there was an increase in the cost of SSIT equipment, which is mostly imported.
- Agricultural produce market shrinkage. The largest consumption of agriculture produce had been the urban centers, particularly hotels, restaurants and schools, followed by cross-border and extra-regional trade. The pandemic-driven decline in demand left surplus unsold produce with farmers, particularly of crops intended for export or for consumption by the above actors.
- Capacity building of project beneficiaries. Capacity building programs such as training and study tours were prohibited during the COVID period in order to contain the pandemic. Similarly, mobilization of international experts from to provide technical assistance to the RAB in different contexts was delayed.
- Maintenance and rehabilitation of irrigation and land husbandry infrastructures. Landslides and floods due to heavy rains in March-May 2020 damaged irrigation and land husbandry infrastructure across Sustainable Agricultural Intensification and Food Security Project (SAIP) sites. However, maintenance and rehabilitation through community works (Umuganda) by scheme users could not be performed as usual due to the drastic measures put in place to contain the COVID-19 pandemic. This resulted in heavy infrastructure damages that are beyond the farmer's repairing capacity in e.g. the sites covered by the Sustainable Agricultural Intensification and Food Security Project (SAIP). Other sites with irrigation and land husbandry investments across the country may have faced similar challenges.

Sources: IFPRI; USDA

aggregation and supply capacity, subsidizing airfreight for exporters as well as supporting farmers to guarantee Rwanda's horticultural exports. Additionally, Rwanda has invested in a fuel subsidy to minimize the high transport costs impacting food importation and distribution within the country.

Managing the new global context of poly risks while shaping the environment for an agri-food sector for a middle-income economy will require balancing responses to agri-food systems risks with the needed investments for longer-term development of the sector and beyond. For broad-based growth in the agriculture sector, with transformation into value chains, adding value to products and moving labor from the farms into logistic, processing, food services, and other rural sectors, on-farm productivity needs to increase. However, the necessary investments in the sector come largely from the private sector and this will not happen without farmers being able to access good markets. With national and regional economic growth, and many countries moving towards middle-income economics, food demand is expected to grow rapidly over the next decades, and this could provide important market opportunities for Rwanda's agri-food sector provided that the right incentives and public and private infrastructure and services are in place. The current context with omnipresent, mainly exogenous risks to agriculture production and food security must be managed in a way that provides a predictable policy environment for actors to operate it. At the same time, resource constraints, especially with regards to land, will require that certain policy choices will have to be made in the direction and scope of Rwanda's agri-food sector.

This chapter will look at the key drivers of growth in the agri-food sector for the coming decades. Rather than discussing broad development challenges for the agri-food sector, it will zoom in on target areas that over the past years have proven central in overcoming for successful, market-oriented farmers and agri-food businesses in Rwanda. The rest of the chapter is structured as follows: Section 5.2. will provide an overview of the opportunities for Rwanda's agri-food sector over the next decade(s); Section 5.3 will go through key challenges for growth in the sector, especially as they relate to private sector investments and agricultural transformation; Section 5.4. will provide recommendations for the way forward according to their priority, timeframe, and feasibility.

5.2. Opportunities for the sector

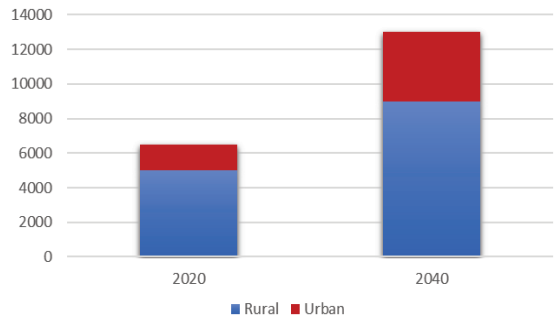
Rwandan agriculture has high potential, including a comparative advantage in food crops, prospects for strong demand growth, and deep trade links with regional partners.

The 2018 PSTA-4 identifies three main opportunities for Rwanda's agricultural sector in terms of new markets, drivers of entrepreneurship, and impacts on poverty reduction and food security: (i) high economic growth region that's creating domestic and regional food markets for Rwandan products; (ii) that Rwanda has a relatively young population that—according to PSTA-4—will be incentivized towards entrepreneurship, and; (iii) that agricultural innovation can help improve food security, increase farmers' incomes, and protect natural resources.

The Rwanda Country Private Sector Diagnostic (CPSD) showed high potential for Rwandan crop production. The CPSD found that the country has comparative advantage in traditional crops such as maize, cassava, Irish potatoes and beans (and rice at the margin). In addition, relatively young sectors such as horticulture exhibit high international competitiveness and great potential for expansion. The CPSD concluded that these products would have important positive impacts on employment and growth through backward and forward linkages, and that increased private sector investment would help unleash these effects and contribute to youth employment.

Food demand in Rwanda is set to increase sharply. Based on demographic trends, the value of domestic food demand is projected to double, from US$6.5 billion in 2020 to US$13 billion by 2040 (Figure 5.2). Much of this increased demand reflects a shift in consumption, from a diet high in cereals and beans to one consisting of more livestock-sourced products, horticulture, and processed foods and beverages. The increase also reflects more meals consumed outside the home. These shifts in food consumption constitute an immense opportunity for increased jobs, higher

Figure 5.2: Food demand



Source: Author based on De Hoyos & Lessem (2008) methodology for food expenditure calculation. African development Indicators, WDI database and the comprehensive food security and vulnerability household survey.

Food demand in Rwanda is set to increase sharply. Based on demographic trends, the value of domestic food demand is projected to double, from US$6.5 billion in 2020 to US$13 billion by 2040 (Figure 5.2). Much of this increased demand reflects a shift in consumption, from a diet high in cereals and beans to one consisting of more livestock-sourced products, horticulture, and processed foods and beverages. The increase also reflects more meals consumed outside the home. These shifts in food consumption constitute an immense opportunity for increased jobs, higher

Rwanda's food trade has increased sharply and is dominated by regional partners. The value of food imports rose from around US$400 million in 2015 to US$1.1 billion in 2022, or from 15.4 percent of total imports to 22 percent over this period. The value of food exports rose by less, from US$530 million in 2015 to US$800 million in 2022, and the share of exports fell from 46.5 percent to 27.2 percent. The Import Dependency Ratio (IDR, i.e. the share procured from import) for crop and animal products averaged 32.8 percent and 18 percent respectively in 2017–21, with an average of 32.5 percent (Table 5.1). One driver of the increased food imports has been that the increase in food production did not keep pace with the increase in population. Intra-African food trade accounted for almost half of Rwanda's total trade, with a sharp increase in recent years and the African market is likely to continue growing over the coming decades. African countries accounted for

TABLE 5.1: Share of value of Rwanda's export and import per region

	Export	Import
Africa	30%	24%
Americas	13%	17%
Asia	27%	24%
Europe	23%	11%
Oceania	7%	23%

Source: calculations based on FAO STAT, 2023

75 percent of Rwanda's total food exports and 39 percent of imports in 2022, compared with 50 percent of total exports and 37 percent of total imports in 2015. In 2021, the main agricultural and food products imported from African countries were cassava, maize, refined sugar, sorghum, rice, soybeans and groundnuts, and the main agri-food products exported were coffee, tea, palm oil, wheat, livestock, chicken meat, beverages and milk (see Figure A5.3). In 2021, 70 percent of Rwanda's food imports came from Tanzania, and 75 percent of its food exports went to the DRC (see Figure A5.4). Many of Rwanda's food trade partners are also members of the EAC, implying a high level of trade integration within this regional group.

Irrigation programs have generated substantial benefits. Rwanda has two flagship irrigation programs, the Land Husbandry, Water Harvesting, and Hillside Irrigation (LWH) and the Rural Sector Support Project (RSSP). In addition, the Small-Scale Irrigation Technology (SSIT) program co-finances investments in small-scale irrigation, while the SAIP project pilots investments in water-use efficiency technologies in large-scale irrigation schemes. The World Bank's Development Impact Evaluation (DIME) unit found that hillside irrigation supported by the LWH project increased smallholder yields and cash profits by 70 percent. Dry season yields are 90 percent higher for plots in the project area, compared to plots outside. With access to irrigation, farmers are 4 times more likely to grow horticulture crops during the dry season and 2 times more likely in the rainy season. However, despite these benefits, adoption has not increased over time, as labor is the principal constraint on horticultural production. The SSIT program has enabled farmers to better manage irregular weather events and thereby increase productivity, as well as gain additional harvests, beyond the regular seasons. The SAIP program has increased yields, saved labor costs, and supported an expansion of areas under irrigation. However, without major subsidies, the demand for technologies has been low.

Protected agriculture represents an important opportunity to attract investments from small-scale farmers. Greenhouse is a modern farming technology that controls air temperature, humidity, light level and ventilation that plants need for optimum output. Less than 2 years after SAIP promoted them through demonstration lots in Rwamagana, Rulindo, Gatsibo, Kayonza, Nyanza and Karongi, the demand for these technologies has seen a rapid increase in these areas and 132 units have been acquired and installed through the matching grants program under the project. With greenhouse farming, farmers can minimize the impacts of unfavorable weather conditions such as strong winds, heavy rainfall, hailstorms, and better manage crop pests and diseases, hence leading to increased yield. In general, the model has been for these greenhouses to be placed in large-scale irrigation schemes so that water use efficient technologies like drip and sprinkler irrigation can be connected directly to the schemes. They allow for a much more controlled environment for farmers to grow horticulture products in, like tomato, bell-pepper, pumpkins, and melons, and for farmers to harvest more frequently than would have been possible through open-field cultivation. Anecdotal evidence shows relatively high revenues for the farmers investing in greenhouse technology for horticulture production. According to one tomato farmer in Rubengera, his revenue increased from little above Rwf10,000 per week with open-field production, to as much as Rwf 150,000 per week with the greenhouse technology (Ministry of Agriculture, 2022).

5.3. Challenges

Rwanda's agricultural growth is running up against financial and physical limits. Continued, rapid growth will have to rely strongly on private sector efforts to increase scale economies through specialization and trade, shift towards more high-productivity activities with greater value added, improve the uptake of available technologies, and increase the coverage of irrigation. Government support should focus on investments in public goods such as research and innovation, providing extension services, strengthening climate resilience, improving access to markets (for example by supporting cold chain storage), increasing access to finance and creating a more inclusive agriculture sector by strengthening food security and continuing work on ensuring gender equality. Investments in private goods should be based on identified market failures and with clear exit strategies.

The current, state-led support for agriculture will not generate the rapid growth required over the medium term to meet Rwanda's ambitious development goals. While in the short term current efforts could extend the 5 percent annual growth in agriculture experienced in recent years, they will soon run up against various limits, including the mounting fiscal burden, rising unit costs as less accessible agricultural land is exploited, competition from neighboring countries in crops promoted under the crop intensification program (CIP), and shifting internal and external demand for animal proteins, fruits, vegetables, and highly processed foods that requires a very different enabling environment in the agro-food sector and significant private investments. To produce the transformative growth rates sought by Rwanda, both public and private sector expertise in agriculture must be leveraged. Higher agricultural growth can only be achieved by reaping the benefits of scale economies and specialization through exports and the production of higher-value-added goods. Such efforts will require a rapid response to market signals, ready access to investment resources, technical expertise, and the ability to organize production and provide appropriate incentives for workers, generated by the private sector.

5.3.1. Low productivity—a challenge for further growth in the sector

Growth in yields has been disappointing and productivity is low. After sharp increases in the early 2000s, agricultural yields have plateaued or even dropped since 2013, and productivity levels for certain crops and livestock—are low by international comparison. Current productivity remains below regional averages and ranges between three to six times less compared to regional countries with the best productivity levels.[1] Value addition in the sector—that is, cleaning, packaging, and processing of agri-food products—remains low. The reasons for unexploited processing capacity lies in lack of appropriate technologies, expertise, financing incentives and rural infrastructure.

The potential for growth in agricultural production through increased land and labor is limited. Periods of rapid growth in agricultural production have largely reflected either expansion of land devoted to agriculture (1960s and 1970s) or increased use of inputs (2000s). However, the scope for further expansion of agricultural land is limited. Rwanda is one of the most densely populated African countries, and access to farmland has deteriorated markedly due to demographic pressure and slow transition from farm to off farm livelihoods. The share of households with less than 0.3 hectares of land increased by about 10 percentage points from 2011 to 2017 (Systematic Country Diagnostic, World Bank, 2019). Labor productivity is significantly lower than in other domestic sectors, such as construction, transport, manufacturing, and mining, and the potential for achieving worthwhile gains from applying ever larger amounts of labor per hectare is diminishing.[2]

5.3.2. Low uptake of improved agricultural technology

The uptake of technology and innovation in Rwandan agriculture is generally low. For instance, in 2023 (season A), only 37 percent of agricultural households used improved seeds, while only 34.5 percent used pesticides. In regard to fertilizer use, 59.6 percent of farmers applied inorganic fertilizers. While the proportion was significantly high at 87.9 percent for organic fertilizers, the right quantities and combination with inorganic fertilizers (when used optimally for sustainable agriculture practices), are necessary to provide the crop with needed and quicker absorption of nutrients. The government, through subsidies and centralized procurement, remains heavily involved in key input markets, especially seeds and fertilizers, even though there is a private fertilizer distribution network contracted by the Rwanda Agriculture and Animal Resources Development Board (RAB). Cumbersome quality control and new product registration processes are some of the main regulatory challenges facing seeds and agro-chemicals supplies.

Only a small share of farmland is irrigated. Despite the positive experience from investments in irrigation and the large and small-scale irrigation programs under the Government, only 71,585 ha or about 10 percent of cropped land (that is, agricultural land not including pasture or forest) is irrigated at the present time (season 2023A), estimated to be equivalent to 14 percent of irrigable potential (MINAGRI, 2020). Some 10 percent of households used any irrigation in 2023, and

Box 5.3: Disruptive agricultural technologies in Kenya

Investment in digital solutions for agriculture value chains is vital to boost productivity, efficiency, and competitiveness, especially for small farmers. The Kenyan government developed the Agricultural Observatory Platform*, a database containing spatial data and details of 1 million farmers. This database is being utilized to provide integrated agro-weather and market information to farmers and agricultural institutions.

The World Bank, The Korea-World Bank Partnership Facility, and the Government of Kenya launched the Disruptive Agricultural Technology (DAT) Challenge and Conference** in response to this development. The event provided a platform to discuss the opportunities presented by disruptive digital technologies in the agricultural sector, focusing on four themes: Advisory and Information for Agricultural Productivity, Market Linkages, Farmer Financial Inclusion, and Data Analytics and Agricultural Intelligence.

The conference brought together leaders from public and private institutions, technology companies, incubators, researchers, the business community, policymakers, financial institutions, and the donor community to learn from and network with each other. Several promising digital technology innovators in agriculture shared their innovation and business plans.

In a complementing effort, Kenya set in motion the Climate Smart Agriculture Project***, which aims to promote the development of climate-smart agriculture in Kenya, with a focus on increasing the productivity and resilience of smallholder farmers while also promoting the diversification of agricultural exports, the adoption of climate-smart farming practices, improving access to markets, and supporting the development of value chains for non-traditional crops. Similarly, the National Agricultural Value Chain Development Project focuses on supporting smallholders' transition from subsistence to market-driven commercial agriculture with investment in digital solutions across agriculture value chains to commercialize small-farmer agricultural products.

** https://www.kaop.co.ke*

*** https://www.worldbank.org/en/events/2019/04/05/disruptive-agricultural-technology-challenge-and-conference*

**** Source: Endo, Kenya. Kenya - Climate Smart Agriculture Project: Environmental Assessment (Vol. 2): Environment and Social Management Plan for the Rehabilitation of Kaiboche Dam, Tharaka Nithi County (English). Washington, D.C.: World Bank. http://documents.worldbank.org/curated/en/670501617786851592/Environment-and-Social-Management-Plan-for-the-Rehabilitation-of-Kaiboche-Dam-Tharaka-Nithi-County*

almost half of them relied on traditional methods. Despite ongoing investments in new irrigation development, e.g., under Commercialization and De-risking for Agricultural Transformation (CDAT) objectives for the irrigation sector, the goal under PSTA-4 of reaching 100,000 ha of irrigation by June 2024 is unlikely to be achieved. While the country has made some good progress on improving the regulatory environment for irrigation, irrigation development, improvements in water use efficiency and other reforms need to continue with a greater focus on leveraging investments and institutional changes to facilitate increased uptake at the farm level.

Farmers' access to information and communications technology (ICT) is limited. While most of Rwanda's geography has broadband internet coverage, internet access is low (see the private sector chapter). Only 17 percent of the households (and 12 percent in rural areas) have internet access, primarily through mobile devices. Box 5.3 Disruptive agriculture technologies have the potential to greatly benefit agriculture value chains and food systems by facilitating timely delivery of information (e.g., markets, weather), advice and extension (e.g., soil analysis, animal health), and importantly for low-income farmers, drive down transaction costs (e.g., through mobile banking or other e-services). Fintech solutions also have a crucial role to play in reducing risks in the agriculture sector and increasing the adoption of insurance products and access to credit. While the supply chains for subsidized agriculture inputs have already been fully digitalized under the Smart Nkunganire System (SNS), the adoption of other available solutions has been relatively low. However, the Hanga Agritech Innovation Challenge, launched in December 2023, is expected to encourage the development and expansion of technology innovation products by agri-tech startups. Similar initiatives in the region (Box 5.2) have successfully facilitated the creation of technology solutions in various areas such as agriculture advisory and information services, fintech, access to markets, and data analytics. Rwanda's ICT infrastructure provides a good foundation for diffusion of technology and information, but the country needs to continue improving its regulatory environment; ICT is rated relatively low in the Enabling the Business of Agriculture (2019), with Rwanda falling one rank behind both the regional and income group averages.

5.3.3. Transitioning to a knowledge-based agri-food sector

Despite international evidence on the importance of investments in research and extension for agricultural growth, public spending to these areas is low. Experience shows that investing in research and extension has some of the best returns to agriculture, but at 2 percent of the total agriculture budget, public investments in agricultural research and extension services is low in Rwanda. Government support for agricultural research and extension, particularly in food staples of lesser interest to the private sector, is essential to boost productivity growth and poverty reduction. The Farmer Field School (FFS) approach has been scaled up at the national level to train facilitators and establish schools across the country. Other approaches have since been introduced to complement or build on the FFS approach to enhance already achieved results. These include the Farmer Business Schools (FBS), which focuses on improving farmers' business skills to help them in taking income-oriented decisions based on cost-benefit analyses; and the Farm Service Centers, which in addition to farmers training services, also provide services of farm inputs and livestock feeds supply. Further, in collaboration with Rwanda Youth in Agri-Business Forum (RYAF) and Horticulture in Reality Corporation (HORECO), young university graduates from agricultural programs have been engaged in the extension system, especially for support to farmers irrigated areas as a way of strengthening the extension capacity and elevating the knowledge level in the field. Nevertheless, the envisaged transformation of the sector necessitates significant technical assistance to farmers of both modern, technology intensive agronomic practices and in farming as a business the limited amount of resources allocated is unlikely to meet the needs of sector, unless the private sector is able to fill the gap.

The groundwork has been laid to bridge together more stakeholders and develop an interactive electronic network but needs to be brought to scale in order to have impact. The Customized Agriculture Extension System (CAES) was adopted in 2020 as a way to connect the private sector, higher learning institutions, NGOs, and development partners in agriculture extension activities within a defined framework. Platforms like SNS and the Mobile Ordering and Processing Application (MOPA) were designed to help manage the supply chain and link all actors in the agriculture value chain. These platforms could still be developed to generate and digitalize more extension messages.

Farmers are not the only actors that need skills development. International incubation centers are being set up at agriculture higher learning institutions to develop and build agricultural skills in private firms. These centers focus on a variety of higher-value products such as horticulture, potatoes, dairy, and poultry farming. CAES will also develop a skills program aimed specifically for the private sector. At the same time, skills are needed in agriculture technology support services to e.g., maintain irrigation and solar technology, other on-farm mechanization, and in cold chain logistics. E.g., under SAIP, an effort has been made to train young people in rural areas in these types of skills and link them to investment finance to start up small workshops and provide maintenance services, but the program is small and it's unclear if the Government has similar programs elsewhere to meet the growing demand for such services. Finally, it should be noted that none of this can take place in isolation and without improving general education levels in rural areas. Currently, farmers in Rwanda have on average 3 years of schooling, which provides a weak foundation for adding more technical skills, digitalizing the sector, managing the necessary administration around farming as a business, marketing, and compliance with standards. Thus, for the agricultural sector to transform, overall rural education levels need to increase.

5.3.4. Climate change and unsustainable natural resource management affects agriculture negatively

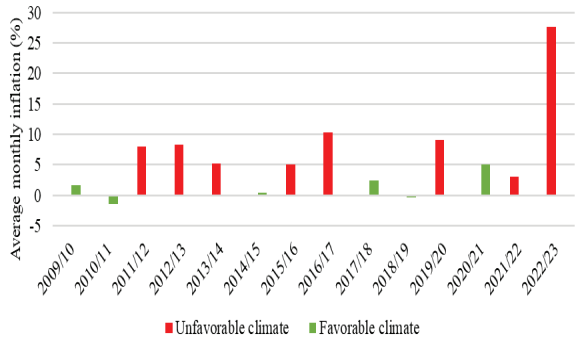
Climate change impacts, land degradation, and groundwater management will remain core challenges for the agricultural sector for the foreseeable future. Despite only contributing 0.003 percent of global greenhouse gas emissions, Rwanda suffers widespread damages and losses from climate-related events, notably droughts,

landslides, and flooding. Droughts have taken a toll on agricultural producers and contributed to food price inflation and reduced consumption. The 2018 floods resulted in damage to physical assets valued at Rwf201 billion and economic losses of Rwf21 billion (2.4 percent and 0.3 percent of GDP, respectively, (Government of Rwanda, 2019)).

The impact of floods on manufactured capital and assets is likely to increase over time. Under a pessimistic scenario for the impact of climate change (RCP8.5 scenario),[3] 0.362 percent of agriculture capital that is exposed will be damaged by flooding every year from 2036 to 2065. By 2071-2100, this number is expected to increase to 0.74 percent a year (see Table A5.1).

The impacts of adverse weather events on agriculture and food production seemingly translate into higher food prices. An analysis of monthly inflation in Rwanda shows that since 2009, peak inflation correlated with adverse weather events in 8 out of 11 cases and in all but one case was the inflation higher than at the three times under favorable weather conditions (Figure 5.3).

Figure 5.3: Inflation in Rwanda correlates with adverse weather events
(percent)

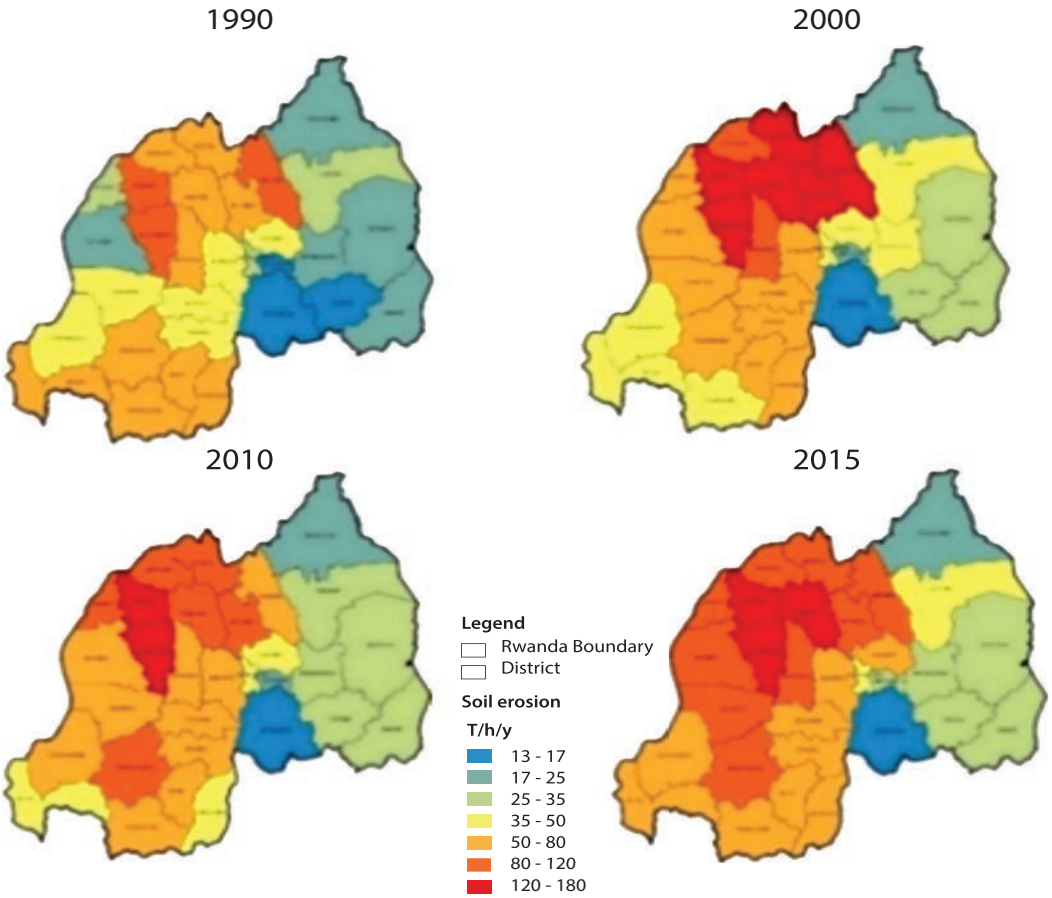


Source: Calculations based on various inflation reports

Rwanda's topology makes agriculture highly vulnerable to erosion, which in addition to poor land management practices leading to land degradation, reduce soil fertility. This, in turn, negatively affects crop productivity as the soil lacks the necessary nutrients to support plant growth. Most crops are grown on steep slopes that are prone to erosion during the rainy season. Since 1990, soil erosion has increased by 54 percent (Map 5.1). Landscape transformation (the construction of wide terraces and agroforestry development) and conservation agriculture has been promoted by building the capacity of farmers to adopt best practices in land use and soil protection.

The government of Rwanda is committed to devoting substantial amounts to adaptation but without adequate resources available, measures have to be determined based on priorities. In its NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC), Rwanda presented an aspirational budget of US$5.4 billion for climate change adaptation between 2020 and 2030, of which 55 percent was intended for agriculture, and irrigation alone was allocated US$2.3 billion. Other significant amounts were set aside for sustainable land practices, crop insurance, and other adaptation measures. Although these resource amounts indicate the scale of Rwanda's ambition and commitment to climate change adaptation for agriculture, they are unlikely to be met. Instead, priorities need to be made based on current and potential climate-related impacts on the sector and different actors, Also, most of the investments in climate change adaptation will inevitably be taken on by the private sector including farmers, and there is therefore a need for the government to engage with stakeholders in the sector to create synergies and leverage investments.

Map 5.1: Soil erosion 1990-2015
(tons/ha/year)



Source: NISR, 2019

5.3.5. Access to organized markets is still a challenge for many smallholders in Rwanda

For many smallholders, aggregation is the only way to access markets but the management of producer organizations in Rwanda needs to be strengthened. Many farmers face limited market access because their production quantity is too small to be attractive for off-takers. It is also often difficult for these small farmers to meet the quality and timeliness of supply demanded in higher value markets, and high transportation costs often prevent farmers from independently seeking out markets. As a solution, cooperative development has been a key component in the state-led land consolidation program to improve productivity and maximize resources. Cooperatives are organized along commodity lines corresponding to value chains—for example, rice, maize, potatoes, beans, coffee, tea, horticulture, and dairy. Crop and livestock cooperatives account approximately 47 percent of Rwanda's 10,000 primary cooperatives (Rwanda Cooperative Agency, 2003). Becoming a member of a cooperative is important for obtaining access to government services and other support such as finance, aggregation, and marketing. Policies and laws are in place to regulate cooperatives, but there is a need to improve management capacity, business transparency, and marketing skills of cooperatives or public directory entries, alongside their technical and financial capacity to effectively use and maintain the agriculture infrastructure implemented by the government through the Ministry of Agriculture.

Poor quality, management issues, and the risk of drought limit sales of staple crops such as maize, Irish potatoes and beans. Maize is among the few value chains with organized and formal premium markets, which include two relatively big processing factories (Africa Improved Foods Limited (AIF) and MINIMEX) and several grains aggregators. Quantities of locally procured maize by the two main processors have been increasing and reached about 25,000 tons in 2022. This only meets half of their annual grains needs, and they rely on imports to bridge the gap. The main constraints faced by aggregators and processors in local sourcing include poor postharvest handling by farmers, poor organization of farmer cooperatives (including lack of aggregation at farmers' level and bad management by coops who side-sell despite supply agreements), and frequent drought issues, which lead to farmers keeping a higher-than-normal quantity of their produce at household level for consumption for fear of hunger.

The markets for Irish potatoes and beans are dominated by unprocessed products, but that may be changing. The few existing processors include small-scale companies like Farm Fresh which produces pre-cooked and packaged beans, and Hollanda Fair Foods (owner of Winnaz products) which target consumer market for crisps, with plans to also produce cleaned, sorted and packaged whole 'ware' potatoes for hotels and supermarkets, which will quadruple their demand. Similar to maize, these products are key food security crops for farmers, who keep for their own consumption up to 45 percent of the produce for potatoes and more than 67 percent for beans.

Rice is an important source of income, but the quality is low compared to imported rice, and the latter is increasingly capturing the Rwandan market. Prices of domestically produced rice have generally been lower than for the imported rice from Pakistan and Tanzania, which has enabled local producers to expand in rural markets. In urban areas and the hospitality industry, however, competition with imported rice has been tough on the grounds of quality and variety, calling for further investments in market-oriented seed systems and efficient and innovative production systems to reduce the cost of production.

The horticulture value chain has grown rapidly over the last years, but high post-harvest losses pose significant challenges to the value chain. For vegetables and fruits, close to 70 percent of the produce is either kept for own consumption by farmers or traded in open markets in Kigali or rural areas (World Bank, 2023). However, several SMEs and startup companies have begun supplying fresh horticulture products to premium markets offered by 5-star hotels and restaurants in Kigali and other tourist areas. Most of them have invested in packhouses and cold chain infrastructure and transport equipment. But it is the supply to export markets where most of the growth was observed. In a period of 3 years to June 2022, export revenues from horticulture products grew by 49 percent despite the COVID-19 pandemic occurring in the same period (NAEB, 2022). Further, export revenues increased by over 114 percent in the first 8 months of FY2023 compared to the same period in the previous year (NAEB, 2023). Nevertheless, horticulture exports of US$42.9 million in FY2022 remain far below the US$ 205 million targeted for the end of NST-1 in 2024 (NAEB, 2019). Some of the challenges that are to be addressed include high production and postharvest losses, which on average amount to around 20 percent but are as much as 49 percent for tomatoes (World Bank, 2020), largely due to the lack of cold chain infrastructure, non-adequate packaging and other postharvest handling issues.

To support a growing horticulture export sector, solutions for postharvest management are critical but much of the infrastructure is private in nature and public sector interventions should be balanced. Significant investment already exists into cold chain infrastructure in Rwanda; however, the majority is public, or donor funded, and success has been mixed (Box 5.4). Many of the facilities are underutilized and there is arguably a need for a "pull" effect and formalization of the value chains; this can be stimulated through increased exports, consumer demand on the domestic market, as well as through regulation. A postharvest management strategy was developed in 2022–23, but construction is delayed due to a lack of funds. The Kigali Wholesale Market for Fresh Produce (KWSMFP) was visualized first in 2010 as a modern wholesale market for local and regional sales. It was only announced in January

Box 5.4: Learning from the experience with supply side development of cold storage infrastructure

The government of Rwanda financed construction in 2019 of solar powered cold storage facilities near irrigation sites. They were to be managed by the neighboring cooperatives and provide producer groups in the irrigated areas with cold storage for high-value crops, which in turn would attract traders geared towards higher-value markets. This is a perfect example of the public sector investing in much-needed infrastructure to bridge market failures in a credit-constrained sector.

However, the experience with these cold-storage facilities has been mixed. Few are fully utilized even though many of them have not implemented a service fee for storage of produce. A basic problem in their design was that not all parts of Rwanda are equally well-suited for solar energy due to limited sun-hours. However, the location of the facilities was also often less than ideal from a market aspect, and there wasn't a clear operation and management mechanism for the storage facilities. Optimal cold storage is also quite precise, and not all produce can be stored at the same temperatures. Similar conclusions were provided by a recent diagnostic study of public funded agriculture infrastructure which found that only 51 percent of established cold storage infrastructure are operational (MINAGRI, 2022).

The study Energy Efficient Cold Storage in Agriculture identified several recommendations to increase utilization of these facilities, which may apply to similar investments going forward: (i) address technology gaps in the cold chain with sequential steps, including upgrades or modifications of the technology to strengthen weak design points, development of an easy-to-understand operation manual and problem-finder document, and plans for a periodic inspection and maintenance schedule; (ii) establish private sector-driven management; (iii) develop standard operating procedures for the post-harvest handling of fruits and vegetables, which would significantly reduce food losses and can be geared to food systems comprised of smallholders, emerging middle-sized farmers, or large corporations; and (iv) adapting regulation to align with existing priorities, as coordinated mechanisms between regulating agencies will be beneficial, with governmental attention to the possible implications of regulation for future investments.

Source: Sustainable Cold Chain in Africa Summit (2022, p. 82)

2023 that the EU would invest US$69 million to fund the project. A Code of Practice for fruits and vegetables and other regulations exist; however, a technical regulation for handling of fruits and vegetables on the domestic market should be put in place to improve the quality of fresh commodities on local markets and contribute to reducing losses. Kigali is also home to a newly established African Center for Excellence for Cold Chain Infrastructure, but the Center has not yet produced graduates to further develop the sector. The new Rwandair's Cargo facility recently bought to ease the export sector constitutes an important step toward connections to regional and global markets for Rwandese horticulture produces.

Development of the horticultural sector faces various constraints. Only about 6 percent of horticulture production is exported (NAEB, 2022). The sector has grown rapidly to meet Rwanda's target to increase horticultural exports ten-fold between 2018 and 2024 (Dahlberg 2020). Despite this growth, the sector is still young and lacks professionalization. For example, there is no farm-to-airport logistics operator, leaving exporters to negotiate with airlines individually (Dalberg 2020). The sector is also bureaucratic, with different documents and phytosanitary paperwork having to be submitted at different offices. Further government support is needed to share risks and reduce export cargo barriers. At the moment, air cargo space is limited and competes with passenger traffic. To promote trust for Rwandan food products in regional trade, a range of initiatives in collaboration with regional economic communities are underway, such as the Market Access Upgrade Program (MARK-UP) at EAC level and the Regional Food Balance Sheet Initiative (RFBSI) at COMESA-level. These initiatives are designed to enhance export competitiveness (MARK-UP) and improve transparency through real-time data tracking (RFBSI). There are also a number of policies in place under PSTA 4 that promote market-oriented agriculture for the domestic, regional, and international markets. To further promote regional trade, more progress is needed to harmonize standards, regulation, and credible certification in the region.

5.3.6 Accessing agricultural finance is a key challenge for the sector

Lack of agricultural finance remains a major constraint on transformation of the sector. Agriculture is one of the under-financed segments of the economy. In 2019, formal credit to production represented only 4.1 percent of agricultural GDP, 7 percent if loans for agricultural trading and processing are added. According to the

2020 Agricultural Household Survey, about 39 percent of agricultural households had requested loans but less than 20 percent had submitted their requests to formal lenders (banks, MFIs and SACCOs), suggesting a large gap between supply of formal agricultural finance and the potential demand in the primary sector. It is also noteworthy that agricultural SMEs—critical for agricultural transformation—make less use of formal financial services through banks (as opposed to other loan-making financial institutions such as SACCOs) than other SMEs (World Bank 2016). Reasons identified include low availability and quality of data to decrease lenders' risks; limited financial experience of farmer and producer organizations; limited operational capacity among formal sector banks to serve the agriculture sector; limited availability of medium- to long-term liquidity; and fiscal disincentives to borrowers (e.g., high cost of registering mortgage so land can be used as collateral).

Agriculture loans are viewed as highly risky. Public institutions are actively promoting agriculture finance by providing loans directly and indirectly and offering de-risking mechanisms. However, for most private sector lenders, based on historical performance, agricultural production is considered high risk and entails high transaction costs to hold a significant credit portfolio. In Rwanda, the risk of doing business in the agriculture sector is reflected in the high non-performing loan (NPL) ratio, which for agriculture as of June 2022 was7.8 percent compared to 4.3 percent in total for banks, and 7.1 percent compared to 5 percent in total for MFIs. Adverse climate events in the past, coupled with low farmer resilience, have damaged banks' lending portfolios. Moreover, the increase in NPLs in 2016–17 to over 18 percent of total assets resulted in the reduction of commercial bank lending for agriculture production. Some banks and micro finance institutions (MFIs) concentrate on well-organized value chains such as maize, rice and potatoes by tapping into the linkages with off-takers and providing loans to agribusinesses, especially those in processing. The growth of agriculture credit from commercial banks including agribusiness has been slower than that of total private sector credit for the last five years. Most lenders, especially MFIs and SACCOs, lack the expertise and products to serve the agriculture sector.

Most loans from MFIs and SACCOs for agriculture production are short-term, and their capacity and products seem to be limited. MFIs' agriculture loan portfolio[4] was smaller than that of Umurenge SACCOs from 2014 to 2018, but it increased by 4.5 times in 2019 to Rwf48.7 billion partially due to an agriculture insurance pilot. As a result, MFIs' share in total agriculture production loans jumped from about 17 percent in 2012 to 54 percent in 2019. Agriculture production accounted for 37 percent of their loan portfolio in 2019. Some MFIs offer tailored lending products for their target agriculture commodities. Umurenge SACCOs have the smallest amount of agriculture loans among the formal lender categories, with Rwf15.5 billion, accounting for about 17 percent of total agriculture credit. However, their presence seems to be much larger in terms of the number of loans, based on access to finance data. Their advantage is proximity to farmers, but their agriculture lending products and capacity are largely inadequate, characterized by small loan amount and frequent repayments. Some also suffer from weak management and limited operational capacity. Farmers also complain about the inconsistency between the period set by these banks for repayment, which is mainly on a monthly basis while farmers earn their income during the post-season.

Other lenders include traders, processors, investment funds, and specialized lenders for agriculture SMEs. The members of the Council on Smallholder Agricultural Finance (CSAF) disbursed loans totaling about US$18.6 million in 2020 (Council of Smallholder Agricultural Finance, 2020) for cooperatives and traders in well-organized export-oriented value chains such as coffee (the total agriculture/agribusiness loan disbursement from banks in Rwanda was about US$88 million in 2019). Value chain actors such as traders and processors also provide some credit to cooperatives and farmers, but aggregate financing data from these sources are not available. There are several investment funds that target agriculture and agribusiness. For example, the Africa Agriculture Development Company (AgDevCo) has invested

about US$3.5 million into three agribusiness companies since 2016. The warehouse receipt financing system introduced by the East African Exchanges (EAX) remains limited. There are several initiatives to provide digital-based services for agricultural SMEs and farmers such as market information, extension support, and payments, but lending seems to be still in a nascent stage.

Agriculture is one of the focus sectors of the Business Development Fund (BDF) guarantee scheme. The BDF, a public sector entity, provides partial credit guarantees mainly to SME and agriculture loans. The guaranteed portfolio for the agriculture sector stood at Rwf8.9 billion for a total loan value of Rwf24.5 billion in 2019, 27.3 percent of the total agriculture production loans. The annual guaranteed issuance declined from about Rwf3.0 billion for 297 loans in 2015 to Rwf0.36 million for 158 loans in 2019. As the annual expiration outvalued the new issuance, the guaranteed portfolio has been declining in recent years. Based on the cumulative data for the last five years, BRD accounted for about 80 percent of loan guarantees to agriculture, although SACCOs represented 85 percent of the total number of guaranteed loans. BDF also provides matching grants and technical assistance support to agriculture SMEs.

There is also a need to strengthen the operational capacity of institutions involved in agricultural finance to provide financing packages that meet the needs of small-scale and commercial farmers. Programs under the Business Development Fund (BDF) have had some success in developing suitable agriculture financing packages, but there is still a strong reluctance of private financial institutions (PFIs) to invest in the sector as risks are perceived as high and products are often not adapted to farmers' reality of operating in seasonality rather than with monthly revenues. CDAT is seeking to strengthen the technical capacity of PFIs to better assess actual risks of agricultural lending, thereby increasing their lending portfolio to the sector. Another easy approach to strengthen financial institutions' expertise in agricultural investments and risk assessment is for the PFIs to recruit more loan officers with an agricultural background, e.g. from the agricultural universities and then train them in relevant financial skills. At the same time, it will be important for the Government to assess the nature and impacts of the multiple Matching Grants Program around the country to ensure that they don't crowd out private sector lending by offering free grants for investments that normally would qualify for commercial borrowing.

Some progress has been made in increasing the availability of agricultural insurance. The National Agriculture Insurance Scheme (NAIS) was approved and implemented in 2019. The scheme is subsidized by 40 percent by the government of Rwanda. As of June 2023, the number of farmers with active insurance products had increased to 136,521 (including 113,594 farmers for crop insurance, and 22,927 farmers with livestock products), representing slightly over 5 percent of farming households. While major measures were taken in scaling up agriculture insurance and many of farmers have been reached with information, a broader uptake is needed, PFIs need to fully integrate the products in their agricultural loan risk assessments, and products need to be transferred to the private sector.

There is still a gap in the access to quality data for agricultural finance. While initiatives such as the Agriculture Management Information System (AMIS), the Smart Nkunganire System (SNS), and the new registration platform by the Ministry of Agriculture and Animal Resources are now being implemented, more work is needed to improve the quality of data on firms to develop written policies and strategy on the use of data for agricultural finance.

Box 5.5: An inclusive and equitable agri-food sector

Improving the position of women is necessary to reach the agricultural sector's growth potential. Rwanda is widely recognized for its commitment to gender equality. The government of Rwanda has put in place a strong legal and policy framework, including a legal mandate for gender-responsive planning and reporting through Gender Budget Statements, to support and advance gender equality. For the agriculture sector, efforts to address gender disparities include implementation of the 2019 Rwanda Agriculture Gender and Youth Mainstreaming Strategy; gender-sensitive land reform, with joint titling of female and male partners' land; and gender equality in inheritance reforms. Nevertheless, gender disparities persist, and a review of the strategy shows that implementation has been slow. For example, female-managed farms are 12 percent less productive than male farms with 50 percent of the gender gap in productivity due to lower access to productive inputs and services, and fewer women than men cultivate on land that is protected against soil erosion and on irrigated land. Representation in institutions has been identified as a key constraint in accessing irrigation, but consultations during the Commercialization and De-risking for Agriculture Transformation (CDAT) preparation indicate that there is a perception that women do not produce financially viable crops that benefit from irrigation (i.e., the perception among institutional stakeholders was that men produce cash crops and women subsistence crops). There are also large discrepancies between men and women in their access to finance, partly due to lack of financial literacy and knowledge of financial services. During the preparation of CDAT, participating actors confirmed that the share of female applicants is lower than that of male applicants for loans at commercial banks. Further, female-managed farms are on average 10.5 percent smaller in land, and female farmers participate to a lesser extent in agricultural value chains, receive lower prices for their produce at markets and are less represented in off-farm employment. Table 5.2 provides an overview of discrepancies between men and women in the agricultural sector.

TABLE 5.2: Discrepancies between men and women in the agricultural sector

Access to/use of:	Women	Men
Improved seeds	8%	18%
Inorganic fertilizers	15%	20%
Organic fertilizers	45%	no data
Irrigation	6.4%	11.5%
Cultivating on land protected against soil erosion	62.5%	70.2%
Bank account (approx.)	20%	33%
Savings & Credit Cooperatives (among bank account holders)	66%	57%
Commercial financial institutions (among bank account holders)	26%	33%
Loans from a formal source	3%	6%
Loans in the size of < 5000 RWF*	30%	17%
Loans in the size of 200,000-500,000 RWF*	18%	23%
Loans for agricultural inputs	1.5%	3.3%

Sources: Rwanda Agriculture Gender and Youth Mainstreaming Strategy, 2019, and Assessing the Implementation, Accountability of "Gender and Youth mainstreaming strategy in agriculture 2019-2026", 2021
** Among those receiving a loan from a formal source*

5.4. Way forward

The chapter provides a detailed list of policy recommendations that the government of Rwanda should consider in shifting the policy framework towards more private sector led growth. Key areas include improving market access, promoting investments in technology and promoting inclusiveness.

For Rwanda's agro-food sector to continue to grow, private sector investments on and off farm are necessary. The recommendations in this chapter focus on (i) how to support farmers in accessing markets; (ii) how to promote investments in improved on-farm technology to increase productivity and adapt to climate change; and (iii) how to ensure an equitable agro-food sector.

5.4.1. Supporting farmers in accessing markets

Recommendation 1: Continue to strengthen farmer groups in different forms and integrate "Farming as a Business" in the Government Extension Model (Including linking farmers to off-takers for markets and extension services). This already has begun through customized extension services, but funding is needed. Experience under SAIP has shown that when value chain actors engage with farmers and cooperatives, especially in higher value produce, and the farmers have access to good markets, they are incentivized to invest on-farm. We also note that these linkages facilitate access to improved inputs and extension services, which have positive impacts on productivity, revenues, and jobs.

Strengthen on-going interventions and funds, tailored to the agricultural context. Technical assistance facilities should be available to support ongoing public and private investments to ensure that highly specialized agricultural and value chain expertise is included in design and execution. Concrete examples include: (i) strengthening of the business models behind technological initiatives, e.g. ensuring that, in the promotion of solar technologies for agriculture, management and supply systems are well developed and included as criteria for grant financing; (ii) ensuring that technical and senior staff (decision makers) at banks and other financing institutions are trained on the identified business models and other aspects of agriculture that are critical to the financial viability of investments; (iii) promoting flexible financing models to stimulate innovation and uptake of different business and technology models. (iv) In parallel, providing technical support to government entities, for example NAEB, to provide adequate support to the value chain and stimulate private sector development; and (v) ensuring close collaboration among all relevant stakeholders for flagship projects like the Kigali Wholesale Market, for example in developing the market management models which are to date not well developed in Rwanda.

Recommendation 2: Modernizing the seeds sector with market demand driven basic research, private sector involvement in multiplication, and international seeds variety exchanges for improved genetic resources in Rwanda. While research on new seed varieties has yielded some positive outcomes over the years, such as reducing dependence on imported seeds for certain crops, overall agricultural productivity has stagnated for most crops. In some cases, it has even declined in the past decade. Furthermore, research in seed systems has been less driven by the market competitiveness of resulting crop produce, while favorable market dynamics can play a non-negligible role in boosting productivity through increased investments in agricultural production. Moreover, eliminating obstacles in the international exchange of germplasm and in registering new agricultural input products, and promoting knowledge exchange, together with continued deliberate efforts to promote private sector engagement in seed multiplication, may foster a more sustainable and expeditious development of local seed systems.

Recommendation 3: Enable and incentivize private investments in agro-logistics infrastructure and cold chain development. To better access higher value markets for perishable products and at the same time reduce post-harvest losses, it will also be important to upgrade the agro-logistics systems along the value chains. Such investments include (i) developing skills (through training and financing) in certification and agro-logistics, e.g., the use of crates and packing materials from the farmer collection centers along with mobile and simple cooling solutions (like thermal boxes) and washing and handling of produce; (ii) upgrading of storage units to standard and with related facilities, for example, packing rooms, stable power supply and fork lift access for larger quantities; (iii) establishing last mile connectivity like road access to cold stores; and enabling investments in cold chain solutions, from cold stores sourced by renewable energies to insulated trucks and boxes. Finally, a detailed study on food losses throughout the value chains would help to target interventions.

Recommendation 4: Remove bottlenecks for expanding exports. Short term, concrete interventions could include: (i) increasing certification of produce by for example training local certifiers, providing, as part of matching grants or other investments, financing for certification and improvements of farm facilities, and strengthening related inspection and enforcement by the regulator (Rwanda Bureau of Standards and/or RICA); (ii) dedicating shares of existing lines of credits,

Box 5.6: Developing the horticulture value chain in Rwanda

World Bank (2023) assesses the horticulture value chain in Rwanda. In addition to the above recommendations on general market and cold chain development, it suggests the following interventions to support the horticulture value chain:

- Continued capacity building for farmers, their institutions, and other actors in the supply chain to decrease losses;
- Increase storage capacity in places with larger volumes of transactions;
- Upgrade logistics systems and skills development along the value chains;
- Build capacity of the private sector to improve their operations and obtain relevant certification for markets;
- Increase demand for high quality produce on domestic markets (hospitality industry and household consumers), by putting in place incentives to source from local markets, setting up minimum quality standards and traceability, and increasing public awareness on the benefits of consuming better-quality fruits and vegetables;
- Remove bottlenecks for expanding exports, by increasing local certification capacity, including in grants and loans products that target investments in cold chain facilities and equipment, and providing business development services to startup companies to professionalize their business and marketing contracts abroad;
- Provide technical assistance facilities to support ongoing public and private investments to ensure highly specialized agricultural value chain expertise in design and execution of programs;
- Strengthen the regulatory environment, including RICA, to fill legislative gaps, and inform decision makers on the relevance of regulations, to ensure their importance is acknowledged, and that laws and policies are passed in a timely manner and enforced.

Source: World Bank (2023)

matching grants or other financial instruments to horticultural exporters using, or intending to use, different types of cold chain (for example trucks); and (iii) providing business development services to exporters to professionalize their business and marketing contracts abroad. This could include short courses or exchange visits.

Strengthen the regulatory environment. Technical and financial support should be provided to RICA to fill legislative gaps, as well as to decision makers on the relevance of this regulation, to ensure that its importance is acknowledged and that legislation, laws and policies passed in a timely manner. This should be complemented by investments in inspection and monitoring, as well as the development of systems to track compliance.

5.4.2. Promoting investments in improved on-farm technology to increase productivity

Recommendation 5: Finalize and approve the Agriculture Finance Strategy, including a long-term strategy for grants vs. private finance programs. While agriculture has consistently accounted for over 25 percent of the GDP in recent years, the proportion of agriculture finance in relation to private investment financing in Rwanda remains remarkably low, averaging less than 5 percent over the past few years. The government has made efforts to address the situation by providing financing for credit lines, aiming to facilitate affordable lending by the financial sector. Furthermore, they have subsidized agriculture insurance products as a means of contributing to the de-risking of the sector. Nevertheless, the government must formulate a comprehensive agriculture finance strategy to establish coordinated and effective mechanisms, to facilitate increased and sustainable private sector financing in the medium-term, ultimately fostering a fully private sector-led subsector.

Recommendation 6: Strengthen and scale up the farmer-led irrigation development (FLID) / Small-Scale Irrigation technology (SSIT) programs and assess the sustainability of the financing and adapt the model more towards that of SAIP.

Recommendation 7: Evaluate support programs for small-scale farmers (e.g., grants and mechanization) to assess investment returns and sustainability rates and adapt programs accordingly. Multiple models of delivering support to farmers have been implemented in parallel over the past year, either as regular programs or under donor financed projects. At times, the same beneficiary has benefitted from support from multiple programs and it's not clear

if there if e-g. grants programs affect employment beyond that of the direct beneficiary, if they lead to eventual access to private credit among grants beneficiaries, if these grants beneficiaries invest in their own businesses to further expand after the initial investments, etc. Given the limited national productivity increase in the country, it would be important to evaluate what works best and scale up those models.

Recommendation 8: Scale up vocational training and develop start-up programs for agricultural support services, including for SSIT, mechanization, cold chain infrastructure, food processing, and other agri-food services.

Recommendation 9: As part of PSTA-5, conduct an agriculture and food security risk assessment and develop an agriculture and food security risk management framework for Rwanda and establish risk management measures; accordingly. An Agriculture Sector Risk Assessment (ASRA) helps identify the most impactful risks according to geographic region and subsector, which helps prioritizing risk management interventions. For some countries, such assessment has been combined with an analysis of the impacts on the food sector and food security from different risks, including both availability and prices. Such assessments help prioritize scarce resources where they have most impacts. The Government should develop a comprehensive risk management approach for the agri-food sector to mitigate impacts of risks and prepare for possible risk events, like food prices increases. This can also help balancing national food security concerns against opportunities for higher-value production. Integrate screenings in public investments.

Recommendation 10: Promote uptake of agriculture insurance and collaborate with the industry to develop new products for different value chains in the sector.

Laying the grounds for an equitable agri-food sector for the future

Recommendation 11: Develop a food policy strategy for local food sector development. The purpose of such strategy is to ensure that local food markets are well-functioning for both consumers and producers, in order to adequate availability of healthy food across Rwanda and with limited price discrepancy between different geographical locations. Although the income pathway for farmers will be to produce high-value foods for middle-income consumers, local food markets must also provide decent income opportunities for farmers while availing diverse foods for consumers, through local production as well as regional and international imports. Local food systems development necessitates investments in market infrastructure for local consumption and institutional infrastructure related to regulatory aspects of marketing and processing, e.g., for food safety, employment regulations, etc.

Recommendation 12: Through PSTA-5, establish a clear policy that promotes private sector investments that are separate from those of a social protection nature. This would include land use management.

Recommendation 13: Incomes and employment regulations (analytical work and policy).

5.4.3. Promoting climate-smart development opportunities for the private sector in agriculture

Several private sector opportunities exist to increase agriculture's resilience to climate change while contributing to economic development. Some of these opportunities are given below.

- Developing and distributing climate-resilient livestock and seed. For instance, the Alliance for a Green Revolution in Africa (AGRA) supported 15 private seed companies from 2017 to 2019, which sold 4,513 metric tons of improved seeds in 2020 (AGRA, 2021).
- Investing in affordable post-harvest and storage solutions. It is estimated that over 30 percent of farmers' losses in Rwanda comes from poor post-harvest handling and storage. Drying and storage facilities can help secure income for farmers. Private investments in warehousing can provide post-harvest storage. Improved storage bags (like Purdue bags) can be part of the solution.[6]
- Expanding access to irrigation to build resilience to droughts. Small-scale irrigation infrastructure—such as solar water pumps or large-scale irrigation infrastructure—funded by public-private partnerships (PPPs) build resilience (World Bank Group, 2022). The World Bank-

funded Commercialization and De-risking for Agricultural Transformation (CDAT) project will rehabilitate and develop new irrigation schemes on over 17,500 ha and will apply water-use efficiency technologies; the Gabiro Agribusiness Hub Project will provide 15,000 ha of modern irrigation infrastructure.

- Improving crop and livestock management through climate-responsive extension services within a rainfed agricultural system. There is room to extend agronomic information and training to farmers to farm effectively and efficiently in a rainfed environment (World Bank Group, 2022). A few small-to-medium-scale private agents are starting to provide these services. Managing soil health and water carrying capacity via zero-/limited-till and intercropping could be key.
- Insurance innovation. Efforts are currently underway to scale agricultural insurance for all farmers under the National Agriculture Insurance Scheme. Innovations to reduce the cost of this scheme, as well as transparent and timely payouts, are needed to increase access and reach financial sustainability.
- Biochar production for carbon removal. Agricultural waste can be leveraged to produce biochar which has substantial soil fertility benefits, as well as the benefit of controlling the pollution of groundwater through the reduced use of chemical fertilizers. Additionally, biochar sequesters carbon, which can be sold on carbon markets. While largescale biochar production is expensive, there are several small-scale biochar innovations that are being piloted, tested, and commercialized on a small-scale across Africa that can be leveraged. Some of these are on-farm solutions and others are on the community-level. Given the pace at which technology, applications, and business models are evolving, these technologies are likely to play an increased role in the next few years, particularly if they are successful in leveraging carbon finance.
- Financing the expansion of tree crops such as coffee, avocado, and macadamia. The planting of trees including intercropping, provides additional safety nets for farmers, such as diversifying income, improving soil fertility and preventing erosion.

Box 5.7: Key recommendation: Soil-conscious conservation agriculture

Deforestation and land degradation as well as the conversion of water catchments to agricultural land have resulted in reduced vegetation cover. The land area with high vegetation cover (forests, woodlands, grasslands, and shrublands) declined from 1,6 million ha in 1990 to only 914,000 ha in 2015, with croplands increasing from 614,000 ha to 1.3 million ha. This reduction in natural vegetation has led to increased runoff and river flows, which have increased water yield. However, this vegetation reduction has also led to an increase in landslides, soil erosion and, because of the reduced vegetation, to a decrease in infiltration and groundwater recharge. Districts such as Ngororero, Nyabihu and Rutsiro in the Western Province, and Gakenke and Gicumbi in the Northern Province, are most affected by soil erosion of 130t/ha/year, or more. The impact of erosion on the agrarian population of Rwanda is vast, compromising its social protection and increasing poverty. To combat further loss of soil and to enhance development as well as food and income security in the wake of climate change, it is recommended that a program on soil-conscious conservation agriculture and payment-for-ecosystem services be implemented, with the emphasis on the expansion of the network of terraces (both radical and progressive), which will increase soil carbon retention. This should be done with a strong emphasis also on crop rotation and intercropping—such as the use of bananas in coffee plantations—which will furthermore result in increased biomass production, increased yield, and the higher quality of the coffee. Another pillar of conservation agriculture is the use of no-tillage methods on most, if not all, croplands, which will result in an increase in soil organic carbon. In this context, it is important to eliminate the current subsidy on mineralized fertilizers, while enhancing the support of the production of organic and locally produced compost to promote soil fertility benefits and reduce the pollution of groundwater resources. There is thus a great opportunity and need for a country-wide educational program with respect to the principles of conservation agriculture and the implementation thereof. In addition, to encourage private sector investment in land and water infrastructure as well as related environmental interventions aiming at landscape and ecosystem restoration, payment for ecosystem services (PES) should be considered, and the proposed program could link to other PES initiatives.

Supporting actions should include the development and distribution of climate-resilient seed, the investment in affordable post-harvest and storage solutions and the improvement of crop and livestock management through climate responsive extension services. There is room for growth to extend agronomic information and training to farmers. This could be supported by innovation with respect to insurance to reduce the cost thereof and to link it to climate-smart response mechanisms.

Source: World Bank (2023)

Annex 5.1. Matrix of key policy recommendations: Modernizing agriculture productivity

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

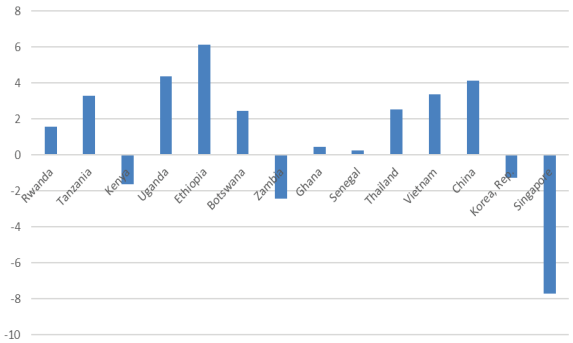
	Actions	Responsible Agency	Priority	Timeframe	Feasibility
3.4.1	**Policy Area 1: Access to Markets and Farming as a Business.**				
	Priority Area 1: Encourage and Deepen Business-Oriented Farming in Rwanda.				
	Integrate "Farming as a Business" in the Government Extension Model.	MINAGRI-RAB-NAEB	HP	MT	HF
	Promote development and scale-up of agri-tech innovations across agriculture value chains (advisory and information services, fintech, access to markets, data analytics, etc.)	MINAGRI-RAB-NAEB-MINICT-RISA-BRD	HP	MT	MF
	Priority Area 2: Promote Innovation and Generic Resources in the Seeds Sector.				
	Modernizing the seeds sector with market demand driven basic research, private sector involvement in multiplication, and international seeds variety exchanges for improved genetic resources in Rwanda.	MINAGRI-RAB & RICA	HP	MT	MF
	Update related (demand driven basic research, multiplication, seeds variety exchanges, genetic resources) regulations.	MINAGRI-RAB & RICA	HP	MT	MF
	Priority Area 3: Support the Private Sector to Invest in Critical Infrastructure for Export Development.				
	Enable and incentivize private investments in agri-logistics infrastructure and cold chain development	MINAGRI, MINECOFIN, NAEB, RAB	HP	MT	MF
	Remove bottlenecks for expanding exports	MINECOFIN, MINAGRI, NAEB, RAB			
3.4.2	**Policy Area 2: Improve-Farm Productivity.**				
	Priority Area 1: Develop Sustainable Financing Strategies and Instruments.				
	Finalize and approve the Agriculture Finance Strategy	MINAGRI & MINECOFIN	HP	ST	HF
	Finalize and approve the long-term strategy for grants vs. private finance programs of agricultural projects.	MINAGRI & MINECOFIN	HP	ST	HF
	Priority Area 2: Promote Efficient Use of Water in Agriculture.				
	Strengthen and scale up the FLID / SSIT and water use efficient technology programs.	MINAGRI-RAB	HP	MT	LF
	Test water user fee models to incentivize improved irrigation water management and adoption of sustainable water use management.	MINAGRI-RAB	HP	MT	LF
	Priority Area 3: Take Stock of Lessons Learnt from Support Programs to Small Scale Farmers.				
	Evaluate support programs to small-scale farmers (e.g., grants and mechanization) to assess investment returns and sustainability rates.	MINAGRI & MINECOFIN-BDF	HP	ST	MF
	Adapt programs accordingly, to improve impacts.	MINAGRI & MINECOFIN-BDF	HP	ST	MF
	Priority Area 4: Strengthen Skills Through Vocational Training.				
	Scale up vocational training for agricultural support services, including for SSIT, mechanization, cold chain infrastructure, food processing, and other agri-food services.	MINAGRI, & MINEDUC-RP	HP	MT	MF
	Develop start-up programs for agricultural support services, including for SSIT, mechanization, cold chain infrastructure, food processing, and other agri-food services.	MINAGRI, & MINEDUC-RP	HP	MT	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Priority Area 5: Build the Foundations for Food Security Risk Management, Relying on the PSTA-5.				
	Conduct an agriculture and food security risk assessment.	MINAGRI MINEMA	HP	ST	MF
	Develop an agriculture and food security risk management framework for Rwanda.	MINAGRI MINEMA	HP	ST	MF
	Establish risk management measures accordingly.	MINAGRI MINEMA	HP	ST	MF
	Integrate screenings in public investments.	MINAGRI MINEMA	HP	ST	MF
	Priority Area 6: Increase Membership of Farmers to Insurance Programs.				
	Promote uptake of agriculture insurance.	MINAGRI-NAIS & MINECOFIN	MP	MT	MF
	Collaborate with industry to develop new products for different value chains in the sector.	MINAGRI-NAIS & MINECOFIN	MP	MT	MF
3.4.3	**Policy Area 3: Promote an Equitable Agro-food Sector.**				
	Priority Area 1: Establish the Foundation for Equitable Local Food Sector Development.				
	Develop a food policy strategy for local food sector development.	MINAGRI, MINICOM, MINALOC, NAEB, RICA, FDA, RSB	HP	MT	MF
	Promote investments in market infrastructure for local consumption.	MINAGRI, MINICOM, MINALOC, NAEB, RICA, FDA, RSB	HP	MT	MF
	Promote investments in institutional infrastructure related to regulatory aspects of marketing and processing, e.g., for food safety, employment regulations, etc.	MINAGRI, MINICOM, MINALOC, NAEB, RICA, FDA, RSB	HP	MT	MF
	Priority Area 2: Enhance Private Sector Investments Through the PSTA-5.				
	Establish a clear policy to promote private sector investments that is separate from social protection policies.	MINAGRI & MINALOC	MP	MT	MF
	Foster the commitment of private sector to practice sustainable land use management.	MINAGRI & MINALOC	MP	MT	MF
	Priority Area 3: Carry out Analytical Work and Policy.				
	Analyze incomes and employment regulations (analytical work and policy).				

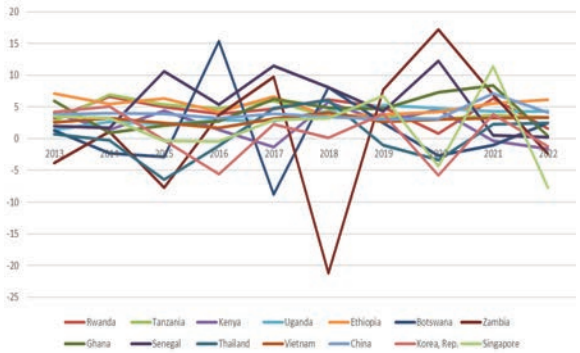
Annex 5.2: Supplementary tables and figures

Figure A5.1: Agriculture growth, 2013–22
(Percent changes)



Source: WFP Rwanda Country Brief, April 2023

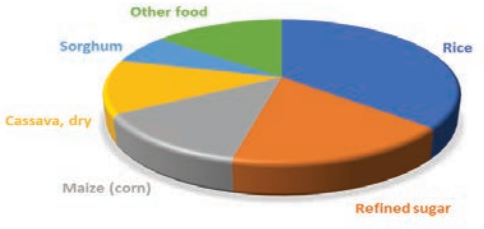
Figure A5.2: Agriculture growth, 2013–22
(Percent changes)



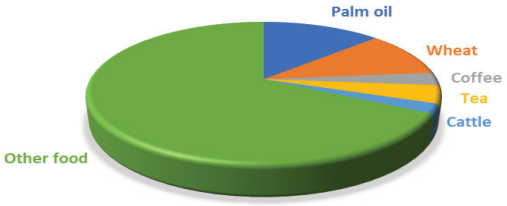
Source: WFP Rwanda Country Brief, April 2023

Figure A5.3: Key agro-food imports to Rwanda in 2021

Key agri-food import



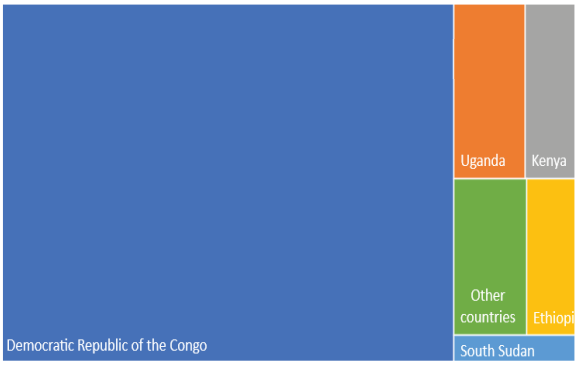
Key agri-food export



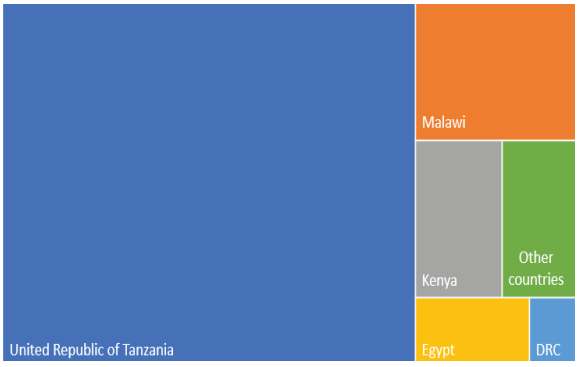
Source: Author based on FAO STAT database

Figure A5.4: Rwanda's food trade partners

Food export partners

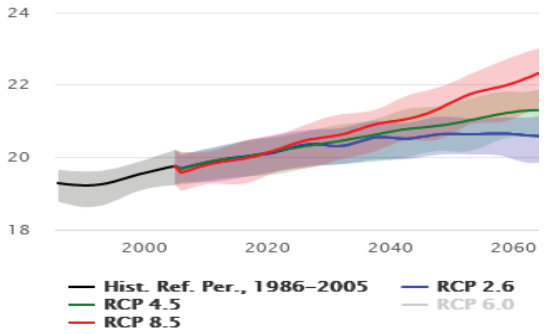


Food import partners



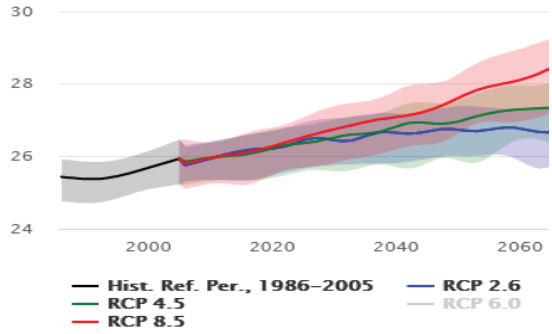
Source: Author based on FAO database 2021

Figure A5.5: Projected changes in Rwanda's mean annual temperature, by RCP



Source: World Bank, 2021

Figure A5.6: Projected changes in Rwanda's mean annual temperature, by RCP



Source: World Bank, 2021

TABLE A5.1: Expected annual damage to capital

Type	RCP	Baseline	2010–2039	2020–2049	2036–2065	2071–2100
Agriculture	RCP4.5	0.19%	0.23%	0.26%	0.31%	0.37%
	RCP8.5	0.19%	0.25%	0.28%	0.36%	0.74%
Built-up	RCP4.5	0.15%	0.19%	0.21%	0.25%	0.30%
	RCP8.5	0.15%	0.20%	0.23%	0.30%	0.62%

Source: IEc (2022).

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Notes

[1] NISR agricultural seasonal surveys and FAOSTAT.

[2] Rwanda Systematic Country Diagnostic 2019, World Bank.

[3] Representative concentration pathways (RCPs) are utilized as examples of potential climate trajectories throughout the 21st century.

[4] Includes MFIs and non-Umurenge SACCOs.

[5] AgDevCo website (https://www.agdevco.com/our-investments/by-country/Rwanda)

[6] Purdue bags are a triple-layer sealed plastic bag that cuts off the oxygen supply to create hermetic conditions, thereby eliminating insect damage in storage of dry grain. See https://www.purdue.edu/postharvest/purdue-improved-crop-storage-pics/.

[7] One example is the use of gasifier cook stoves by farmers to produce biochar in Kenya.

[8] One Acre Fund, Trees and Agroforestry, accessed in 2021.

PART 4:
BOOSTING SUSTAINABILITY AND RESILIENCE

Rwanda is highly vulnerable to adverse effects of climate change. The country's vulnerability is a function of, among others, the dominance of nature-based tourism, rainfed agriculture and other extractive industries in Rwandan economy. Compounding the challenge is the reality that the natural assets that underpin these economic sectors are also being degraded as a result of excessive exploitation. Poverty further exacerbates vulnerability—especially in rural areas, and among youth and those in female-headed households. The combined poverty-induced vulnerability and low degree of development limit the capacity of poor households and communities to be resilient to climate risk and climate-related shocks.

The impact of climate change risks could be consequential for Rwanda's economy in both the short and long-term. The 2023 floods and mudslides are estimated to require approximately US$356 million for recovery and restoration. This also resulted in the disruption of infrastructure-linked services. The CCDR estimates that if climate risks materialize, Rwanda's GDP levels can drop by 5 to 7 percent below baseline in multiple years by 2050, with negative impact on private consumption, exports and government revenues. During years of severe floods (e.g., a 100-year flood) the extreme event could reduce GDP by an additional 4.4 percentage points below the baseline scenario for that year. Climate change is also expected to slow the pace of structural transformation in Rwanda, compromising future economic growth and poverty reduction.

Climate actions, such as those specified in Rwanda's Nationally Determined Contribution (NDC) could benefit the country. The Country Climate and Development Report (CCDR) for Rwanda (World Bank Group, 2022) finds that the implementation of Rwanda's unconditional adaptation and mitigation commitments in its NDC (i.e., the actions the country plans to implement through 2030 using existing and planned domestic and external financial resources) would substantially dampen the impacts of increased weather variability on GDP. These NDC investments would boost industrial output and employment during project implementation compared to their baseline levels. The CCDR also concludes that conditional NDC actions (i.e., those implemented with non-domestic financing) would boost the capital stock above the baseline by more than 4% on average in the late-2020s and by 1% towards mid-century. Boosting sustainability and resilience would benefit from addressing the threats of climate change using a multi-faceted and whole-of-economy approach.

Fiscal space has deteriorated as expenditures have grown more rapidly than revenues, a trend exacerbated by the COVID-19 pandemic. Public debt has risen sharply compared to output, although sustainability risks remain moderate. Ensuring fiscal sustainability will require increasing public spending efficiency, mobilizing revenue, promoting a more efficient infrastructure spending system with greater private participation, and addressing the underlying challenges in human capital development.

CHAPTER 6
Potential of Natural Assets and Environment To Contribute to Climate Resilient, Greener and Inclusive Growth

Rwanda is expected to continue experiencing an increase in temperature, variability in rainfall and increased intensity in precipitation going forward (World Bank Group, 2022). Floods and droughts have increased in Rwanda over a 30-year period and Rwanda's Meteorology Agency attributes the unusual rainfall patterns to climate change (World Bank, 2023). The Country Climate and Development Report for Rwanda (CCDR) notes that Rwanda is recognized as vulnerable to climate change impacts—ranked 112 out of 185 countries in the 2020 Notre Dame Global Adaptation Initiative (ND-GAIN) Index.[1] In Rwanda, the effects of flood hazards have worsened as increased population growth and land scarcity have pushed people to settle in flood-prone areas. Landslides and droughts have resulted in increased human casualties as well as economic and environmental losses.

Climate change is likely to increase Rwanda's developmental risk and vulnerability on various fronts. The CCDR presents a detailed assessment of the impact of climate change on Rwanda's economy. It finds that the impact of floods on manufactured capital and assets is likely to increase over time under all climate futures, with the impact on agriculture being greater than the impact on built-up capital. In addition, the economy of Rwanda depends mainly on rainfed agriculture, which makes the country highly vulnerable to increased variability in rainfall frequencies and intensity, causing climatic hazards such as droughts, floods, extreme temperatures, and prolonged dry spells. However, with respect to specific crop yields, the responses to climate change are likely to vary by crop. Tourism, which is a significant contributor to foreign revenues is expected to be detrimentally impacted by climate change as warmer countries are likely to see a decline in tourism arrivals. Under a pessimistic climate scenario, Rwanda could experience a 20% decline in arrivals due to expected temperature increase. The increase in the intensity of the precipitation events will increase the exposure to landslides and the vulnerability of citizens. Vulnerability to urban flood risks will also be exacerbated by unmanaged urban growth and the subsequent degradation of natural resources and ecosystem services. The country is likely to experience future water resources challenges across different geographical areas that could hamper future growth and transformation in the country (World Bank Group, 2022).

Climate change poses risks for Rwanda's financial sector, primarily through the banks' exposure to disasters linked to natural hazards. As of June 2021, the financial sector assets were equivalent to 69.8 percent of GDP. The banks account for 66.9 percent of the assets, and microfinance institutions (MFIs) and savings and credit cooperative organizations (SACCOs) account for 5.6 percent.[2] Of the financial sector assets, mortgages for physical assets constituted 33 percent of total lending and are likely to be exposed to physical risks from natural hazards. The risks, however, are difficult to quantify with the available data. Other climate-sensitive sectors of the economy, such as agriculture, water, and energy, are a relatively small share of the total bank lending portfolio, and transition risks are possibly limited.

Boosting resilience against climate-related risks require efforts to improve adaptive capacity in multiple sectors. The CCDR calls for action in three priority areas, the first of which is on people and resource-oriented nature-smart development which includes water infrastructure development and management, soil-conscious conservation agriculture, and sustainable and productive forestry and collaborative management partnerships. Per capita water availability in Rwanda is still low, and disparities in access exist between urban and rural areas. Furthermore, water resources in Rwanda have experienced increased degradation as well as increased demand. Water degradation is increasingly due to siltation of water bodies caused by land degradation, contamination through urban and rural use, and poor wastewater management. Bolstering resilience in the water sector would benefit from ensuring water availability by expanding water storage through infrastructure development. Considering the variability in precipitation, complementing built-storage with natural storage (through wetland restoration and management) will ensure sustain benefits from water resource management. Reducing the degradation

of water bodies from siltation and pollution will also be important. Cost-effective measures to reduce siltation of water storage infrastructure are key measures against degradation. Additional efforts promoting sustainable waste management, namely through wastewater treatment, is also critical and can generate reductions in greenhouse gas (GHG) emissions.

The CCDR also recommends promotion of climate-compatible urbanization and embarking on a low-carbon energy and transport pathway. The aim is to reduce the vulnerability of the average urban household to climate hazards by ensuring key sectors in urban planning, zoning, and building codes avoid unintended lock-in impacts in the energy and transport system. Climate-compatible urbanization also requires the capability to conduct flood modeling and landslide susceptibility to determine how to best zone cities and protect existing critical infrastructure within floodplains. Interventions on low-carbon energy and transport solutions for climate-smart development are oriented towards enabling Rwanda to maintain a low-carbon growth trajectory. The CCDR recommends improving private sector participation and crowding in private sector investment for high-impact projects.

The main climate change challenge for Rwanda's financial system is to ensure the system continues to develop in a manner that is aligned with the vision of a low-carbon, green, sustainable economy. Rwanda's Green Growth and Climate Resilience Strategy (GGCRS) notes that one of the major impediments to the adoption and scale-up of green technologies is the lack of finance for such investments (Government of Rwanda, 2021a). Rwanda has recognized the need for suitable financing mechanisms and facilities to acquire, use and transfer green technologies. This inevitably requires Rwanda to undertake an ambitious low carbon and climate resilient pathway by ensuring that all sectors of the existing economic model are as efficient and optimized as possible. Therefore, Rwanda must transition from short term project to programmatic approach/platform financing. This underpins speed and scale through enhanced partnerships for leveraging additional and innovative finance from climate funds, the private sector, enhanced domestic climate finance, and other innovative financing mechanisms crucial to demonstrate impact and sustainability of climate action.

Considering the wide-ranging nature of the recommended actions for addressing climate change, these climate actions have been integrated into different chapters in the report. More specifically, there is a discussion on climate change and resilience, including on trade (chapter 3), urbanization (chapter 4), and agriculture (chapter 5). Box 6.1 highlights the key climate actions proposed in other chapters in this report.

Land and nature play an important role in Rwanda's current and expected to be important in future growth and efforts to be resilient to climate change. Rwanda's structural transformation has involved a shift towards services with gains in productivity in "traditional" manufacturing being limited. Agro-industry and horticulture value chains and tourism (dominated by nature-based tourism) are key contributors to the rapid growth in services. With 70 percent of Rwanda's workforce involved either directly or indirectly in agriculture, investments for improving agricultural productivity will need to also be climate resilient. Such investments would benefit from complementing capital investments with nature-based solutions. The rationale for such complementary investments is well illustrated with the case of investments in irrigation infrastructure - resilience gains from investments in irrigation can also create risks if the investments exceed capacity and create trade-offs across water demand, and result in stranded assets. Nature-based solutions can be a complementary investment that can support long-term storage and reduce the negative impact of floods, droughts, and soil erosion on agricultural productivity. Another example is the link of nature-based solutions and capital investments in nature-based tourism (NBT). Infrastructure investments for boosting urban productivity also benefit from investments in the nature-based solutions as they are often cost-effective investments for climate resilience.

Box 6.1: Highlight of key climate actions proposed in other chapters in this report

The reliance on Rwanda's growth to climate sensitive sectors exposes the country to climate change risks that can undermine the delivery of rapid and inclusive growth. Resilience to the potential impacts of climate change and benefits from opportunities presented by global trends to decarbonize supply chains reduce global carbon emissions call for a holistic approach; an approach that mainstreams climate considerations across sectors and the overall economy. The climate considerations highlighted in chapters, other than the current chapter, are summarized below:

• The chapter on agriculture discusses the importance of CSA. The recommendations for implementing CSA include:

1. Promoting investments in improved on-farm technology to increase productivity and adapt to climate change
2. Developing start-up programs for cold chain infrastructure

The chapter on agriculture also highlights the importance of promoting the uptake of agriculture insurance and collaborating with agroindustry to develop new products for different value chains in the sector (promoting value addition and diversification).

• The coverage on urbanization underscores the importance on

1. Investment programs for urbanization accounting for climate change and environmental challenges
2. Ensuring that efforts to promote rapid urbanization are also climate compatibility—this could include, for example, prioritizing zoning to avoid settlements in flood-prone areas, investing in resilient infrastructure (e.g., drainage, nature-based solutions for flood-attenuation, and effective solid waste management to prevent drain blockage), minimizing growth of unplanned settlements and increasing the resilience of urban households to climate change hazards, and implementing land readjustment.
3. Maintaining a low-carbon urban footprint by investing in BRT and e-mobility

• In the context of MSME development

1. Provision of skills development programs that respond to the needs of priority economic sectors with strong job creation potential should support the development of specific skills associated with climate change adaptation and decarbonization—for example, skills in developing and using the technologies associated with climate smart agriculture, in deploying and installing renewable energy, in developing carbon market projects and becoming a service provider (verifier) for carbon market. Recommendations include developing blended and online learning material for 'green' skills and ensuring the curriculum of TVETs and secondary and tertiary education include content that support 'green jobs'.
2. Ensuring that efforts to expand the digital network is resilient to climate shocks and uses the latest climate smart and energy efficient network technology.

- With regards to internalizing climate change in trade-related measures, the chapter on trade recommends:

1. Accelerating efforts to diversify exports, as climate shocks can undermine Rwanda's competitiveness in specific export markets
2. Leveraging foreign investment to access global value chains and benefit from the associated knowledge, technology, and skills transfers.
3. Adopting regulations that support climate goals to create a level playing field for foreign investments in low-carbon technologies, services, and infrastructure (OECD, 2022).

The discussion on social protection highlights the importance of a climate responsive social protection program and recommends:

- Building flexibility into the existing social protection programs to for mitigation, adaptation, and response to shocks, enabling the program to offer well-functioning adaptive social protection (ASP).

The CCDR highlights that nature-based solutions (NBS) can also be attractive to the private sector. NBSs are defined as actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits (World Bank, 2023). In Rwanda, NBS opportunities that could be attractive to private sector include conservation through ecotourism, reforestation and terracing on slopes to prevent soil erosion and intercropping. CCDR underscores the importance of using NBS to protect ecosystem services that help address climate change as the latter alters natural cycles that are key for many sectors. Ecosystem services, such as nutrient recycling, storm water management, and carbon sequestration need to be protected consider the synergies between these ecosystem services, sector productivity, human capital and green growth. For example, ecosystem services of water retention, storm water management and pollination make positive contributions to agricultural productivity.

6.1. Introduction

In Rwanda, natural assets offer both provisioning services (e.g., raw materials) and regulatory services (e.g., services that control water flow, erosion, sequester carbon etc.) for the economy. Despite their importance, global data indicates that the depletion of natural capital[3] has lowered gross national income (GNI) by a range of approximately 5.5 percent to 8 percent (World Bank, 2021). Unsustainable exploitation of these assets results in degradation and imposes a direct and indirect cost, setting back growth and affecting household incomes and livelihoods.

Inclusive and climate resilient growth in Rwanda's requires sustainable management of Rwanda's natural assets including land, water, forests, and biodiversity. As mentioned earlier, agriculture, NBT, and cities are important part of Rwanda's economy and depends on natural assets. Agriculture is dependent on land management practices, water, biodiversity (for pollination), etc. NBS that involve sustainable land management and reduce soil erosion are important for agricultural productivity as topsoil loss is estimated to be 25 tons per hectare per year. Soil erosion has increased by 54 percent since 1990 (NISR, 2019). In terms of soil erosion, an estimated area of 1,080,168 hectares (45 percent of Rwanda's land area) is at risk of topsoil loss. Soil erosion alone has resulted in the loss of 6 million tons of crops each year, valued at US$76 million (Rwf 76 billion). Nature-based tourism (NBT) is an important source of foreign exchange. Wildlife, which require healthy natural habitats, are the key natural asset for NBT. In urban areas, NBS offer cost effective measures to reduce the impact of climate events such as flooding.

The Government of Rwanda has put in place proactive policy measures to manage its natural assets and address climate change, yet implementation challenges linger. As a result, Rwanda is still experiencing:

1. Soil erosion due to unsustainable land cover change and land use practices. Unsustainable land cover change and inadequate land management is exposing the agriculture, energy, and urban sectors to climate risks (as a result of loss of nutrients in topsoil, increased risk of landslides during periods of heavy precipitation, and siltation of water storage infrastructure). The loss of topsoil is estimated to result in a societal loss of between US$476 and US$798 million per year (NISR, 2019).
2. Unsustainable conversion of native vegetation (e.g., trees and forests, and wetlands). Deforestation and forest degradation negatively impacts wildlife habitat, results in carbon emissions and lowers the potential for sustainable timber production. In urban areas, loss of wetlands and green lanes for water storage and flood control, increase flood risks in the built-up areas.

The Government of Rwanda's ambition to sustain high growth rates and ensure inclusive and resilient growth will require, among other things, investing in natural assets (especially NBS) to augment resilience to climate change. The importance of restoration is reflected in various strategic Government documents including the Revised Green Growth and Climate Resilience Strategy (revised GGCRS, approved/ adopted by Cabinet in February 2023) and the 2020 revised NDC. The revised GGCRS prioritizes

four thematic program areas and two programs of action. The four thematic program areas are: (i) green industrialization and trade; (ii) green urban transition and integration; (iii) sustainable land use and natural resource management; and (iv) vibrant resilient green rural livelihoods. The revised NDC details adaptation and mitigation measures together with costed investments, program, and policies. All measures are carefully designed to mutually reinforce adaptation and mitigation objective and contribute to meeting Rwanda's development objectives. These priorities are translated into national development sector priorities, including in the agriculture sector, that have a strong focus on reducing the losses from extreme weather events and climate change.

Designed and implemented appropriately, NBS can also contribute to mitigation of GHG emissions and inclusive growth. Although Rwanda's contribution to GHG emissions is low (i.e., 0.003 percent to global CO2 emissions),[4] efforts to reduce emissions sends positive signals to markets concerned about decarbonization and can help mobilize climate finance. The agriculture, forestry, and other land use (AFOLU) sector accounts for approximately 74 percent, or 6.26 MtCO2e, with emissions from livestock contributing the most (approximately 29 percent of total emissions in 2015). Energy accounted for 18 percent. The CCDR analysis revealed that if Rwanda implemented its NDC and invested in forests Rwanda could lower its GHG emissions beyond what is committed in its NDC without compromising growth by 2030 and dampen GHG emissions out to 2050. Rwanda could further reduce its emissions by deploying low carbon energy and transport solutions and improving waste management (World Bank Group, 2022).

This chapter discusses how investment in and management of NBS and the environment can reduce the Rwanda's exposure to climate risks and environmental degradation, and opportunities for mobilizing climate finance to support these and other key climate actions. It will present the expected climate future for Rwanda and the current level of degradation of natural assets. The chapter also briefly discusses the relevant NBS for Rwanda, and the potential for select NBS to contribute to growth—directly through the creation of jobs and revenue for the country and indirectly by buffering the impact of climate change on key sectors of the economy. The chapter also provides a brief coverage of options for maintaining a low-carbon growth path. The chapter highlights the tested technical and institutional measures that need to be further supported, and financing measures needed to support the scale up of existing pilots and roll out of national initiatives that contribute to resilience and low-carbon growth path. Linked to the latter, the chapter presents innovative approaches for mobilizing financing.

6.2. Climate futures for Rwanda and their economic implications

Climate change is expected to significantly increase temperatures in Rwanda, and to increase the frequency of large rainfall events, contributing to flooding that will damage infrastructure (e.g., a substantial share of the road network is vulnerable to landslides), reduce agricultural production, and endanger human safety.

A range of climate models converge on increases in temperature affecting Rwanda. Under different climate futures, the projected number of days with a maximum temperature exceeding 25°C is projected to increase from approximately 220 days per annum (p/a), based on the historical reference period, to between 279 days p/a, and 307 days p/a by 2050 for the optimistic and pessimistic scenarios.[5] The models project that the most significant increase in the number of days over 25°C are expected to occur from October to May, a time coinciding with rainfall and planting seasons for much of the country (World Bank Group, 2021). Although the projected increases in temperatures for Rwanda through mid-century are not expected to surpass critical biophysical or extreme heat thresholds, Rwanda's broader climate is warming.

Climate change is expected to increase the frequency of extreme weather events affecting Rwanda. The frequency of the largest precipitation events was calculated for the events that are expected to have a return period of 1, 5, 10, 20, 50 and 100 years, under an average and pessimistic climate scenario (see Figure 6.1 for 1-in-100-year flood). Across the five provinces of Rwanda, frequency of extreme precipitation events is expected to increase under

the pessimistic climate scenario over time. This implies a higher frequency of occurrence towards the middle and end of the century. For example, the large precipitation event that is normally expected to occur every 50 years could occur every 45 or 37 years in an average or pessimistic climate scenario in the 2020–49 period.

These anticipated climate futures are likely to impact Rwanda's GDP (see Figure A6.1), developmental risk and vulnerability in terms of physical capital, water, agriculture, and labor. The impact of floods on physical and produced assets is likely to increase over time. In terms of physical capital estimated that in 2015 approximately 45 percent and 39 percent of paved and unpaved national roads were exposed to landslides, respectively. In addition, 74 percent of district roads were also exposed to landslides (MIDIMAR, 2015). Most of the road network in Rwanda is currently unprepared for current and future weather events. In addition, the climate futures are likely to create a situation in which Rwanda is likely to experience a water supply gap and unmet demands across all sectors. According to the Rwanda CCDR, the baseline scenario indicates an increase in water demand of 83 percent by 2050 relative to 2020, while a more ambitious growth path (i.e., Rwanda's Vision 2050) will require an increase in water demand of 1,140 percent. Even after factoring in efforts to mitigate the potential impacts of climate change on water availability (i.e., a Water Resilient Vision 2050) there will be an increase in water demand of 740 percent by 2050 over 2020 levels. The anticipated impact of climate change on water demand underscores the importance of water storage and better water resource management. In terms of produced capital, the most notable impact is on agriculture under a pessimistic climate scenario, with the impact on agricultural yields varying by crop and whether under the pessimistic climate scenario, the conditions are wetter or drier.[6] The direct effect of temperature rise on labor productivity is expected to be relatively modest. However, climate change has an indirect impact on labor productivity by having a detrimental impact on human health.

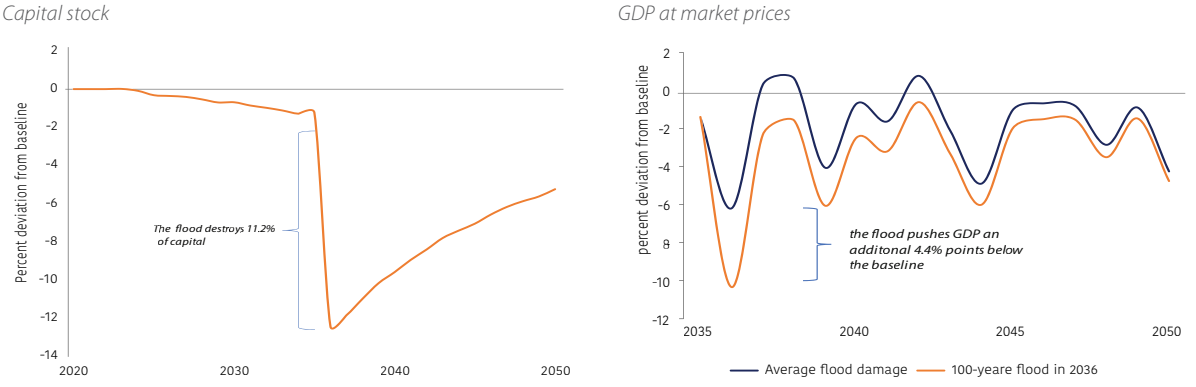
6.3. Status of Rwanda's natural assets and implications for nature based solutions

Rwanda's economy is heavily dependent on natural assets, which are being degraded by excessive exploitation and climate change. The reduction of vegetation cover owing to conversion of land to agricultural use has increased runoff and soil erosion, which combined with inappropriate settlements and unsustainable agricultural practices has impaired agricultural productivity. Unplanned land use also has degraded natural assets in urban areas.

6.3.1. Status of Rwanda's natural assets

The Rwandan territory is covered with diverse forms of natural capital many of which have been degraded due to anthropogenic factors. The ecosystems across Rwanda include mountain rainforests, gallery forests, savannah woodlands, wetlands and aquatic forests and agroecosystems. The natural capital of Rwanda has been changing over the past decades. A review of the components of natural capital stock reveal that croplands[7] have been expanding at the expense of other natural assets. Examining Rwanda's land accounts, reveals that cropland area (annual + perennial) increased by approximately 220,000 hectares (ha) from

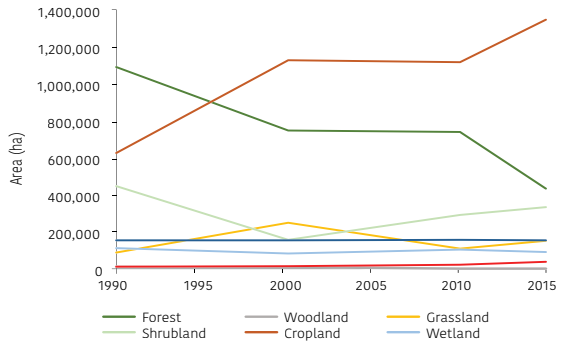
Figure 6.1: Damages and Losses from a Single 1-in-100-year flood under an average climate scenario



Source: World Bank Group, 2022

2000–15, or 16 percent of the area in 2000. This suggests that the increased cropland value (which increased by 45 percent between 1995–2018) is a result of primarily increased area and some increased productivity. The expansion of area under cropland, however, is often occurring at the expense of Rwanda's forests, savannas and wetlands. Despite this, there are indications that forest cover has stabilized and even increased in recent years. For example, Rwanda's Forest Cover mapping report showed an increase in forest coverage between 2009 and 2019, allowing the country to reach its target of 30 percent forest coverage. This increase was largely driven by the expansion of plantations rather than natural vegetation cover.

Figure 6.2: Changes in the area of broad land cover categories between 1990 and 2015



Source: Wilson, Turpie and Letley (2023). Using data derived from SERVIR and land cover data

Deforestation and land degradation in critical watersheds and water catchments has been driven by conversion of the land to agricultural. The land area with high vegetation cover (forests, woodlands, grasslands, and shrublands) declined from 1.6 million ha in 1990 to only 914,000 ha in 2015, with croplands increasing from 614,000 ha to 1.3 million ha. Similarly, analysis of Global Land Analysis and Discovery (GLAD) land cover data indicates expansion of cropland between 2000 and 2020, though the increases are slightly less pronounced than what is reported in the accounts. However, there are indications that deforestation has stabilized in Rwanda's Forest Cover mapping report, which notes that tree cover (i.e., rainforest, plantations, shrubland and savanna) increased from 670 000 ha in 2009 to around 720 000 ha in 2019. Disaggregating forest data by habitat type reveals that the increase is due to expansion of plantations and a modest increase in rainforest area. Conversely, there is a significant decline in savanna and shrubland area potentially reflecting the expansion of agriculture and settlement. The large losses in shrubland and savanna result in an overall decline in the coverage of natural woody habitats between 2009 and 2019 by around 11-14 percent while plantations expanded by 30 percent over the same period. The results underscore the importance of considering changes in the extent of the underlying habitat classes to capture dynamics that are missed when looking at aggregate changes across the broad definition of forest used in the Forest Cover Mapping report.

A concerted effort will be needed to maintain this progress towards reducing deforestation in the face of future increases in demand for agricultural land and woody resources. A consequence of reduced vegetation cover is increased runoff and river flows, increasing the water yield (NISR, 2019). Reduced vegetation has also resulted in decreases in infiltration, and depletion of groundwater reserves (a form of water storage). Increased runoff often also means greater soil erosion and soil loss, which has consequences for agricultural productivity. The impact of erosion on the agrarian population of Rwanda is vast, compromising its social protection and increasing poverty and increasingly threatening food security. The cumulative effect of watershed destruction, inappropriate settlements, and inappropriate agricultural practices have led to more siltation, sedimentation, pollution, and the risk of invasive aquatic weeds. Deterioration in water assets is further exacerbated by climate-related impacts on water resources (World Bank Group, 2022).

The impact of natural asset degradation extends to urban areas. Unplanned land-use change in urban centers threatens wetlands and results in pollution and poorly managed waste (wastewater and solid waste). The consequence of natural asset degradation includes increased flood risks, biodiversity loss, and an increase in the vulnerability of people in urban areas to climate events (including severe rainfall, landslides and heatwaves). The 2018 floods caused damage to physical assets valued at Rwf201 billion and economic losses of Rwf21 billion (2.4 percent and 0.3 percent of GDP, respectively) (Government of Rwanda, 2019). Urban areas also endure the consequence of the confluence of inadequate land management and climate change on agricultural

production, as it can result in food price increases. For example, prices of basic foods rose significantly during a particularly long drought in 2016, affecting all major cities. Secondary cities that are hubs for agro-processing (e.g., Nyagatare) also suffer from the loss of crop and livestock as it has implications for production in the agro-processing sector located in the cities.

6.4. Contribution of nature based solutions to climate resilient and inclusive growth

Measures to restore natural assets / NBS through forest restoration and improved land use have generated positive benefit-cost ratios, especially when combined with and economic activities. For example, interventions to restore habitats and conserve biodiversity for NBT, if done in areas where soil erosion is also a problem, can generate downstream benefits by reducing erosion, and global benefits by increasing biomass-based carbon storage. Given the long history of land deterioration outside protected areas, NBS to restore these degraded landscapes could contribute to improving Rwanda's low-quality habitats and augment the NBT offering in these areas.

6.4.1 Investing in NBS that can improve biodiversity habitat could also generate climate relevant ecosystem services soil erosion control and carbon sequestration

In Rwanda, implementation of a range of planned and proposed sustainable land management interventions (sometimes referred to as NBS) could offer meaningful benefits for inclusive and climate resilient growth. Scenario modeling work was done to assess the potential impact of implementing nature-based actions that are proposed in various government commitments and are meaningful for NBT and preservation of ecosystem services that help address climate change. The actions were primarily associated with improved biodiversity protection, natural habitat restoration and more sustainable agricultural and urbanization practices. It included extending the protected area network, restoring degraded natural vegetation, and improving vegetation cover in critical areas such as riparian buffers and areas with high erosion risk. The scenario modeling recognized future population growth and included expansion of cropland and assumed continued settlement expansion. The analysis compared the generation of ecosystem services that are important for climate resilience under a business-as-usual (BAU) scenario, which was defined as no changes in policy or interventions to address the existing threats to habitats and biodiversity, with a scenario which included implementation of improved landscape management and restoration (referred to as an aspirational scenario). The latter included expansion of the protected area network, the full roll-out of erosion control and restoration measures proposed in the Catchment Restoration Opportunity Mapping (CROM) exercise, improving vegetation cover in critical areas such as riparian buffers and steep slopes, and plans for agricultural intensification and urban densification as detailed in the National Land Use and Development Master Plan (NDLUMP).

The average biodiversity habitat quality could decline by 8 percent under a BAU future relative to current habitat quality. This was largely because of the extensive habitat transformation that has already occurred in Rwanda as reflected in the low overall average habitat quality score for the country of 0.28.[8] Most of the land cover changes under BAU scenario occur outside of protected areas, where remaining natural habitat patches are already generally small with low habitat quality, thus their transformation makes only a modest contribution to further declines in habitat quality. A few main "islands" of higher quality habitat remain inside protected areas (Table A6.3).

Landscape restoration efforts in the aspirational scenario could have a positive impact on biodiversity habitat quality while improving resilience to climate change. The aspirational scenario could improve habitat quality by 21 percent by 2050 relative to BAU and improve it by 9 percent relative to current land cover. While an improvement, the overall average habitat quality score of 0.31 is still low and underscores the urgency of controlling cropland expansion at the expense of natural habitats. The current conditions reinforce the importance of prioritizing conservation of existing biodiversity habitat in protected areas and investing in intensifying climate resilient agriculture in order to increase the area available for landscape restoration.

As Rwanda examines options for expanding its NBT offering, it should consider how such investments could improve habitat quality and augment climate resilience concomitantly. Analysis by African Parks reveals that the level of domestic visitation, combined with people staying, points to the need for improved visitor management strategies which could be used to spread demand and avoid crowding. A key part of such visitor management strategy is diversification of the NBT offerings. Expanding NBT offerings through expansion of nature reserves and buffer zones around protected areas could create opportunities for erosion control, carbon sequestration and local water storage. The latter can also help create watering holes that are important for the resilience and survival of wildlife to drought conditions. Expansion of habitat through a multifunctional approach to landscape restoration and consideration for community engagement and benefit-sharing could augment the contribution that investments in expanding the natural asset for NBT has on augmenting climate resilience in the investment area.

Box 6.2: Nature based tourism in Rwanda's economy

NBT is defined as tourism to experience natural resources in a wild or undeveloped form, is estimated to have constituted 80 percent of the visitors entering Rwanda for leisure. Rwanda's key nature-based assets for NBT include three excellent tourism destinations—Volcanoes National Park (VNP) which has the habitat for mountain gorilla and is part of the UNESCO Volcans Biosphere Reserve), Akagera (ANP) and Nyungwe (NNP) which provide habitat for charismatic wildlife including the 'Big Five', and sites of scenic and scientific importance. Together these offer tourists the opportunity to visit diverse landscapes that provide habitats for diverse wildlife species has grown rapidly and generated substantial foreign exchange earnings. Available statistics from RDB (see Figure A6.3) indicate that the number of NBT tourists overall are relatively modest compared to total number of tourists, yet among the NBT tourists, foreign NBT tourists are relatively important share. The revenue from these NBTs visiting Rwanda's three main national parks increased from approximately US$8.20 million in 2008 to US$27.3 million in 2022.

Tourism generates substantial economic activity in and spillovers to other sectors. Hotels and other types of accommodation generate economic activity through backward and forward linkages to agriculture, fishing, and manufacturing. Tourist services and tourists themselves, through personal spending in and outside the tourist accommodation, increase the demand for transport, banking, insurance, telecommunications, medical, security and retail services, arts, entertainment, and recreation as well as for handicrafts and other souvenirs. Tourism leads to the creation of businesses related to water, mountain and adventure sports and other recreation activities, as well as every facet of travel and transport. Tourism linked services generated more than 43 percent of non-agricultural jobs.[9]

NBT plays an important role in job creation, especially in locations where there are few employment alternatives. The overall tourism sector has been a major source of quality jobs in the formal sector in Rwanda. The latest WTTC data ("total contributions of travel and tourism to employment") suggests that tourism employment fell from 385 thousand in 2019 to 262 thousand in 2020, and recovered to 302 thousand in 2021, still below its pre-pandemic level. Based on annual Labor Force Survey (LFS) data, total employment in the tourism sector fell from about 10.4 percent of employment in 2019 (pre-COVID19 pandemic) to 8.2 percent in 2021 (post COVID19 pandemic).[10] Yet, more than 24 percent of jobs in accommodations and food services are formal, compared to 13.5 percent for national average. The accommodation and food sectors are also more likely to employ women compared to the rest of the economy. While most tourism jobs are mainly urban and created in Kigali and districts with relatively lower unemployment and lower poverty compared to national average, formal NBT jobs can engage local community members in other parts of the country. For example, the Porters Cooperative operating in Kinigi (VNP) is composed of former poachers (Benitez et al., 2021) and in ANP, 50 percent of the park revenue in 2019 (US$1.25 million) paid salaries to 273 staff. Most (90 percent) of the people employed in ANP are Rwandan.

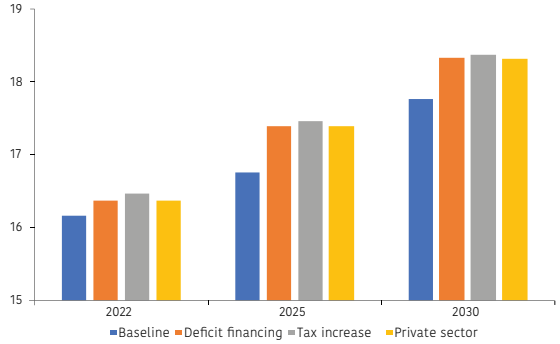
Tourism also has a high job multiplier effect in Rwanda's economy indirect connections to employment-generating activities in other economic sectors (e.g., agriculture, hospitality, transportation, etc.). A preliminary World Bank analysis of this multiplier effect indicates that for every US$1 million (about Rwf1,050 million) that NBT activities inject into the economy, an additional 1,328 new jobs are directly and indirectly created.[11] These are spread across the transport, accommodation, and hospitality sectors and generated across the country, with the multipliers being found mostly in Kigali, followed by the eastern part of the country, and less prominently the western part (Figure A6.3).[12]

Targeted investments to secure Rwanda's natural capital for expanding its NBT sector offerings can yield positive outcomes on fiscal sustainability and growth, regardless of financing options (Figure 6.3). Using the Rwanda Biodiversity Financial Needs Assessment (BFNA) as a proxy for the financing needs for improving habitat for NBT, a rapid analysis was conducted using a computable general equilibrium (CGE) model. The financing costs for implementing the NBSAP II are estimated at US$97.5-107.7 million over 2019–2029/30 (Masiga & Uwababyeyi, 2018). BIOFIN identified the finance needs for implementing NBSAP II over two timelines (Masiga and Uwababyeyi, 2018):[13]

1. 2018/19 to 2023/24 for the NST-1, the aggregate finance needs were estimated at between Rwf37.5 and 41.01 billion (equivalent to US$44.3 and 48.4 million)
2. 2018/19 to 2029/30 for the Sustainable Development Goal (SDG) planning period, the aggregate finance needs were estimated at Rwf82.6 to 91.2 billion (equivalent to US$97.5 and 107.7 million).

The CGE results revealed that if the entire amount of the BFNA was financed by borrowing, public debt would decrease in 2025 from 74 percent of GDP in the baseline to 70 percent, and in 2030 from 62 percent in the baseline to 58 percent.[14] Relying in part on private sector to finance the BFNA can generate a greater increase in GDP than relying solely on public resources.

Figure 6.3: The impact on debt of investing in restoring and managing habitat for NBT



Source: World Bank staff estimate as cited in World Bank, 2023a

Investments to improve habitat quality would benefit from complementary efforts to mobilize private sector investment in resilient capital infrastructure for tourism.[15] Greater private sector investment could potentially create additional jobs, including in lagging regions of the country. In the past, growth in Rwanda's construction sector benefited from the construction of hotels. The number of hotels and similar establishments increased by 82.8 percent between 2013 and 2019, reaching 722 in 2019. If the government plan for NBT infrastructure were implemented through a public-private partnership (PPP), having a significant share of private investment would result in a bigger gain than in any public financing option as the latter would require borrowing or imposition of taxes.

The recent Law no 001/2023 of 13/01/2023 Governing National Parks and Nature Reserves gazette on February 2, 2023, provides a robust legal basis whereby there are opportunities for private sector to engage the diversification and expansion of opportunities for NBT. The Law enables private sector engagement in the collaborative management of national parks and nature reserves. It also provides a legal basis for engaging communities that reside in the neighborhood of national parks and nature reserve to play an important role in environment conservation. A third aspect of the law that noteworthy is that it allows for a private entity to own a nature reserve and its buffer zone in accordance with provisions of this Law, creating opportunities to private investment in managing the natural assets that are vital for NBT.

In addition to the economic benefits from NBT, the aspirational scenario could substantially reduce annual soil erosion by 34.2 million t relative to BAU, a reduction of 49 percent. The amount of eroded sediment reaching watercourses could decline by 5.1 million tonnes (t), a 57 percent reduction in sediment export relative to BAU (see Table A6.1). Another benefit is from biomass carbon storage. According to biomass mapping studies, Rwanda has managed to increase its stocks of carbon through tree planting efforts on farmland and forest restoration in recent years. Assuming these current levels of tree planting continue, total storage of carbon in vegetation biomass could increase by around 3.9 million t under BAU, a 16 percent increase over current levels. Additionally, ongoing tree planting efforts could increase soil carbon storage by around 7.9 million t. While these efforts are

commendable, further increases in tree planting on farmland and restoration of natural habitats under the aspirational scenario could result in even larger gains. The proposed interventions could increase total storage of carbon in vegetation biomass by around 9.1 million t over current levels, an increase of 38 percent relative to current, and 18 percent relative to BAU. Additionally, more extensive and denser agroforestry under the aspirational scenario could increase soil carbon storage by around 11.3 million t, around 44 percent greater than the gain in soil carbon under BAU.

6.4.2. In urban areas, NBS can contribute to flood attenuation

Nature based solutions are often an important part of efforts in urban areas to reduce flood risks. Urbanization plays a major role in Rwanda's strategy to facilitate the transformation of the national economy to become a developed country and is expected to occur rapidly. The government aims to increase the urban population from the current level of less than 30 percent to 53 percent by 2035, and 70 percent by 2050 (Government of Rwanda, 2021a). Urbanization is projected to occur rapidly in Rwanda, underscoring the importance of accompany the growth with urban planning, zoning, and building codes. While urban planning includes considerations regarding the transport system, energy efficiency, and how to facilitate modal shifts towards zero-carbon transport modes, in the context of Rwanda, it should also assess the potential to use cost-effective NBS to improve climate resilience and sequester carbon.

NBS, such as wetlands restoration, augment infiltration capacity, retain storm water and reduce the speed of stormwater runoff while enhancing biodiversity, contributing to the resilience of the urban area. In the City of Kigali, wetlands that have been impacted by industrial uses and rapid urbanization. Wetland restoration can, in addition to helping flood attenuation, contribute to improving water quality, enhance habitat for biodiversity, and provide socioeconomic benefits. Efforts to restore the wetlands in City of Kigali are expected to avert damages in sectors as diverse as agriculture (based on reduced flood risk in downstream areas) and transportation. For transportation, if the NBS are complemented with efforts to upgrade bridges/culverts in flooding hotspots around the city, as much as 30 percent of transport related flood risk could be averted. The design of the rehabilitation efforts, if done in a manner that factors in recreational activities, and aesthetic and amenity values, could attract private investment in recreational facilities and infrastructure that augment the access of wetlands to local communities and tourists. Wetland restoration also assists with protecting existing carbon stocks and increasing vegetation cover. In the Second Rwanda Urban Development Project, financed by the World Bank, the net present value of avoided costs under two different flood frequency scenarios ranged from US$ 45 million to US$ 90 million.

Rwanda performs well on considering climate change in public investment planning, and could strengthen the operationalization of these plans, including in project appraisal phase. Integrating climate considerations in the project appraisal would be beneficial for urban development (e.g., in solid waste management, mobility, industrial zones, housing and sanitation) and help reduce unintended consequences (both in terms of carbon emissions and exposure to climate risks). It would also help ensure climate-informed planning results in tangible outcomes and lower climate change related repair and disruption costs. NBS, that offer regulating services (e.g., regulating water flows), can reinforce design and technological measures to augment climate change resilience.

6.4.4. Nature based solutions can augment the country's wood supply

Sustainable forest management is a form of NBS that can contribute to carbon sequestration and erosion control while contributing to Rwanda's economy by expanding its wood supply. Rwanda is a wood deficit country and sustainable wood supply is well below the current wood use and bridging the gap would require both improved management of the existing production forests and the use of improved and more productive genetic material. With appropriate implementation of the National Forest Policy (Ministry of Natural Resources, 2017) and the Forest Sector Strategy Plan (FSSP) for 2018–24 (Ministry of Lands and Forestry, 2018), there is an opportunity to increase sustainable

wood supply. This needs to include both technical and institutional investments and changes: forest management needs strengthening, improved genetic material needs to be introduced and tree densities increased in agroforestry systems. Increasing access to and use of fuel-efficient stoves and sustainable energy sources would reduce demand for wood. Majority (68 percent) of forests plantations/ woodlots in Rwanda belong to private smallholder owners. The woodlots are very fragmented and often severely degraded (for example due to overreliance on copping), yielding less than a 1/3 of their yield potential ((4-7 m3/ha/year compared to 10-12 m3/ ha/year in optimal standard). This is due to poor forests management practices, coupled with lack of capital investments in reconversion of very old forest stamps.

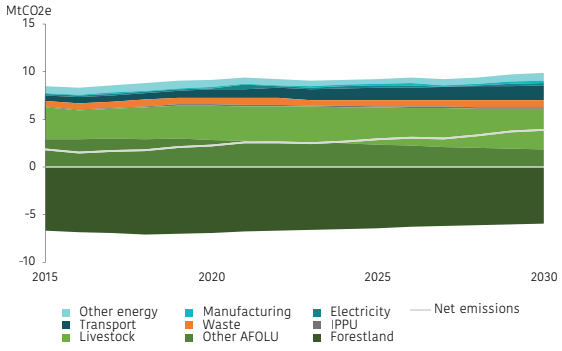
Both the 2018 Forest Policy and 2018–24 FSSP emphasize the role of the private sector and forest owners' collaboration. The FSSP recognizes that most forest stands are too small to sustain an economically viable operation. Incorporating these into larger scale economically viable groupings has been frustrated by lack of essential inventory data and by an absence of a suitable owners' organization structure to manage their individual and collective interests. This could be alleviated through implementation of the measures in the Strategy such as facilitating organization of smallholders into suitable Forest Owners Associations (FOA) and support their capacity building in operational and financial planning and management. To further motivate private sector investment in the timber industry it would be important to support for growing more tree species that are valuable and compatible with the climate such as species that contribute to more carbon sequestration and that can produce good construction material. Increased production volumes and improved raw material quality would also help to develop the wood processing sector in Rwanda. Equally helpful for private sector engagement is providing grants through local investment vehicles for monitoring, reporting, and verification (MRV) efforts in the medium to long-term.

6.5. NBS can contribute to maintaining a low-carbon development pathway

Taking steps to improve resilience, for example reducing the pace of converting forests to croplands, will also help to reduce greenhouse gas emissions. There is considerable technical potential to achieve deep cuts in emissions while still achieving ambitious development targets. The impediments to reducing emissions are largely overcoming limits on capacity and obtaining sufficient investment.

In Rwanda there is value in investing in maintaining a low-carbon development pathway[16] as it can improve the quality of growth[17] and involve accelerating implementation of actions that boost Rwanda's resilience to climate risks (i.e., landscape restoration and other nature-based solutions). The primary source of GHG emissions in Rwanda is livestock (see Figure 6.4). However, forests serve as a source of CO2 removals (see negative numbers in Figure 6.4). The removals from increased forest restoration and improved forest management could also create space for Rwanda to transition other sectors more gradually to a lower-carbon footprint. Rwanda has prioritized transitioning households from using biomass for domestic cooking to cleaner energy sources, which is central to facilitate augmenting removals from forests. There are a range of solutions being deployed to facilitate this transition and the government could leverage private sector and climate finance to accelerate the process.

Figure 6.4: NDC emissions profile, 2015–30, all sectors



Source: (Government of Rwanda, 2021b) (Government of Rwanda, 2020)

A series of mitigation scenarios show significant technical potential for Rwanda to achieve deep emission cuts across all sectors, while advancing on its economic growth agenda (World Bank Group, 2022). Rwanda can achieve even greater reductions in GHG emissions by implementing changes to energy use over the coming decades. This could include a combination of fuel switching to lower-carbon energy sources (for example, from peat, diesel, and gasoline to electricity, solar energy, and

lake methane), fuel efficiency and fuel switching in the transport sector, and improved operational efficiency. Efforts to promote sustainable waste management measures could also contribute a significant share to overall mitigation. Technologies such as landfill gas utilization, waste-to-energy, composting and wastewater treatment alongside reduction, reuse, and recycling policies can assist with these changes.

The challenges to maintaining a low carbon growth path are mainly associated with overcoming investment hurdles and capacity needs.[18] The barriers to mobilizing private sector engagement in the widespread roll out of low-carbon measures are policy, market and institutional. An example of a policy related barrier includes the import duties on renewable energy appliances. Similarly, an example of a market related barrier includes the need to buffer the risks associated with large upfront investments needed for commercially viable energy providers to become involved with the grid energy. An institutionally related barrier is the absence of needed skills to promote the use of greener technologies—for example, the limited technical capabilities to roll out infrastructure and trained mechanics for potential new electric vehicles. Financing is also a challenge and requires mobilizing financing from equity investors and leveraging blended finance to make the capital investments needed to facilitate a low-carbon growth path.

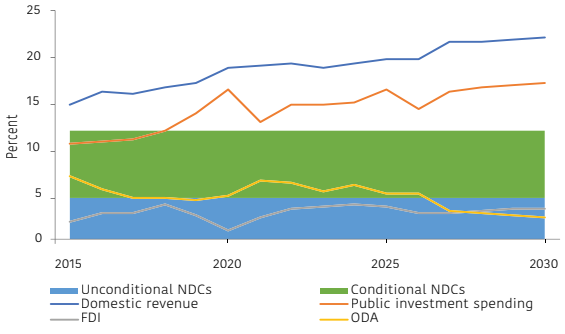
6.6. Mobilizing climate financing for bolstering resilience to climate change risks and maintaining a low-carbon development pathway

Meeting Rwanda's NDC commitments will require substantial resources, equivalent to 8.8 percent of GDP per year from 2020 to 2030. Mobilizing a wide range of innovative debt and non-debt instruments could help mobilize climate finance. Financing needs could be also reduced by shifting existing expenditures to more climate-friendly projects, and shifting taxes, subsidies and transfers to favor climate resilience. Strengthening public financial management (PFM) and public investment management (PIM) could provide additional and intermediate opportunities to advance Government's efforts to implement climate resilient measures and promote low-carbon development.

The Rwanda CCDR assessed that implementation of the climate actions presented in Rwanda's 2020 NDC, will attenuate economic losses from climate change and enable the country to realize its broader economic development objectives. Rwanda CCDR simulations of the NDC implementation also underscore the challenges associated with financing these actions (see Figure 6.6). The GoR estimated that implementing the projects to meet unconditional NDC commitments would cost US$4.2 billion between 2020 and 2030. Adding the measures needed to meet conditional commitments, would raise the total cost to US$11.0 billion. This is equivalent to spending an average of 8.8 percent of GDP each year through 2030—exceeding the recorded and projected inflows of official development assistance (ODA) and FDI between 2015 and 2030—and representing a large share of domestic revenue collection or public investment spending during the same period.[19] Given Rwanda's limited fiscal space, identifying additional sources of financing—through policy, debt, and non-debt instruments to scale climate

Figure 6.5: Projected NDCs costs compared to 2021 fiscal and external flows

	Unconditional	Conditional	Total
	(Millions of US dollars		
Mitigation	2,010	3,667	5,677
Adaptation	2,145	3,218	5,364
Combined	4,155	6,885	11,041
Avg. annual share of GDP, 2022-2030	3.3%	5.5%	8.8%
Share of 2020 GDP	43%	71%	114%



Source: World Bank Group staff calculations using GoR, updated Nationally Determined Contribution, 2020, and IMF-World Bank, Debt Sustainability Analysis (DSA) 2022
Notes: Average annual spending is calculated starting in 2022, the first year of forward-looking projections in the DSA and the CGE model

and nature action—is crucial for the country to be able to sustainably meet its development needs in the medium term.

Rwanda can utilize a suite of instruments for mobilizing financing for climate action—policy instruments, debt instruments and non-debt instruments. Grants, biodiversity offsets, carbon credits, green value chain initiatives are examples of non-debt instruments that can finance climate action. Debt instruments can range from concessional and non-concessional loans to "use of proceeds" bonds, sustainability-linked bonds and loans as well as debt for climate and nature swaps.

6.6.1 Policy instruments for mobilizing financing for climate resilience

Between 2013/14 and 2019/20, GoR invested on average 4.3 percent of total expenditure on environment and climate change. The national government spent comparatively a higher average of 5.4 percent than districts whose average expenditure was 2.3 percent (REMA, 2022).[20] These investments are aided by policies and strategies on environment and climate change that are implemented across different sectors of the economy. Further analysis of the expenditure showed that the government spent highest (2.1 percent) in adaptation-related activities, followed by 1.4 percent in environment and 0.8 percent in mitigation activities. However, the expenditure on adaptation declined from 2.6 percentage points in the year 2013/2014 to 0.8 percentage points in the year 2019/2020. Building on the achievements to date, GoR could deploy policy instruments to utilize available domestic public resources more effectively (e.g., through climate disaster risk screening) and ensure that 'green' investments are prioritized (e.g., through inclusion of climate related criteria in public investment management). GoR could also deploy levies or repurpose existing subsidies that undermine climate resilience or include resilience criteria to determine subnational allocations. Such measures would help ensure that the expenditures achieve the envisaged climate resilience outcome.

In Rwanda, the green and resilient PFM and PIM processes are core to facilitating the Government's climate resilient strategies, including to leverage the country's decentralization plans. The Government's recent efforts to craft a new PFM reform strategy explicitly calls for green PFM practices, such as: (i) incorporating environmental considerations into PFM strategies; (ii) promoting sustainable resource management, including investments in renewable energy; (iii) incorporating climate risk assessments in budgeting and financial decision-making; and (iv) green budget tagging to enable monitoring of climate-related resource allocations and achievements. The current thinking in Rwanda embraces frontier concepts such as using the budget as an instrument to promote circular economy initiatives and aligning PFM strategies with global sustainability goals. The Government aims to also strengthen sub-national PFM systems to support districts in the implementation of climate change policies. In this context, a whole-of-government effort to green public spending and leverage the decentralization process to entrench green public spending could assist with addressing climate change.

Decentralization presents an additional and intermediate opportunity to utilize public spending for climate change. Considering how climate risks can vary by location and tightening fiscal resources, local governments would be well placed to select and prioritize the resilience of local communities in their development planning and implementation. Understanding better the risk exposure of local communities and the resilient infrastructure gap, investments in infrastructure and social safety nets to build resilience against drought and floods should be a core component of local development plans. Greening current and planned public spending at the national and subnational level should be the foundational principle underpinning the PFM reform.

In this context, two thematic priorities to operationalize green PFM can help the government mobilize financing including as part of the decentralization process:

i. strengthening the policy basis for closing the climate resilient infrastructure gap in urban and rural areas. Understanding the inefficiencies in government financing in the infrastructure sector and adopting principles to reallocate spending toward more efficient and sustainable outcomes at the national and

subnational levels will be important in the prevailing macroeconomic reality. The PIM system can play a key role in the transition to a climate resilient and low-carbon economy. GoR can consider: (a) establishing a legal, policy, and institutional framework governing climate-smart infrastructure investments and infrastructure maintenance at the national and subnational levels, (b) crafting a medium-term public investment plan that addresses low-carbon transition goals at the national and subnational levels, and (c) developing strategies for financing this plan,

ii. developing resource mobilization strategies to support climate action at the subnational level. The national government may consider leveraging mechanisms such as budget reallocations, green bonds, dedicated national climate funds, insurance and guarantee financing for local projects, and national intermediary institutions such as subnational development banks to support local and regional green infrastructure outcomes (some of which are discussed in greater detail below).

Rwanda's rich endowment of ecological resources and protected areas offers the opportunity for the implementation of innovative fiscal transfer mechanisms such as Ecological Fiscal Transfers (EFT). EFTs could incentivize local governments to take climate action based on their achievement of ecological indicators that measure preservation and restoration of natural capital. Climate change adaptation and mitigation could be added in the Local Governments Own-Source Revenue Mobilization Strategy[21] as strategic interventions in the form of either subsidies or tax exemptions to incentivize sustainability outcomes at the local level. Such incentives could involve the exemption of property tax, or reduction of applicable rate, for example, when renewable sources of energy are used. It could also involve subsidies in the agriculture sector to promote resilient agricultural practices.

On the spending side of the budget, a framework to identify and tag climate-related expenditures can be developed and incorporated into the public expenditure management system, including at the subnational level. This would help strengthen the tracking of progress toward the achievement of the NDCs as well as the case for increased access to climate finance. Local development budgets can be mandated or incentivized to prioritize the proposal and implementation of investments that advance adaptation and resilience, particularly of urban and rural communities and infrastructure against drought and floods.

6.6.2 Debt and non-debt instruments for climate finance

Obtaining the financing the adoption and scale-up of NBS and green technologies for climate resilience will also require mobilizing innovative financing (Government of Rwanda, 2021a). The 2023 Assessment and Options Analysis of Climate and Nature Financing Instruments and Opportunities in Rwanda identified, near-, medium- and long-term options for GoR to mobilize financing (World Bank, 2023). The analysis, which included debt and non-debt instruments, identified two instruments that could have high impact and several that could be utilized in the near term (see Table 6.1).

Increasing Rwandans' low uptake of insurance could help to bolster resilience to climate change. The insurance sector is at an early stage of development, insurance penetration is low, and the sector has limited exposure in property, agriculture, and other sectors that are vulnerable to climate change. Currently nonlife insurance, which dominates the gross written premiums, is heavily dependent on motor and medical insurance products. Property insurance accounts for only 11 percent of total premiums, and less than 2 percent of the Rwandan population use microinsurance, of which agricultural insurance is a subcategory. Agricultural insurance peaked in 2013 and failed to scale up thereafter.[22] Currently, coverage in terms of crops and locations is low, insurers' technical knowledge and financial capacity is constrained, and the range of crop and livestock insurance products available is restricted and not well suited to the risk management needs of smallholder producers (World Bank Group, 2022).

TABLE 6.1: Options analysis of different debt and non-debt instruments, including time horizon and indicative actions

Type of Instrument	Example	Time horizon	Impact Potential for Rwanda
Non-debt instruments			
Grants	Unlock undisbursed grant funding. An effort should therefore be made to increase the share of grants from current providers (Green Climate Fund (GCF), Global Environment Facility (GEF), Adaptation Fund (AF)), including bilateral and multilateral donors, with an emphasis on the donors that already provide budget support. It would also be useful to explore grants from new philanthropic organizations. These grants can be structured into new forms of financing, including viability gap funding for projects as equity capital for climate funds, a de-risking component of a project financing, or to blend with other sources of financing to bring the overall cost down.	Near Term	Medium
Wildlife Conservation Bond	In this innovative structure, investors agree to full/partial ordinary bond coupon from IBRD to be diverted to finance conservation activities at the parks. This instrument was successfully tested in South Africa for black rhinos, and it can be piloted in the Rwanda context to replicate it for a different species and landscape. This instrument can be scaled to other parks in Rwanda and beyond.	Near Term	Medium
Carbon Offset Credits	Consider expanding its carbon offset verification program where possible. As of early 2023, 87 percent of offsets generated in Rwanda come from adopting greener cookstoves, with the remainder split between different forms of clean energy production.45 There could be space for Rwanda to expand this framework to support MRV for REDD+ offset credits. This would require development of the necessary infrastructure in the form of monitoring, reporting, and verification (MRV) systems and registry infrastructure.	Near Term / Near-Medium Term	Medium
Debt Instruments			
Concessional Loans	Concessional loans can be blended with semi- or non-concessional loans to bring the all-in costs down for specific budget or project investments in priority climate areas. Kenya can also explore more innovative financial structures from these concessional and semi-concessional resources. For example, they can be used for liquidity backstops for climate-focused projects (e.g., to create a price floor under a power purchase agreement for renewable energy projects) to incentivize private sector investments. The environmental and social safeguards that are applied would also give added comfort to investors on the quality of projects	Near-Medium Term	High
Use of proceeds bonds (green bonds, social bonds)	Finalize green taxonomy, green bond framework, preparation of pipeline of eligible projects, and mechanism for providing the investor with credibility and data to show the debt will achieve the stated outcomes.		Medium
Sustainability linked bonds	· Building on ongoing SLB efforts, explore options for expanding KPIs to include NDC targets. · KPIs should be realistically achievable, yet ambitious, scientifically backed, and designed in partnership with external experts. This ensures transparency and improves the issuer's perceived level of governance. · Consider using donor support for providing a guarantee to improve the credit rating of the instrument · Develop the necessary institutional capacity to independently fulfill climate and nature commitments in the agreed-upon timeframe	Medium-Long Term for issuance	Very High

Source: Potomac Group, 2023. Assessment and Options Analysis of Climate and Nature Financing Instruments and Opportunities in Rwanda. Technical Report prepared for World Bank

6.7. Options for operationalizing greater resilience to climate risks

Policy measures to strengthen resilience to climate risks can be classified as those using NBS to reduce vulnerability to climate events, those enhancing the contribution of NBS to development and those reducing greenhouse gas emissions. Given fiscal limits, mobilizing private finance for climate change adaptation will be critical. There could be potential to attract sustainability-linked finance by putting in place the appropriate framework, particularly defining credible key performance indicators related to climate resilience and GHG emissions reductions. Resilience to climate risks is imperative for both Rwanda's growth and to minimize the extent to which climate shocks diminish Rwanda's development gains. Use of NBS (in both rural and urban landscapes) at scale in combination with other solutions will be central to bolstering resilience to climate change.

This section presents some of the key policy measures for strengthening Rwanda's resilience to climate change. The policy measures are divided into three categories: (i) policy measures for enabling sustainable implementation of NBS to reduce vulnerability of a region or sector to climate events, (ii) policy measures for enhancing the contribution of NBS to development; and (iii) policy measures for maintaining a low carbon growth path. The other policy measures presented in this section, such as the measures related to climate finance, are relevant for all climate action. The policy measures are presented based on whether they are: (a) Short-Term or Medium Term (ST or MT); (b) High or Medium Priority (HP or MP); and (c) High, Medium or Low Feasibility (HF, MF or LF).

This section underscores the importance of focusing equally on both increasing climate finance and improvements in implementation capacity (across government levels) to achieve the desired outcomes of improved resilience to climate change and low-carbon development. Improved access to public and private finance will allow increased investments to NBT, NBS, renewable raw material production, etc., and improved policy implementation. While, improving access to "wholesale" finance is necessary it is not sufficient. Improve capacity to utilize the financing is equally imperative. This will include developing the implementation capacity at the key government agencies (e.g., RDB, RFA, REMA, Rwanda Green Fund, etc.) and subnational entities, improving monitoring systems, improving scientific knowledge (e.g., on climate models and biophysical models), and improving labor skills to name a few. Strengthening local and regional planning will be pivotal. Strong implementation capacity will ensure resources are used efficiently and debt instruments lead to improvements in climate resilience and generate revenue.

6.7.1. Policy measures for enabling NBS to reduce vulnerability to climate risks

In line with GoR's GGCRS, the following measures would help scale up the application of NBSs to reduce vulnerability to climate risks:

- Reduce the pressure to convert natural vegetation.
- Use data to determine optimal approaches.
- Build local monitoring reporting and verification (MRV) capabilities.
- Invest in flood control and water storage.
- Intercropping.
- Formalize and incentivize implementing NBS.
- Reduce the growth of unplanned settlements and reduce the vulnerability of the average urban household to climate change hazards.
- Encourage cities to include in their master plans the greening of urban landscapes and complementing efforts to integrate urban stormwater and drainage with efforts to restore wetlands.
- Encourage the mainstreaming of climate considerations among the private sector.
- Encourage the use of renewable materials (e.g., wood from production woodlots) in construction and other uses.

6.7.2. Policy measures for enhancing the contribution of NBS to growth

The viability of NBS will be enhanced by ensuring that the solutions contribute to creating jobs and generating revenue. There are many commonalities and complementarities between the measures need to augment the contribution of NBS to growth and those described in section 6.6.1. These policy measures include:

- Increase awareness (through improved extension and outreach) about a wider variety of trees suitable for agroforestry systems.
- Encourage private investments in urban wetlands that could serve as hubs for ecotourism and recreation through collaborative management.
- Operationalize the law governing national parks and nature reserves to enable increased private sector participation in the provision of NBT service.
- Enable sustainable and productive forestry for financial and environmental benefits.
- Improving the management of existing forests and woodlots increases their productivity and carbon capture, using improved genetic material when replanting.
- Establish a payment for ecosystem services scheme to cover the costs of reforestation and terracing on slopes to prevent soil erosion.
- Finalize the carbon framework to enable individual and collective owners of forests and woodlots for which productivity has been increased to benefit from carbon capture.

6.7.3. Policy measures for maintaining a low-carbon growth path

Mobilizing private sector engagement in reducing GHG emissions will be central for maintaining a low-carbon growth path. As noted earlier in the chapter, the barriers to mobilizing private sector engagement in the widespread roll out of low-carbon measures are policy, market and institutional. Many challenges are sector specific (e.g., energy sector, agriculture sector, etc.). Below we highlight some of the cross-cutting policy measures that are key for greater private sector involvement[23] across all sectors, a few of which overlap with those mentioned in subsections 6.6.1 and 6.6.2.

- Improve access to finance (including long-term finance).
- Build a cadre of adequately skilled personnel.
- Consider the adoption of innovative finance mechanisms such as PPPs.

6.7.4. Mobilizing climate finance

The revised GGCRS responds to emerging trends and climate challenges and is an implementation-ready, and reliable instrument for programmatic approach to financing to meet long term climate and green growth targets in Rwanda over the time horizons: 2030, 2035 and 2050. The Revised GGCRS is structured to successfully deliver climate compatible results based on programmatic investment planning. Importantly, programmatic approach to climate financing aims to catalyze more systemic change at national and sub-national levels, increase efficiency and promote integrated cross sector coordination. A programmatic approach also reinforces the country's ability to plan and program larger financing streams under one long-term multi-year and multi-phased approach, as is needed to strategically address and adapt to climate change. The programmatic approach would also facilitate coordination among financiers of the program, enabling the leveraging of different sources of financing. Such coordination would also augment predictability, flexibility, transparency, accountability, and speed of disbursement of climate finance to maximize benefits, impact and sustainability.

To support the implementation of the GGCRS and NDC, as GoR drafts its national climate finance strategy (CFS), there is a unique opportunity to highlight the importance of mobilizing finance for adaptation. The CFS should articulate how, as part of GoR's efforts to capitalize the Green Climate Fund (formerly named FONERWA[24]) greater emphasis could be given to mobilizing financing against adaptation outcomes. The Climate Finance Strategy could also elevate the level of government coordination, including around project financing by involving the Ministry of Finance (MINECOFIN) and Green Climate Fund in project preparation, and Ministry of Environment and its affiliated agencies in direct oversight. In addition, the CFS should require the establishment of a climate finance information system to monitor financing of climate and environmental protection sensitive projects and a regulatory framework for climate-focused financial instruments.

GoR could benefit from complementing the Green Climate Fund fund-raising efforts with policy measures that ensure the available domestic public resources are directed towards climate resilient infrastructure and interventions. This could include measures to formalize the application of climate disaster risk screening of public investments in the government's project pipeline and the Rwandan authorities taking meaningful steps toward reducing the information gap by including data on a project's contribution to reducing damages to land, labor, capital, and productivity (and other items needed to quantify economic losses from climate change) as part of the project appraisal, monitoring, and evaluation processes. The latter would help add climate resilience metrics to the criteria for prioritizing and selecting investments. This would complement the guidelines and criteria being considered in MINECOFIN's Green and Climate Sensitive Project Pre-Screening and Selection Procedures (MINECOFIN, 2023). Such actions would send a positive signal to external investors regarding GoR's commitment to reduce the country's exposure to climate risks.

GoR's efforts to develop a green taxonomy and mobilize private sector financing for sustainability focused development should also be further supported. Considering Rwanda's limited fiscal space, mobilizing private capital to scale development activities while maintaining a low-carbon footprint and to bolster resilience are vital for the country to be able to sustainably meet its development needs in the medium term in a climate compatible manner. Instruments such as Sustainability-linked bonds (SLBs) and loans (SLLs) can be powerful tools to catalyze change and accelerate achieving a country's sustainable goals[25]. Sustainability-linked financing (especially SLBs) have been slow to take off in Emerging Markets and Development Economies (EMDEs), particularly for sovereigns and development banks. For lower-income EMDEs, it will be important to put in place mechanisms that help de-risk issuers, meet investors' risk appetite, and embed financial incentives to commit and achieve credible key performance indicators (KPIs).

As BRD develops its KPI framework, including KPIs related to climate/ GHG emission reductions will facilitate mobilizing financing for climate action. The credibility of an SLB issuance rests on the selection of one or more KPI(s) which are credible. The KPIs should be central to the issuer's sustainability and business strategy and address relevant environmental, social and/or governance (ESG) challenges. Consideration could be given to including KPIs related to the NDC targets. This will be critical to scale-up private capital mobilization for climate action.

Annex 6.1. Matrix of key policy recommendations: Enabling greener and climate resilient growth

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
4.6.1	**Policy Area 1: Enable NBS to Reduce Vulnerability to Climate Risks.**				
	Priority Area 1: Reduce the Pressure to Convert Natural Vegetation.				
	Accelerate the transition from fuelwood and charcoal-based cooking to improved and modern cookstoves.	MoE, MININFRA, REMA	ST	HP	HF
	Reduce the dependence on fuelwood and charcoal.	MoE, MININFRA, REMA	ST	HP	HF
	Priority Area 2: Use Data to Determine Optimal Approaches.				
	Update continuously the spatial model developed by the government for determining Catchment Restoration Opportunities.	RWB	ST	HP	HF
	Utilize the information compiled (as part of this updating process) to determine the optimal combination of soil and water conservation structures and restoration of vegetation to stabilize the structures.	RWB	ST	HP	HF
	Priority Area 3: Build Local Monitoring Reporting and Verification (MRV) Capabilities.				
	Address currently limited technical capabilities in MRV that are forcing investors to hire foreign expertise at high costs.	REMA	ST	HP	HF
	Position Rwanda as a proof of concept for new verification technologies.	REMA	ST	HP	HF
	Priority Area 4: Invest in Flood Control and Water Storage.				
	Implement policies and programs for the sustainable management of water resources, to optimally accompany the Rwanda's population that keeps growing and industrial development taking place.				
	Invest in flood control and water storage to reduce risks and manage uncertainty owing to the variability of precipitation expected to increase due to climate change.	RWB	ST	HP	HF
	Increase adaptability of the population to preserve several human activities that would otherwise be adversely impacted by precipitation variability.	RWB	ST	HP	HF
	Priority Area 5: Promote Intercropping.				
	Encourage smallholder farmers as well as large-scale exporters, such as coffee exporters, to practice intercropping, building on the existing movement.	MINAGRI, NAEB	ST	HP	MF
	Inform farmers on the benefits of intercropping, which range from economic revenues, erosion mitigation, added nutrient benefits, and soil fertility.	MINAGRI, NAEB	ST	HP	MF
	Priority Area 6: Formalize and Incentivize Implementing NBS.				
	Formalize, for all sectors of the country, sustainable land use, catchment restoration and soil erosion control strategies that are coordinated and aligned, including with the agriculture sector.	MoE, MINAGRI (RAB), RWB and RFA	ST	HP	MF
	Strengthen tenure security through strengthening of property rights or introducing new institutional mechanisms that give households and firms an economic interest in preserving natural assets that provide ecosystem services.	MoE, MINAGRI (RAB), RWB and RFA	ST	HP	MF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Regularize ownership of forest land to allow private investment.	MoE, MINAGRI (RAB), RWB and RFA	ST	HP	MF
	Priority Area 7: Reduce the Growth of Unplanned Settlements.				
	Reduce the vulnerability of the average urban household to climate change hazards.	MININFRA, Rwanda Housing Authority (RHA)	ST	HP	MF
	Engage in land readjustment, in parceling peripheral (but well-linked) urban land into grids in advance of settlement, and in sites and services.	MININFRA, RHA	ST	HP	MF
	Priority Area 8: Promote Sustainable Urban Development.				
	Encourage cities to include in their master plans the greening of urban landscapes.	MININFRA	ST	HP	MF
	Complementing efforts to integrate urban stormwater and drainage with efforts to restore wetlands.	MININFRA	ST	HP	MF
	Priority Area 9: Encourage the Mainstreaming of Climate Considerations Among the Private Sector.				
	Communicate widely on Rwanda's investment opportunities in conservation, to sensitize private investors about potentialities.	RDB, Rwanda Green Fund	ST	HP	LF
	Coordinate a concerted effort to increase understanding of climate investment opportunities by the private sector.	RDB, Rwanda Green Fund	ST	HP	LF
	Enable land aggregation, which could provide proof-of-concept for land conservation in Rwanda.	RDB, Rwanda Green Fund	ST	HP	LF
	Priority Area 10: Encourage the Use of Renewable Materials (e.g., wood from production woodlots) in Construction and Other Uses.				
	Facilitate climate-friendly material substitution.	MININFRA			
	Improve the financial performance of productive landscape restoration and sustainable resource production.	MININFRA			
4.6.2	**Policy Area 2: Enhance the Contribution of NBS to Growth.**				
	Priority Area 1: Increase Awareness (through improved extension and outreach) About a Wider Variety of Trees Suitable for Agroforestry Systems.				
	Raise awareness regarding the potential of the trees to protect soil fertility.	RAB, RFA	ST	HP	HF
	Support farmer resilience on small plots through more diversified income and prevention of land degradation.	RAB, RFA	ST	HP	HF
	Priority Area 2: Promote Sustainable Ecotourism and Recreation.				
	Encourage private investments in urban wetlands that could serve as hubs for ecotourism and recreation through collaborative management.				
	Prioritize development of the Nyandungu Urban Wetland of 130 ha for botanical gardens, walking and cycling trails.	RDB	MT	MP	HF
	Priority Area 3: Operationalize the Law Governing National Parks and Nature Reserves to Enable Private Sector to Invest More.				
	Make additional investments in the reserves.	RDB	ST	HP	HF
	Expand the habitat available for biodiversity.	RDB	ST	HP	HF

NOTE: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Timeframe	Feasibility
	Priority Area 4: Enable Sustainable and Productive Forestry for Financial and Environmental Benefits.				
	Promote sustainable and productive forestry led by private entities	RFA	MT	HP	MF
	Support in parallel the production of renewable biomass that can be leveraged to boost incomes.	RFA	MT	HP	MF
	Improve the management of existing forests and woodlots, to increase their productivity and carbon capture using improved genetic material when replanting.	RFA	MT	HP	MF
	Priority Area 5: Establish a Payment for Ecosystem Services Scheme to Cover the Costs of Reforestation and Terracing on Slopes to Prevent Soil Erosion.				
	Exploit any opportunities to engage the private sector where there are potential cost savings.	RWB	MT	HP	HF
	Prioritize, for instance, tea farms operating downstream, or hydropower developers that could suffer from siltation.	RWB	MT	HP	HF
	Priority Area 6: Finalize the Carbon Framework to Enable Individual and Collective Owners of Forests and Woodlots for Which Productivity Has Been Increased to Benefit from Carbon Capture.				
	Take advantage of still largely untapped carbon finance for Rwanda's clean energy solutions—solar energy providers, mini-grids, clean cookstoves, and hydropower, which could all benefit from carbon financing from selling carbon credits.	MoE, REMA	ST	HP	HF
4.6.3	**Policy Area 3: Maintain a Low-Carbon Growth Path.**				
	Priority Area 1: Improve Access to Finance (including long-term finance).		**ST**	**HP**	**MF**
	Support Green Climate Fund's and BRD's efforts in introducing more financial products on the market and tailoring such products to specific commercial contexts.	MINECOFIN	ST	HP	MF
	Support commercial banks capacity building initiatives related to climate finance to increase investment in space and the creation of adequate financial instruments for green businesses.	MINECOFIN	ST	HP	MF
	For long-term finance, work with Rwanda Finance Ltd. To actively identify and attract equity investors to Rwanda;	MINECOFIN	ST	HP	MF
	Support and prepare Rwandan businesses to approach and appeal to global climate investors; and seek blended finance to develop a locally appropriate and managed climate equity fund.	MINECOFIN	ST	HP	MF
	Priority Area 2: Build a Cadre of Adequately Skilled Personnel.				
	Support Green Climate Fund's and BRD's efforts to support technical capacity building of climate businesses.	Rwanda Green Fund	ST	HP	LF
	Implement an aggressive "investment promotion" to attract sophisticated climate businesses to Rwanda.	Rwanda Green Fund	ST	HP	LF
	Priority Area 3: Consider the Adoption of Innovative Finance Mechanisms Such as PPPs For Land, Infrastructure, and Housing Development.				
	Promote PPPs for land, infrastructure, and housing development.	MINECOFIN	ST	HP	MF

Annex 6.2. Tables and figures

Table A6.1. Comparison of soil erosion and sedimentation rates across land management scenarios.

Scenario	Total soil loss (t/year)	Average soil loss (t/ha/year)	Total sediment export (t/year)	Average sediment export (t/ha/year)
Current	63 640 224	25.3	7 736 089	3.1
BAU	75 982 780	30.2	10 680 096	4.2
Aspirational	70 654 355	28.1	9 504 141	3.8

Note to reader – There is another scenario being run that considers more intensive agriculture and more urbanization (i.e., less rural settlement). These results will be updated once those results come in

Table A6.2. Total biomass carbon storage across land management scenarios.

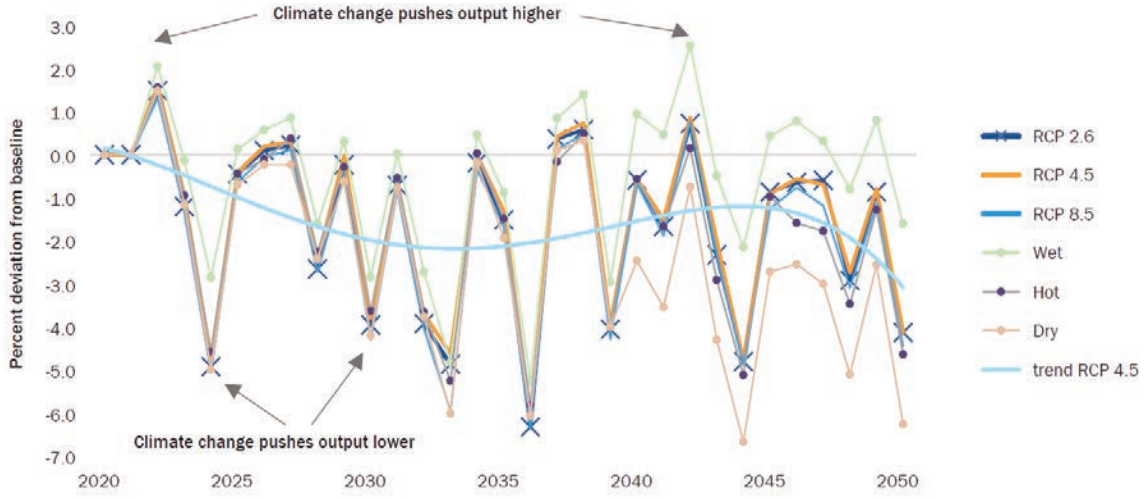
Scenario	Total AGB carbon (t)	Total BGB carbon (t)	Total biomass carbon (t)
Current	14 721 077	9 850 292	24 571 369
BAU	14 010 901	8 897 656	22 908 557
Aspirational	14 803 871	9 689 929	24 493 800

Note: AGB: Above ground biomass BGB: Below ground biomass

Table A6.3 Estimated habitat quality across scenarios, with percentage differences in quality relative to BAU land cover.

Scenario	Total Habitat Quality	Mean Habitat Quality/pixel	% difference relative to BAU
Current	415 614	0.16	8%
BAU	381 413	0.15	-
Aspirational	454 326	0.18	19%

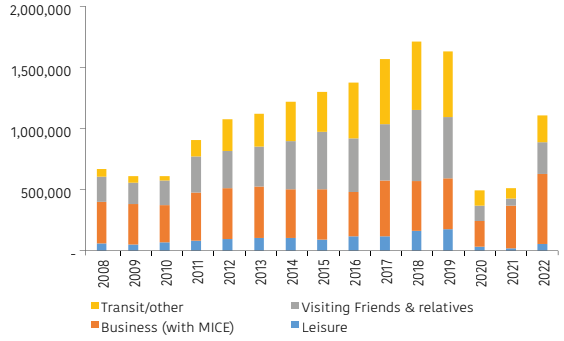
Figure A6.1: Deviation of GDP from the baseline by Climate Scenario, 2020–50



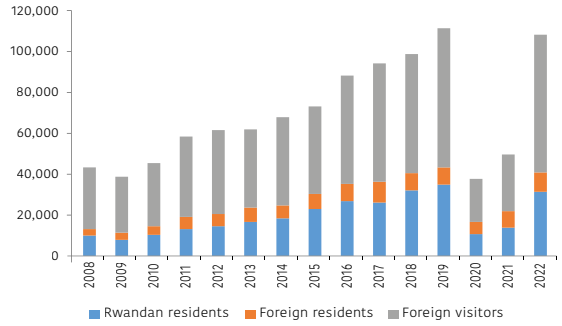
Source: World Bank, 2022 (Rwanda CCDR)

Figure A6.2: Snapshot on NBT in Rwanda

a. International visitation to Rwanda (2008-2022)

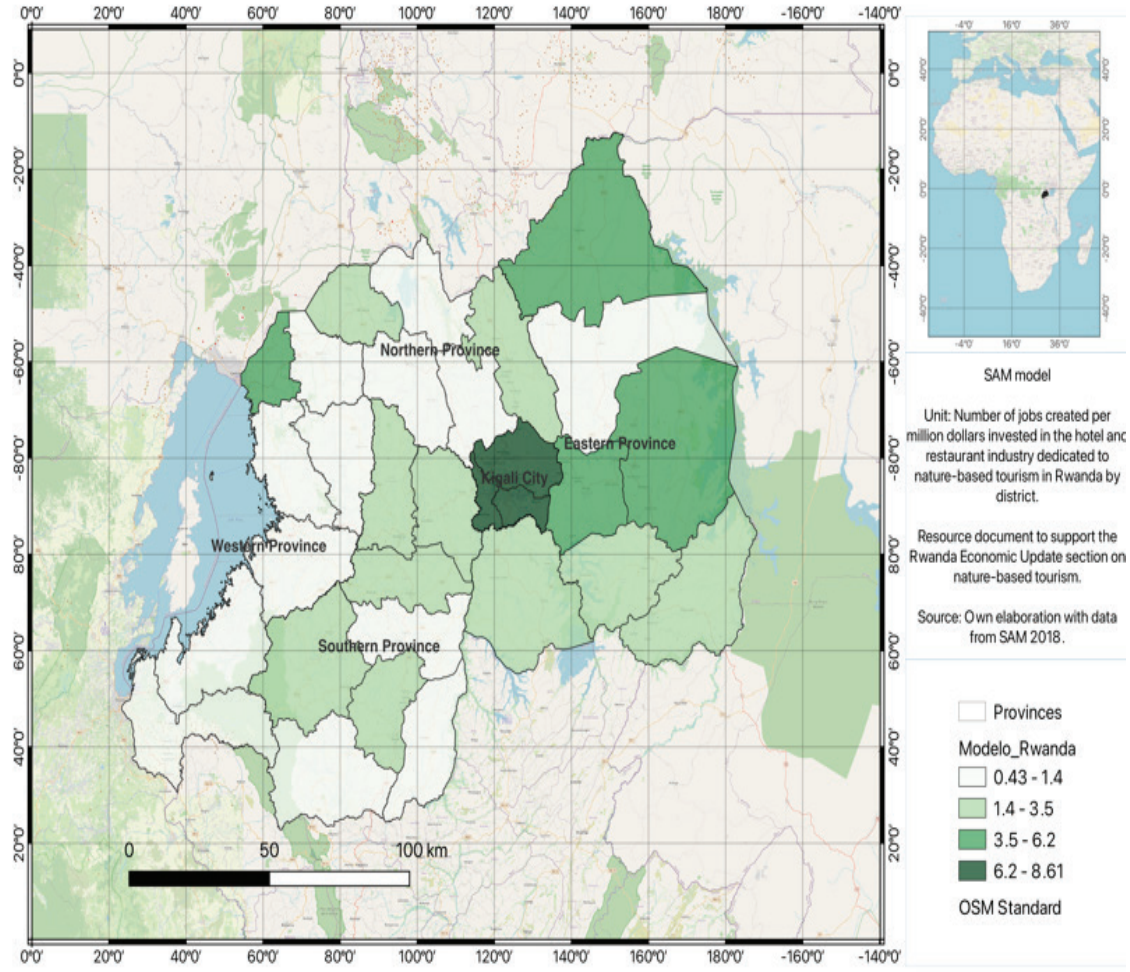


b. Number of park visitors to Rwanda's National Parks by origin (2008-2022)



Source: WBG staff using data from RDB and NISR (2021b)

Figure A6.3: Job multiplier effect on activities closely related to tourism



Source: McLiberty 2022, with data from the 2018 SAM of Rwanda and the Labor Force Survey 2018.
Note: The spatial analysis was based on information provided by the SAM and the 2018 Rwanda Labor Force Survey that classifies the workforce in the 21 industries of the International Standard Classification (ISIC).

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Notes

[1] The ND-GAIN Index (Notre Dame Global Adaptation Initiative. URL: https://gain.nd.edu/our-work/country-index/) ranks 182 countries using a score which calculates a country's vulnerability to climate change and other global challenges as well as their readiness to improve resilience. This Index aims to help businesses and the public sector better identify vulnerability and readiness in order to better prioritize investment for more efficient responses to global challenges. The more vulnerable a country is the lower their score, while the more ready a country is to improve its resilience the higher it will be.

[2] The pension sector represented 17% of assets, 95% of which is in the public scheme (Rwanda Social Security Board (RSSB)), and the remaining 9.2% is in the insurance sector (data from the National Bank of Rwanda, 2021).

[3] Natural capital depletion includes net forest depletion, mineral depletion, CO2 damage, and air pollution damage.

[4] https://databank.worldbank.org/source/world-development-indicators# as cited in World Bank Group (2022).

[5] The optimistic scenario is one that uses a representative concentration pathway (RCP) 2.6, which, according to IPCC, requires CO2 emissions to start declining by 2020 and go to zero by 2100. This scenario will keep global temperature rise below 2oC. The pessimistic scenario uses an RCP8.5 which provides a useful (and not implausible) warming scenario. In this scenario, emissions continue to rise throughout the 21st century.

[6] Maize, rice, and sorghum production performs better under drier and warmer conditions, while coffee and potatoes are negatively affected. In contrast, banana and tea production benefit most under wetter and cooler conditions.

[7] Croplands are estimated using data on production of crop and livestock production from FAOSTAT, valued with resource rent (prices from FAOSTAT times an average regional rental rate. Thus, cropland area does not come into play, just annual production. They are valued by the annual production of crops and livestock products. Change in croplands measures change in value. It does not measure the change in area.

[8] Considering that a value of 0 reflects habitat with no biodiversity value and a value of 1 reflects pristine natural habitat.

[9] Tourism linked services are determined from the I-O tables. Data on employment in the tourism sector does not differentiate between nature-based tourism and overall tourism.

[10] Employment in transport and storage and accommodation and food service activities, which together account for about 78 percent of proxy tourism employment in 2021, has been more or less stable in recent years.

[11] It is estimated that more than 70 percent of tourism visits in Rwanda is NBT.

[12] The spatial analysis was based on information provided by the SAM and the 2018 Rwanda Labor Force Survey that classifies the workforce in the 21 industries of the International Standard Classification (ISIC).

[13] Average exchange rate $1 = Rwf847.1 (BNR 2018, Oct.)

[14] This is outcome is different from the assessment of the NDC financing where deficit financing would lead to an unsustainable fiscal situation (See World Bank Group, 2022a). The difference of outcome is due to the fact that nature based-tourism financing is less important (1.2 percent of GDP versus 11 percent for NDC). Furthermore, and most importantly, investments in nature-based tourism target specifically natural capital with high return in terms of tourism receipts that lead to increased productivity, foreign exchange, and tax revenue.

[15] Expansion of the sector will also require expanding necessary physical infrastructure in an environmentally sustainable and climate informed manner.

[16] A low-carbon development pathway would enable Rwanda to achieve a net emissions pathway that is lower than the projected increase to 3.96MtCO2 by 2030.

[17] Lowering GHG emissions would also reduce the impact of GHG emissions on pollution and public health.

[18] Many of the abatement options that could be deployed in Rwanda are globally proven technologies.

[19] There is an open question regarding whether the $11.0 billion should be treated as already part of' versus additional to projected public investment spending. There is no evidence that all or most NDC projects are already part of Rwanda's public investment program, or that the NDC assumed that the NDC projects would replace others in the pipeline. In principle, some of the NDC projects could substitute for other planned projects (for example, renewable energy projects in the NDC might displace planned fossil fuel projects), and therefore not add to Rwanda's projected public investment spending, while others seem more likely to have been conceived of as new projects that would supplement the public investment portfolio. The $6.9 billion estimated as needed to finance conditional NDC projects would be additional to projected public investment spending, and the $4.2 billion needed for unconditional NDC projects is sufficiently large to require a substantial reorganization of the public investment program, whether or not it is additional to planned spending.

[20] The national spending is within the range of spending environment and climate in countries such as Ghana, Tanzania and Kenya.

[21] This was recently developed under the revised Decentralization Policy.

[22] Currently, there are three insurance companies and two reinsurance companies in Rwanda that underwrite agricultural insurance programs.

[23] Annex 8 of the technical appendix of the Rwanda CCDR (World Bank Group, 2022) presents recommendations towards lifting barriers for private sector involvement in the following sectors agriculture, forestry, land, water, grid energy, off-grid energy, clean cooking, transport, housing, and waste

[24] Associated with the Green Climate Fund are three 'sub funds' - Ireme Invest, the Community Adaptation Fund (CAF) and INTEGO. Ireme Invest is the vehicle for mobilizing financing for private sector engagement in climate action; CAF provided communities with access to financing for collective efforts to boost resilience to climate change; and INTEGO provides public institutions in Rwanda, at central and local level, access to funding for climate change adaptation and mitigation projects on the priority issues identified in Rwanda's NDC.

[25] These instruments are based on financial incentives that link the borrower's financing cost to its ability to achieve KPIs- usually linked to climate and sustainable development objectives.

CHAPTER 7

FISCAL SPACE FOR RESILIENCE AND SUSTAINABLE GROWTH

7.1. Introduction

The objective of this chapter is to explore potential avenues for increasing fiscal space for the government of Rwanda to finance the varying development needs identified throughout the report. The chapter first identifies how fiscal space has narrowed in recent years and then outlines the measures to ensure a sustainable fiscal outlook while implementing Rwanda' development initiatives identified in this report. This will require enhancing domestic revenue mobilization and improving the efficiency and effectiveness of public spending[1], thereby creating more room for priority programs. In this context, the chapter provides a comprehensive analysis of revenue mobilization and the quality of public expenditure.

After a concise analysis of recent fiscal developments and the short-term outlook, the chapter identifies the key action areas to cope with structural challenges. These include increasing public spending efficiency, mobilizing revenue, promoting a more efficient infrastructure spending system with greater private participation, and addressing the underlying challenges in human capital development. The final section offers conclusions and key policy recommendations to enhance revenue mobilization and improve the quality of public spending, ultimately supporting sustainable economic growth and development. The overall objective is to provide policymakers in Rwanda with a comprehensive understanding of the potential avenues for increasing fiscal space.

7.2. Recent fiscal developments and short-term outlook

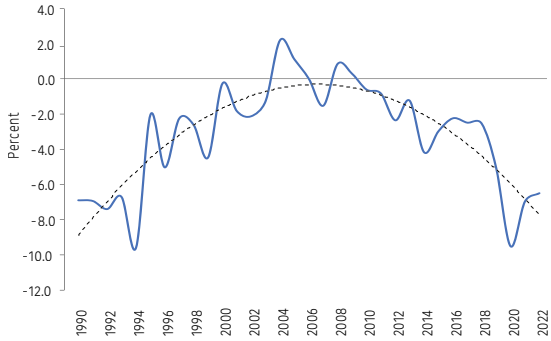
Rwanda´s fiscal situation improved in the first decade of the century allowing fiscal accounts to balance during 2004–09. From 2010–19 onwards the fiscal stance became expansionary, mainly driven by increasing expenditures. Overall fiscal balance, which was slightly positive in 2008–09, displayed a downward trend since 2010 and reached a deficit of 5 percent of GDP in 2019. In parallel, public debt heightened to around 50 percent of GDP in 2019, more than doubling when compared to the levels at the second decade of the century. This constituted a vulnerable starting point to face the subsequent multiple crises hit in 2020–22 (COVID-19 pandemic, the impacts from the war in Ukraine – inflationary pressures, global turmoil, and climate conditions), where the fiscal position worsening exacerbated, shrinking the already narrowed fiscal space.

The central government fiscal deficit rose sharply before the COVID-19 pandemic. The overall fiscal deficit deteriorated from 0.8 percent of GDP in 2008 to 5.1 percent in 2019, driven by rising expenditures and stagnation in revenues (relative to GDP). Massive government support in response to the pandemic (COVID-19-related spending equaled about 3.6 percent of GDP in FY2020/21), a one percent decline in revenue in real terms, and the 3.4 percent drop in GDP boosted the overall deficit to 9.5 percent of GDP in 2020 (IMF, 2021). Rapid recovery in revenue and gradual phasing out of COVID-19 support supported a decline of the deficit to a still-high 7 percent of GDP in 2021. When considering debt service, arrears, and net lending, gross financing needs hover around 20 percent of GDP, double the pre-COVID levels.

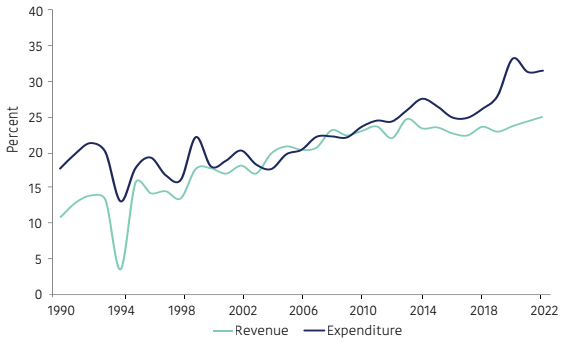
Expenditures have increased over the past two decades, particularly driven by capital expenditures with two large investment pushes (2013–16 and 2017–19). Primary expenditures of the Central Government expanded from an average of 22 percent of GDP in 2008–09 to nearly 27 percent of GDP in 2014, and after a brief fiscal consolidation period (2014–16), returned to 27 percent of GDP in 2019, before soaring to an average of 30 percent of GDP in 2020–22. Capital expenditures rose from more than 9 percent of GDP in 2008–09 to 13.5 percent in 2020, before receding to 11 percent in 2022. Current primary outlays increased more rapidly, widening from an average of 13 percent of GDP in 2008–09 to around 22 percent of GDP in 2022. Interest payments increased from an average of 0.4 percent of GDP in 2008–09 to 2.22 percent of GDP in 2022.

Figure 7.1: Central government – overall balance, revenues, and expenditures 1990–2019

Overall balance (% GDP)



Revenue and expenditure (% GDP)



Source: MINECOFIN, BNR-National Bank of Rwanda and World Economic Outlook (IMF), October 2023.

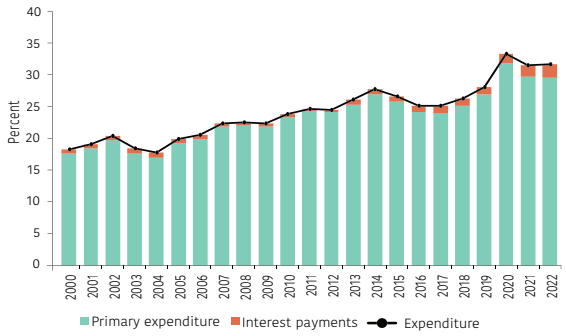
Historically, Rwanda´s public spending displayed a high procyclical behavior. The cyclicality of public expenditure can be measured as the correlation between real government expenditure and real GDP (the business cycle). Over the last three decades, there seemed to be in Rwanda a clear bias towards overspending during good times (Figure 7.3). In fact, according to a recent Inter-American Development Bank's study, over more than 130 countries Rwanda displayed the most procyclical stance over the period 1980 to 2016, with a correlation of almost 0.9 (versus an average of 0.35 for the developing countries) between Output and Primary spending (Pessino, Izquierdo, & Vuletin, 2018). Furthermore, Fuentes and De Soto (2022) locate Rwanda among the group of Procyclical countries, according to their fiscal policy stance. However, government expenditures have not always contributed to growth. Expenditure growth has remained elevated, with the high wage bill and interest payments contributing to persistent budget rigidities.

Nonetheless, this procyclicality seemed to reverse in recent years. The massive official response to mitigate the social and economic impact of the pandemic (hence being countercyclical) was immediately followed by a winding down of the extra-spending during the economic recovery (hence moving again against the cycle). Particularly, the fiscal consolidation process envisaged for the upcoming years in Rwanda indicates that this procyclicality impulses should be bounded, as economic growth is expected to accelerate while the rebuilding of the fiscal space is projected to be expenditure driven.

Public expenditure in Rwanda displays space for rationalization so procyclicality impulses could be restrained. Given that primary expenditures of the central government (around 31 percent of GDP in 2022) remain around 6 percent of GDP above the pre-COVID 5-year average (25 percent of GDP in 2015–19), there is still a scope to reduce non-priority spending and improve efficiency gains.

Figure 7.2: Central government – primary expenditure and interest

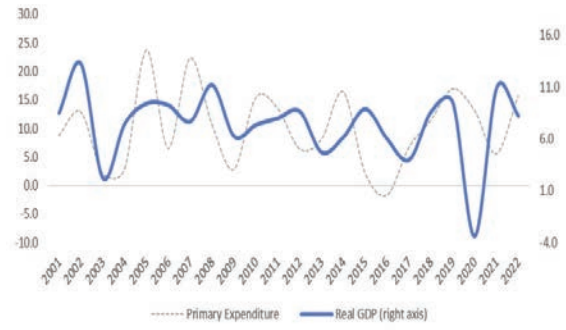
(Percent of GDP)



Source: MINECOFIN and World Economic Outlook (IMF), October 2023.

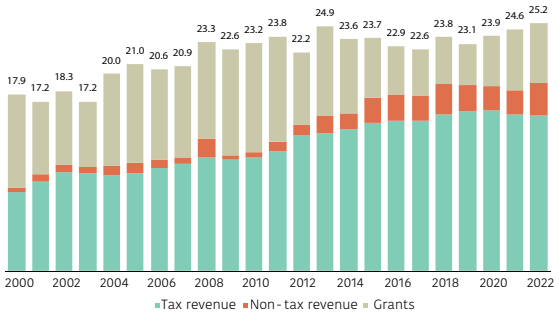
Figure 7.3: Central government – primary expenditure and GDP growth

(Transit time in days)



Source; MINECOFIN and World Economic Outlook (IMF), October 2023.

Figure 7.4: Central government – total revenues and main items
(Transit time in days)



Source: World Economic Outlook (IMF), October 2023, Article IV – December 2023, World Bank Revenue Dashboard, Reviews for the Policy Coordination Instruments for Rwanda (IMF) and author's calculations.

Revenues have increased relative to GDP, although insufficient to avoid the recent worsening of the fiscal deficit. The total revenue of the Central Government rose from about 23 percent of GDP in 2008–09 to 23.6 percent in 2014, varied between 22.6 and 23.8 percent through 2019, and then averaged 24.8 percent of GDP in 2020–22. The relatively small rise in total revenues understates the government's fiscal effort, as stronger domestic revenue mobilization compensated for declining external grants: total tax and non-tax domestic revenues rose from 12.6 percent of GDP in 2008–09 to 18.7 percent in 2020–22, while grants fell by 4.3 percentage points of GDP over this period. Despite this rising trend, there remains considerable room for increasing domestic revenues. Revenues to the tune of three percent of GDP remain forgone, due to tax expenditures. A review of the tax expenditure portfolio, including eventually the removal of temporary exemptions, together with additional Public expenditure in Rwanda displays space for rationalization so procyclicality impulses could be restrained. Given that primary expenditures of the central government (around 31 percent of GDP in 2022) remain around 6 percent of GDP above the pre-COVID 5-year average (25 percent of GDP in 2015–19), there is still a scope to reduce non-priority spending and improve efficiency gains.

Revenues have increased relative to GDP, although insufficient to avoid the recent worsening of the fiscal deficit. The total revenue of the Central Government rose from about 23 percent of GDP in 2008–09 to 23.6 percent in 2014, varied between 22.6 and 23.8 percent through 2019, and then averaged 24.8 percent of GDP in 2020–22. The relatively small rise in total revenues understates the government's fiscal effort, as stronger domestic revenue mobilization compensated for declining external grants: total tax and non-tax domestic revenues rose from 12.6 percent of GDP in 2008–09 to 18.7 percent in 2020–22, while grants fell by 4.3 percentage points of GDP over this period. Despite this rising trend, there remains considerable room for increasing domestic revenues. Revenues to the tune of three percent of GDP remain forgone, due to tax expenditures. A review of the tax expenditure portfolio, including eventually the removal of temporary exemptions, together with additional efforts to broaden the tax base and to strengthen compliance, could significantly increase domestic revenue mobilization.

As a consequence of the worsening fiscal position, public debt displayed an increasing trend before the COVID-19 pandemic shock and was accentuated in 2020 (though it remains sustainable). The public debt to GDP ratio fell to 23 percent in 2006 amid the multilateral and bilateral debt relief received at the completion point of the Heavily Indebted Poor Countries (HIPC) Initiative and remained roughly stable for the next few years. However, expenditures to support the National Strategy for Transformation (NST) led to a worsening fiscal position, boosting the public debt to 50 percent of GDP by 2019. Public debt then surged in 2020 as the pandemic recession induced increases in expenditures and impaired revenue collection, while the 3.4 percent decline in GDP further increased the debt to GDP ratio. Public debt reached 66 percent of GDP in 2020 and has remained at roughly that level, as rapid growth in GDP was accompanied by continued high fiscal deficits (7.8 percent of GDP average in 2020–22). But despite the steep increase in public debt, sustainability outlook risks remain moderate. The Joint Bank-Fund Debt Sustainability Analysis downgraded the evaluation from low to moderate after the recent debt surge. Although this indicator is not yet at worrying levels, it also highlights the shrinking fiscal space and the need for fiscal consolidation, in a context of important fiscal and growth risks linked to climate-related shocks (Box 7.1).

BOX 7.1: Fiscal and growth risks from the macroeconomic impact of climate-related shocks

Rwanda is experiencing rising temperatures, in line with global and continental patterns, while rainfall has also been fluctuating. Temperature is approximately 1.25 to 1.5°C higher than preindustrial times and has accelerated from the 1990s. The main climate-related natural disasters that adversely affect the population include droughts, floods, and landslides. These are associated with damages to infrastructure, loss of lives and property including crops, soil erosion, and water pollution. A further rise in temperature across Rwanda is expected in coming years. Best estimates based on plausible emission scenarios indicate a potential for additional warming between 1 and 3 degrees Celsius. Projections of droughts at national level are very uncertain, but they can increase locally, especially in the eastern part of the country.

Rwanda is also prone to hazard, exposure and vulnerability to volcanic eruption and seismic activities. On average, five districts per year face serious natural disasters. But, in 2016 and 2018, the spread and severity of floods and landslides rose well above average, with over 2 million people affected, and negative consequences for agriculture, trade, and industry. Building on lessons learnt over the past several years, the Government has shifted to a more proactive approach. The country has strengthened the institutional, legal and coordination framework for disaster risk management.

MINECOFIN's simulations of the impact of temperature changes show that, apart from a Paris scenario which sees a marginal improvement in GDP growth and level, under each of the climate change scenarios envisaged (moderate temperature, high temperature, hot temperature) there is a compounding decrease in annual GDP growth and the level of GDP. Based on an assumption of unchanged expenditure against baseline, and declining revenue in line with the lower levels of GDP, the primary deficit increases under each scenario except the Paris scenario, leading to an increase in net borrowing and the debt to GDP ratio.

While the overall fiscal risks from the macroeconomic effects of climate change are expected to be relatively modest, at least over the next 30 years, the impact from discrete fiscal risks – such as landslide causing damage to key public infrastructure or transitioning to a carbon neutral economy possibly affecting the value of government assets -- could be significant. Recall that a discrete risk relates to a situation that may or may not occur; but, if it did, could negatively impact assets, liabilities, and government spending and revenues.

The vulnerability to discrete fiscal risks increases when the capacity to absorb risks is low. Financially weak public corporations (PCs) and, more generally, thinly capitalized sectors such as agriculture and mining in Rwanda do not have the financial capacity or access to finance to absorb the financial consequences of natural hazards and climate change risks, and the cost is more likely to fall on the Government. A complete understanding of discrete fiscal risks would require further work to be done on the assessment and quantification of discrete fiscal risks in the coming year. The Government will continue scaling its response to disaster management, with a budget increasing regularly -- Rwf21.4 billion in FY2016/17 to 63.5 billion in FY2022/23. It prioritizes addressing the four levels of disaster risk financing namely agriculture, housing, infrastructure, and environment, while strengthening disaster preparedness and management institutions. Government's proposed actions include:

- Mitigation measures: Increase the use of renewables; promote climate compatible mining; support improved livestock husbandry; scale-up energy efficiency in agro-processing; encourage off-grid and rooftop solar electrification; expand soil and water conservation practices; promote electric vehicles and public transport infrastructure; and support adoption of on-farm biogas for energy.
- Adaptation measures: Expand the utilization of integrated water resources planning and management; achieve diversity in local and export agricultural markets; adopt sustainable forestry, agroforestry & biomass energy; implement vector-based disease prevention; promote climate-sensitive integrated land use planning and spatial planning; enhance the capacity in disaster preparedness and emergency response; and build and use climate data and projections for EWS.

Source: Rwanda Fiscal Risk Statement FY2023/24, Government of Rwanda, April 2023.

Over the short term, Rwanda's development path is expected to include strong growth and significant and expenditure-driven fiscal consolidation in order to stabilize public debt. Relative to output, revenues are expected to normalize to historical levels while total expenditure is projected to be reduced to 29.5 percent of GDP in 2023, in the advent that no major disrupting climate-related shock strikes the country with significant negative macroeconomic and growth impacts (see Box 7.1). The drivers of this decline would be the phasing out of fiscal measures taken to fight the COVID-19 pandemic and SDR-financed spending (the latter could contribute 1.3 percentage points of GDP), rationalization of spending through efficiency gains and digitalization, and better prioritization of the existing pipeline of public projects through the adoption of a medium-term investment program. The fiscal deficit is projected to average 7 percent of GDP in 2023-24, while fiscal consolidation efforts are expected to return the deficit to pre-pandemic levels (around 3 percent of GDP) by 2027. Given the expected economic growth and gradual but steady fiscal consolidation, public debt is projected to stabilize. Central Government debt is projected to peak at 78 percent of GDP in 2024 and then slightly reverse its upward trend in the following years, as the primary deficit is expected to decline from 4.2 percent of GDP in 2024 to 0.7 percent in 2027 amid robust economic expansion.

TABLE 7.1: GDP, Overall Balance and Debt (2019–28)
(YoY real change, and percent of GDP)

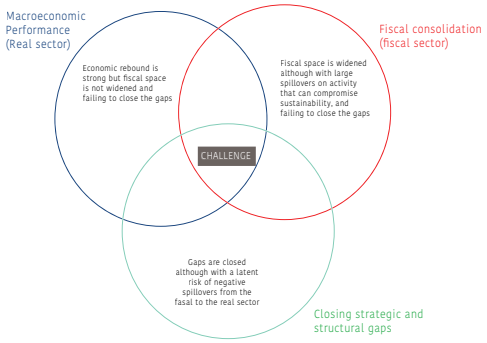
Indicator / Period	2019-22	2023-28
Real GDP - average	6.3	7.0
Overall Balance (% GDP) - average	–7.3	–4.8
Overall Balance (% GDP) - e.o.p	–7.6	–3.0
Average yearly increase in Public Debt (p.p. of GDP)	5.8	0.3
Public Debt (% GDP) - e.o.p	68.0	69.5

Source: IMF, World Economic Outlook (October 2023) for historical data and Article IV (December 2023) for projections.

The weakening of the central assumptions on which this outlook heavily relies could result in a blurrier sustainability perspective. The current macro-fiscal outlook, which results in a mild downward debt trend, involves the joint materialization of sturdy GDP growth alongside fiscal consolidation (Table 7.1).

The structural challenge that Rwanda faces in the next few years will be to ensure a growth friendly fiscal consolidation process while also addressing the closing of infrastructure and spending gaps. On the one hand, focusing solely on broadening the fiscal space entails the risks of failing to meet the strategic infrastructure gaps and harming the expected robust growth path -also crucial for ensuring the projected downward debt trend. On the other hand, directing all of the efforts in boosting the economic cycle without fiscal consolidation efforts (hence exacerbating procyclicality) can jeopardize debt sustainability and the virtuous macroeconomic path itself. Likewise, concentrating the actions purely on closing the strategic infrastructure gaps without seeking a growth-friendly fiscal consolidation process can also hazard the pursued goal if sustainability concerns end up affecting the economic cycle. In this sense, the structural challenge that Rwanda faces in the coming years is how to combine the needed fiscal consolidation process amid a growth-friendly environment while strategic gaps are being addressed (Figure 7.5).

Figure 7.5: The medium-term fiscal outlook and the structural challenges

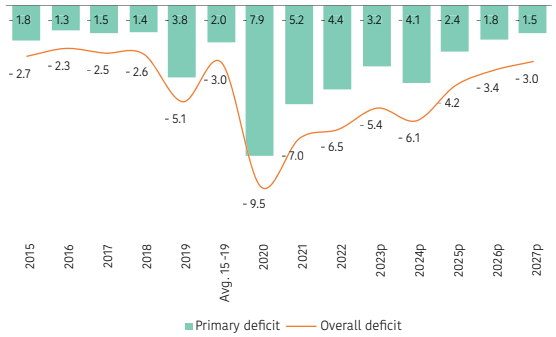


Source: World Bank staff elaboration.

The numerous avenues explored in this document aim at increasing the feasibility of meeting this structural challenge, which shall result in better spending practices and public resource savings. The different set of measures contained in this document can be conceptually grouped in actions to increase public spending efficiency (so as to increase the growth-friendliness of fiscal policy), mobilize revenue without raising legal rates (to underpin an expected expenditure-driven fiscal consolidation process minimizing new burdens over the private sector), and increasing the participation of the private sector in the overall country investment (to reduce the reliance of public spending for meeting the strategic goals).

Figure 7.6: Central government – overall and primary deficit

(Percent GDP)



Source: World Economic Outlook (IMF), October 2023, Article IV – December 2023, World Bank Revenue Dashboard, Reviews for the Policy Coordination Instruments for Rwanda (IMF) and author's calculations.

For fiscal consolidation fully supportive of growth--at least from the expenditure perspective, Rwanda can rely on its reasonably strong fiscal discipline, which explains (at least partially) betterment in expenditure execution rates. Considering the implementation of PFM rules and regulations, the 2022 Public Expenditure and Financial Accountability (PEFA) of Rwanda concludes to the adherence to macro-fiscal and debt management practices that are consistent with reasonably strong fiscal discipline (Box 7.2). The 2022 PER of Rwanda highlights important progress made by Rwanda for instance in rationalizing and controlling ("austerity" efforts) its highly rigid expenditures items, e.g., compensation of employees and public debt service payments. But these efforts need continuous monitoring and greater stabilization. As Rwanda solidifies fiscal discipline, expenditure execution rates reach increasingly high levels--e.g., 85 percent on average in 2017–19, indicating greater (allocative and technical) efficiency achievement[2]. Social functions

BOX 7.2: Rwanda's PFM practices are consistent with reasonably sound fiscal discipline

The level of compliance to PFM rules and regulations in Rwanda is consistent with PFM performance and institutional arrangements that reflect reasonably sound fiscal discipline. The specific elements that follow are worth underscoring:

- Aggregate revenue and expenditure outturns are assessed to be reliable, alongside their respective composition.
- The low levels of in-year budget reallocations, which are done within clear guidelines and strict limits, enhance fiscal discipline.
- Its robust and verifiable macroeconomic and fiscal projection framework, which supports revenue forecasts, is functional and bodes good for quality fiscal projections.
- The general internal control framework shows reasonable performance, with the existence of PFM laws and regulations that provide clear guidance on the segregation of duties, supported by political will to enforce PFM laws.
- The inclusion of all expenditure in financial reports and the timely submission of financial reports by extrabudgetary units to the government are effective. This is facilitated by the low level of revenue and expenditure of extra-budgetary units outside central government operations.
- Sound cash management framework, together with sound public investment and payroll management systems, contribute to strengthening fiscal discipline in Rwanda as well.
- The effectiveness of expenditure commitment control framework is another booster of fiscal discipline in the country.
- A strong debt management system, in addition to the comprehensiveness of recording and reporting on central government fiscal risks, contributes positively to fiscal discipline.

Source: The 2022 PEFA of Rwanda report.

like education and health present execution rates above 90 percent, moving above 100 percent in some years, e.g., linked to support measures related to the COVID-19. Infrastructure sectors, which tend to be intensive in capital spending, present execution rates below 80 percent, with acquisition of fixed assets dragging them down. While preventing faster progress in expenditure execution rates, such significant (sectoral) differences reflect remaining inefficiencies in budget planning and execution affecting mostly infrastructure sectors. A lack of stability in execution rates is another sign of inefficiencies[3], which may delay fiscal discipline from reaching its full potential impact in terms of supporting growth-friendly fiscal consolidation.

Further progress toward fully sound fiscal discipline, as may be witnessed by high and stable execution rates, shall be pursued through addressing some important challenges. The respect of budget appropriations (approved budgets and even revised budgets) should be firmly enforced, with significant deviations kept exceptional and well explained thanks to user-friendly guidelines/ reminders hammered to "offending" budget entities. This would entail in-year (periodic) reviews and updates of the cost of sectoral multiyear plans. This will help ensure that actual programs and ensuing costs are consistent with the medium-term resource envelope, thus providing robust inputs into medium-term fiscal framework (MTFF) and medium-term expenditure framework (MTEF). This upstream step to Parliament's budget discussions and enactment of appropriations could benefit from a refresher regularly afforded to MINECOFIN through a capacity building and modeling program focusing on credible/ reliable approaches to assessing and timely correcting forecasting errors, with perhaps a special attention to those emanating from weaknesses in project appraisal and costing. To ensure that budget outturns get consistently closer to original budgets (downstream step), it is important to tighten guidelines on virements[4], seriously take stock of arrears in the view of eliminating them[5], and deepen spending units' understanding of commitment registration for multiyear contracts and projects.

7.3. Fiscal implications of future drivers of growth

This report has identified several new expenditure needs to drive Rwanda's growth. For example, Chapter 2 discusses an investment program that promotes a more balanced approach across cities, including new transport infrastructure to increase connections between cities. It also describes the expenditure needs of a social protection system that aims to provide lifecycle universal coverage and as such will need to expand its coverage, improve the adequacy of transfers, and increase its financing sources. Chapter 2 proposes expanding government programs to support enterprise growth including investments in skills upgrading, credit reporting systems, and digital public infrastructure, among other new programs. Chapter 3 proposes new investments to reduce trade costs while increasing revenues, including improving logistics and trade transport infrastructure. These additional expenditure needs represent an enormous share of government revenues or investment spending at a time when fiscal space is already limited.

The identified expenditure requirements in some chapters are substantial. In Chapter 6, for example, a low-carbon growth path that meets Rwanda's NDC unconditional commitments will require significant additional resources equivalent to about US$4.2 billion. Together with conditional commitments, the required resource more than doubles to US$11 billion. This will amount to expenditures of nearly 9 percent of GDP each year through 2030. This projected new expenditure is estimated to be larger than all of aid and foreign investment flows combined.

Some of these expenditure needs could be eased by the greater participation of the private sector. Chapter 5, for example, discusses incentives to increase private sector investment in agriculture infrastructure, such as storage facilities and last mile connectivity. Chapter 2 discusses ways to increase private sector participation in skills upgrading, such as through skills audits led by private firms to identify possible improvements to existing curriculum.

7.4. Potential avenues for expanding fiscal space in Rwanda

Rwanda can reduce expenditures by limiting public employee compensation, achieving greater efficiency in health and education spending, improving technical and allocative efficiency of public investment, and improving SOE governance to mitigate contingent liabilities. Efforts to increase tax revenues could focus on reducing tax exemptions and enhancing selected excise tax rates. Greater private sector investment in infrastructure should be encouraged to maintain critical services without overburdening the public budget.

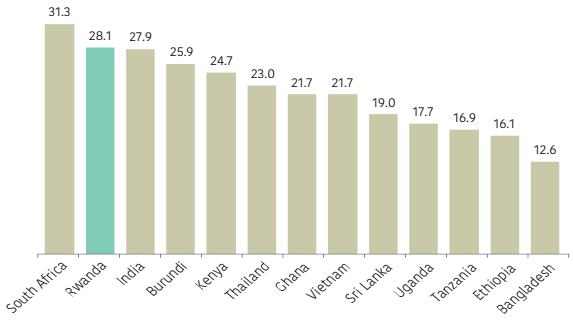
The challenge Rwanda faces is to reduce fiscal expenditures without deferring the achievement of critical development goals, such as closing the infrastructure gap and improving the living standards of the population. The fiscal consolidation process should be carried out in an efficient fashion that minimizes negative spillovers on economic growth. Also, alternative actions should be explored to prevent other equally important structural challenges from becoming an adjustment variable. The following sections discuss fiscal measures in further detail.

7.4.1. Improving the primary balance—rationalization of recurrent expenditures

Rwanda's total public spending is higher than pre-pandemic levels and higher than regional and aspirational peers. Primary spending in 2022 stood at about 4–5 percentage points of GDP above pre-pandemic levels, indicating space for some rationalization of expenditures. Rwanda's high spending relative to peers reflects the country's ambitious fiscal policy that led to exceptionally high growth before the pandemic (the second highest in the continent after South Africa). The gap between Rwanda and its peers was accentuated in fiscal years 2020–21, reflecting the robust government fiscal stimulus to respond to the crisis through the economic recovery plan.

Figure 7.7: Total expenditure – Rwanda vs. peer countries

(2015–21 average, percent GDP)



Source: MINECOFIN and World Economic Outlook, IMF (October 2023).

A substantial share of Rwandan spending will be difficult to adjust in the short term as expenditure displays constraints regarding the presence of rigid items. Around 60 percent of Rwandan expenditures between 1990 and 2018 were allocated to items classified as high to medium rigidity, largely compensation of employees, purchase of goods and services, interest payments and transfers (subsidies, grants, and social benefits), for which the authorities have a very limited margin to modify during a fiscal year. This limits the government's ability to reallocate expenditures to priority and pro-growth programs like public investment.

Potential gains for improving efficiency in health and education spending.

Investments in the health sector are generally put to good use in Rwanda, but there is margin for improvement. Cross country efficiency analysis suggests Rwanda to be a high efficiency country with regards to translating inputs into health services. Given its level of current health expenditures, Rwanda performs significantly better than peer countries on the universal health coverage (UHC) effective coverage index[6]. For example, while Rwanda spends significantly less than South Africa, its service delivery output is comparable. Yet, Rwanda is less efficient at translating service delivery outputs into better performance, indicating need for greater emphasis on service quality and population health interventions. Relatively high efficiency in the production of services should encourage the government to allocate more resources to the sector.

Based on the Public Expenditure Review conducted by the World Bank, measures to improve efficiency of health sector spending include: i) reallocating funding from vertical disease programs (HIV/AIDS and malaria) to RSSB/CBHI benefits package based on claims analysis[7]; ii) reducing administrative costs of RSSB from 21 percent to under 10 percent, as in many OECD countries; iii) strengthening facility management by reducing fragmentation across financing sources; iv) developing a PFM reform roadmap that will foster efficiency and accountability across the budget cycle through a close collaboration between MINISANTE and with MINECOFIN; and v) revising the adequacy of social security contributions which at 16 percent of gross wages seem high and could potentially represent a tax burden to the competitiveness of the private sector while encouraging contribution evasion.

Efficiency gains in the education sector budgets could contribute to fiscal consolidation. Education spending increased by 57 percent in 2020/21, after modest increases in real terms over the preceding four years. Shares of education spending in total government expenditure and GDP reached 13.7 percent and 4.5 percent, respectively, in 2020/21, close to the globally recommended spending level (15 percent and 4.5 percent, respectively). This reflected increases on school construction while schools were closed, the hiring of over 20,000 new teachers, salary increases and improved remote learning/ICT facilities and latrines renovations. Nearly half of the funds were spent at pre-primary and primary education level, followed by secondary education (27 percent).

The World Bank Public Expenditure Review recommended measures to improve efficiency in education as follows: i) prioritize spending on improving learning outcomes as the system continues to expand; in particular, ensure that funding meets the needs of in-service teacher training; ii) further accelerate progress in addressing the issues of high repetition and drop-out by improving quality and learning; iii) increase efficiency of pre-and in-service teacher training programs by harmonizing the content and objectives of different interventions, raising the level of expected impact of teacher training, better aligning it to the needs of teachers at schools, and reducing turnover of teachers. The large number of teachers with no formal educational training, as recruited during the pandemic, raises similar concerns of quality and efficiency of spending; iv) ensure better use of data in decision making, for example, identifying the link between financial resources and student learning outcomes at school levels by making student learning outcomes readily available at disaggregated level (schools and districts).

7.4.2. Capital expenditures

Capital expenditures as a share of GDP were significantly higher than in comparator countries. Between 2015 and 2019, Rwanda's capital expenditure averaged 13.0 percent of GDP, compared to 8.5 percent of GDP in Ethiopia, 5.3 percent in Tanzania, 5.4 percent in Uganda and 5.7 percent on average in SSA. The share of capital expenditure in non-interest expenditures averaged 41 percent in Rwanda between 2015 and 2019, while it was 47 percent in Ethiopia, 33 percent in Tanzania and 37 percent in Uganda. The SSA average was lower than in any of the above-mentioned countries, with capital expenditure accounting for 26 percent of total primary expenditure.

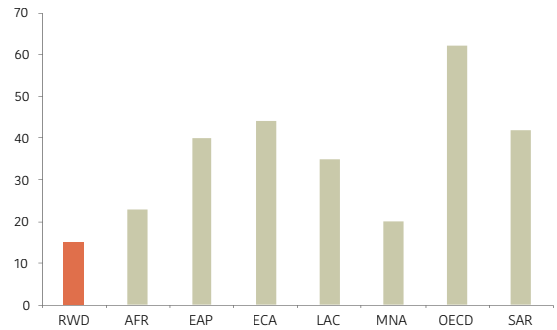
The strong focus of public investment on infrastructure has yielded significant improvements in access and quality of infrastructure. Rwanda's rating for the quality of infrastructure (road, communication, energy, water and sanitation, water transport, air transport, rail transport, and other transport) in the Global Competitiveness Index (GCI) improved from 37 in 2010 to 52 in 2019, compared to an average of 45 for SSA. For example, Rwanda's power generation installed capacity rose to 238.4 Megawatt in 2021, or triple the level in 2010, while access to electricity grew from 6 percent of the population in 2008 to an estimated to 80.1 percent in 2024 (56.2 percent grid and 23.9 percent off-grid). Rwanda also

has achieved strong growth in tourism jobs and foreign exchange earnings through infrastructure investments, for example the Kigali Convention Centre (KCC), RwandAir infrastructure, the Kigali Arena and two five-star hotels.

The priority should be to foster efficiency gains in public investment rather than continuing the current, unsustainable high rate of growth. This will be essential to provide adequate funding to critical needs in the human capital sector and agriculture to ensure long-term inclusive growth. Further efforts to boost efficiency in public investment could involve improvements in both allocative and technical efficiency.

Rwanda's public investment execution is highly concentrated at the central government level. The central government was responsible for 90 percent of development expenditures in 2020/21, while the districts implemented only 13 percent of public investment over 2017–21, compared to an average of about 25 percent in Africa and over 40 percent in South Asia (Figure 7.8). The authorities are encouraged to review the current set-up of responsibilities on capital expenditures across tiers, with a view eventually to seek efficiency through an enhanced role of subnational governments, where feasible. This could include an evaluation of efforts to improve coordination by MINECOFIN through planning and budgeting call circulars in 2016/17–2020/21.

Figure 7.8: Share of development budget managed at subnational levels- Rwanda and global regions
(percent)



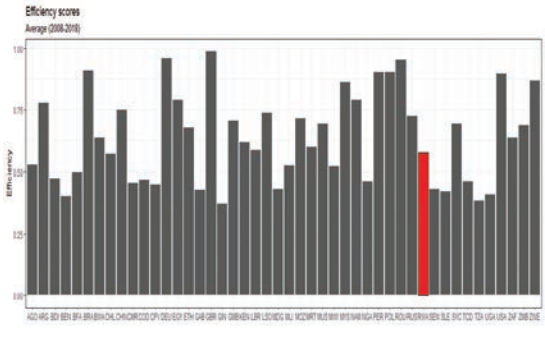
Note: RWD: Rwanda, AFR: Africa, EAP: East Asia and Pacific, ECA: Europe and central Asia, LAC: Latin American and Caribbean, MNA: Middle East and North Africa, SAR: South Asia region.
Source: extracted from World Bank (2020)

Compared to regional and international peers, public investment efficiency in Rwanda seems low. In 2015–19, Rwanda's incremental public capital output ratio (IPCOR)[8], which measures to what extent the increase in public investment is associated with GDP growth, averaged (1.7), higher than in Kenya (1.5) and Burundi (0.7), and equal to the level of Uganda. Therefore, economic growth was apparently being delivered in Rwanda with a relatively higher level of public investments than in its EAC counterparts, except Tanzania. This finding is consistent with a public investment efficiency index derived from data envelopment analysis (Figure 7.9). The index is based on the provision of selected infrastructure services, including the number of hospital beds, broadband subscriptions, access to drinking water, road traffic, logistics performance and port infrastructure. The most efficient country is assigned a score of one. Rwanda has a score of 0.55, indicating that the country has some scope for improving the efficiency of infrastructure investment.

The public investment project portfolio is dominated (in terms of numbers) by micro/small projects and relatively young projects. The number of micro projects, which often fail to benefit from economies of scale in management or services delivery, has grown over the past few years. Nevertheless, they remain a small and declining share of total investment expenditures, as large projects accounted for 62 percent of development

Figure 7.9: Capital efficiency scores

Average (2008-2018)



Source: WB staff estimates

expenditures in 2020/21 (Figure 7.10). As they are probably designed, implemented, or managed separately by different public entities (fragmentation), a large number of micro projects can impose a significant burden on civil servants for a relatively lower impact than larger projects can achieve. The consolidation of such projects would help implement consolidated procurement, which could save money. Similarly, 88 percent of projects were allocated budget for one or two years only, but these projects' share of the budget was 44 percent, compared to 56 percent for three-to-five-year projects. The number of one-year projects has been declining over time, which could potentially contribute to greater efficiency as one-year projects are likely to contribute less to building the structure/infrastructure of an economy, which are drivers of productivity and sustainable economic growth.

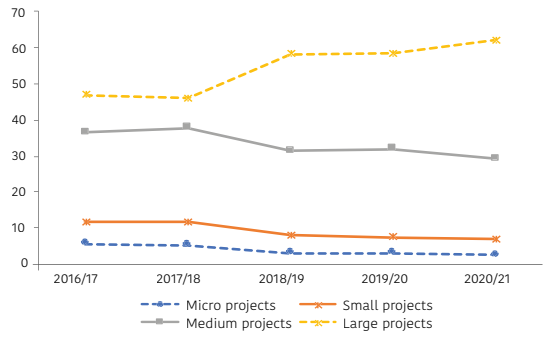
Rwanda's development projects face limited but significant efficiency challenges in terms of implementation delays and stalled projects. The most recent audit report in 2020 finds 62 cases of delayed contracts worth Rwf216.1 billion (around 2 percentage points of GDP) in 38 public entities and projects. Delays were up to 2,721 days. The delays were caused by late payments, inadequate contract management, lack of adequate supervision and inadequate internal control. The office of Auditor General (OAG) reports also note stalled projects due to budget constraints and lengthy procurement procedures. Public entities had abandoned contracts worth Rwf11.7 billion (around 0.12 percent of GDP) by the time of completion of the audit of 2020 projects. This indicates weakness in the mechanism to protect funding for ongoing projects in the annual budget, resulting in wasteful expenditure on abandoned works over the medium term. Shortfalls in project implementation include inadequate design and costing of feasibility studies, changes in terms of reference during implementation, and questionable effectiveness in project management. Poor project management at the district level has resulted in implementation delays, although LODA has appointed private consultants to resolve this issue.

Raising the efficiency of public investment management will be key to rationalizing the use of public funding and can also support the development of a more robust PPP pipeline.

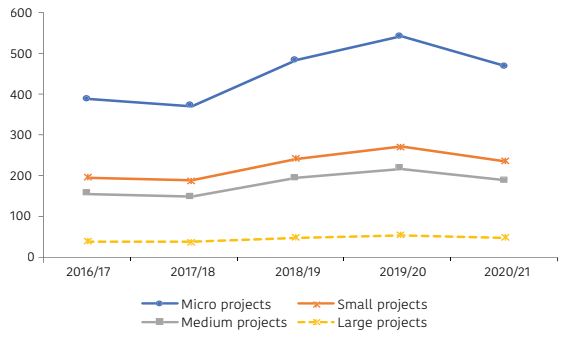
Several aspects of public investment management are of high quality in Rwanda. The IMF's 2022 Public Investment Management Assessment (PIMA) found that Rwanda performs better than peers in SSA and other emerging market economies in the design and effectiveness of public investment management institutions. Rwanda has guidelines for project implementation, which are not often seen in many countries, although more standardization is required. Considerable efforts are made to encourage the participation of citizens and non-governmental stakeholders in the planning and budget process. Comprehensive policy and strategic frameworks support the public investment program, while the legal framework is aligned with government efforts to instill a culture of result-based performance management in the Rwandan Public Service. Budget thresholds

Figure 7.10: Dominant micro and small projects in numbers, but trailing in terms of budget

a) Budget share (%) of categorized projects



b) Number of projects per size category



Source: Author's calculations using revised Laws of Finance's data from MINECOFIN's official website.

help to ensure that the level and complexity of appraisal is commensurate with the investment project, although the formulation of guidelines stating requirements for appraisals could improve planning and coordination of the program.

Most major projects are tendered in an open and competitive process that has become closer to international standards over the past few years, although the capacity in procurement entities remains a challenge. Information on procurement is readily available to the public. However, audited reports show inadequate training, a lack of clear technical specifications in some bidding documents, missing documents, fraud, and failures to follow the procurement law (e.g., not imposing penalties for delays in execution, awarding contract prices that greatly exceed plans).

Despite progress in monitoring, persistent weaknesses have undermined project portfolio management. Funds are rarely or never reallocated during implementation, meaning that money is tied up in poorly performing projects instead of reallocated to high-quality projects that have stalled because of lack of funding. Despite being required, ex-post reviews are not conducted for all major projects. Also, there is no requirement in the guidelines that an independent expert conducts ex-post reviews, undermining their credibility. The OAG indicated that Rwanda does not have the true value of state assets in the financial statements. This impairs investment planning and selection and makes it difficult to estimate maintenance needs. Finally, of the 7 modules in the integrated financial management information system (IFMIS), only planning, budgeting, and accounting are fully operational, while modules for receipts, reporting assets and inventory are not. The IFMIS also is not fully interfaced with the e-procurement system.

Scenario analysis can be used to analyze the impact of efforts to improve public investment efficiency

Increasing the efficiency of public investment, notably through improvement in the public investment management challenges discussed above, could significantly improve debt sustainability or household welfare, depending on how the savings are spent. A computable general equilibrium estimate shows that a hypothetical 10 percent improvement in public investment efficiency would lead to 1 percent of GDP savings per year. Devoting these savings to reducing the deficit would increase GDP in 2030 by 3.5 percent relative to baseline, as reduced government borrowing lowers pressures on the interest rate and reduces the debt to GDP ratio by 4 percentage points relative to baseline. Alternatively, devoting the savings to human capital expenditures would raise GDP in 2030 by 1 percent higher than baseline, and reduce the public debt to GDP ratio by 2 percentage points below baseline in 2030 (less than if savings were devoted to reducing the deficit). Finally, devoting the savings to investments in agriculture, allied activities and rural infrastructure would increase household welfare in rural areas by 2.4 percentage points over the baseline level in 2030, more than 0.2 percentage points more than in urban areas and lift 35,000 more people out of poverty in 2030 compared to the baseline scenario. Without a reallocation to agriculture, the number of people lifted out of poverty by infrastructure investments of 1 percent of GDP would be 15 percent lower.

Recent audit reports and the above analysis indicate several specific measures could improve public investment efficiency and contribute to growth and improvements in equity.

Public investment management efficiency enhancing measures.

- Project appraisal: Issue guidelines on project appraisal for use by all contracting agencies; devote more resources to ensuring upstream planning elements are completed before submission of a proposal; require an assessment of risks and mitigation plans in project appraisals; compile a database of one-off or micro/small projects, with a view to combining them to enable use of framework agreements or consolidated procurement.

- Project selection: Approve only projects with thorough feasibility studies and appraisals; establish a ranking system for proposed projects; require an independent external review of major projects; maintain a comprehensive pipeline of appraised projects; enhance the authority of MINECOFIN to approve projects into a pipeline for potential funding.
- Project implementation review: Expand training of project and contract management; devote greater scrutiny to projects in sectors with a history of greater implementation problems; ensure that the project rationale is reviewed after major cost adjustments are made.
- Maintenance: Provide standards for the costing of maintenance; hire more experienced staff as facility managers; review asset registers for completeness and accuracy.
- Monitoring: Implement a strong central portfolio management system that can monitor project performance and identify systemic patterns of time and cost overrun.
- Abandoned and stalled projects: Give priority to ongoing over new projects in the budget process; analyze the procurement and budgeting system to determine the root cause of stalled projects.
- Transparency: A multitude of national and sub-national government reporting often goes unpublished, reducing scrutiny and accountability. Some of the most important unpublished documents and analysis include the Fiscal Risk Review (FRS) of the government's Portfolio, infrastructure project costs, PPP projects and projects undertaken by public corporations, and project selection criteria. It will also be essential to publish data on sector and urban/rural composition of projects and shares of budget devoted to rural beneficiaries; and operationalize remaining modules in IFMIS (modules for receipts, reporting assets and inventory are not).
- Allocation of capital expenditure planning and implementation across tiers of government: Align more closely roles on recurrent and capital expenditures in health and education, to enhance the role of subnational governments, where feasible. Evaluate MINECOFIN's efforts to improve coordination through planning and budgeting call circulars in 2016/17–2020/21.

Equity and Sustainability

- Equity: As described in Chapter 1 (section 1.2 and subsequent sections), Rwanda needs to rebalance its current investment model to address the declining trend of the growth elasticity of poverty in recent years. This would involve a shift in priorities from large strategic capital-intensive projects in urban areas toward projects critical for broad-based social returns such as in agriculture, allied activities and rural infrastructure.
- Decentralization: To close the rural/urban gap in access to critical services such as roads and communication, Rwanda should build on its successful experience in the decentralization of social spending to increase the share of infrastructure projects implemented at the district level.

7.4.3. Improve State-Owned Enterprises (SOEs) governance to mitigate SOEs related fiscal risks

As emphasized in the first FDG report, defining the role of SOEs in the Rwandan economy and strengthening their corporate governance are important reforms to improve competitiveness and innovation. Properly managed SOEs can be critical to spurring economic development while poorly managed SOEs can cause a drain on public finances and limit private sector development. SOE reforms can have a positive impact on reducing fiscal risks for instance decreasing hidden subsidies, direct transfers, and overstaffing; and can also strengthen competition and develop capital markets.

The government of Rwanda has made it a priority to improve the productivity and returns of profit-oriented public investments. This includes promoting a private sector-driven approach to the management of enterprises which it owns, or in which it holds significant interests. Like other countries in Africa (e.g., Morocco), has identified SOEs as a sector whose management can be improved to unlock gains such as better governance, economic and social efficiency, and reduced dependence on national budgets.

Although current private sector capacity is still limited, Rwanda's long-term goal is to gradually establish a pathway for the private sector to play a leading role in Rwanda's growth. This is expressed in long-term strategies such as the National Medium-Term Strategy for Development (NST-1) and Vision 2050.

This section highlights the key issues that government of Rwanda could prioritize to help unlock better management and performance of SOEs, increase transparency, and ensure better value for money. Rwanda will need to operationalize changes to the legal and institutional framework governing SOEs by selecting and sequencing activities in a strategic way to achieve high impact. Important reform issues that should be prioritized include (i) strengthening the legal framework for SOE governance and oversight (ii) clarifying the institutional arrangements that the government of Rwanda intends to deploy in SOE management and building their capacity (iii) developing an SOE performance management system, and (iv) increasing financial reporting and disclosure. Furthermore, a framework to assess the rationale for State ownership in sectors would be complementary to refocus public resources).

The legal and institutional framework governing SOEs

The management of SOEs is governed under laws relating to public institutions, laws and policies on privatization, and the wider legal framework governing companies and financial regulation. The Organic Law on Public Institutions regulates companies in which the government of Rwanda is the sole shareholder, while company laws and financial sector laws, for example laws governing capital markets, insolvency and bankruptcy, competition and consumer protection, and public private partnerships, are applicable to the full range of entities in the SOE sector. The government of Rwanda has stated its intention to attract private sector investment in SOEs, and various instruments govern privatization, including the law on privatization and public investment, a presidential order establishing a National Privatization Commission and a ministerial order on privatization and sale of government shares. Rwanda has also developed a privatization policy and strategy which articulates the broader goals of its privatization process.

A Presidential Order, which is in the draft stages, seeks to fill gaps in the legal framework governing state-owned companies (SOCs) but can be further strengthened. The draft Order determines the prerequisites for the establishment of an SOC and the rules of its management. Some of the issues the Order covers are the purposes for the establishment of a state-owned company; the priority sectors for investments in a state-owned company; the roles and responsibilities of the general assembly, board of directors and CEO; capitalization requirements; internal audit requirements; monitoring and evaluation; winding up and transfer; and other issues. However, the draft Order does not yet capture all the important issues. Some of the recommended provisions that could be incorporated include provisions to clarify the governance framework for mixed ownership companies, holding companies and their subsidiaries. This will ensure that the wider universe of government investments is captured and there is oversight over them. From a corporate governance perspective, some of the issues that need to be clarified and strengthened include requirements around the professionalization of SOE boards of directors, SOE board remuneration, and transparency including publishing of information by both SOEs and government's supervising entity.

Within the government, MINECOFIN oversees SOE ownership management, although this function was briefly moved to a stand-alone ministry before being reabsorbed. MINECOFIN has long been the government's ownership entity, and this was done through a unit within the ministry. However, the government of Rwanda briefly tested a centralized approach and in 2022 created a standalone ministry—the Ministry of Public Investments and Privatization (MININVEST)[9]—to manage public investments, of which SOEs are one. However, this ministry was discontinued after a year and its functions reabsorbed into MINECOFIN. It is not yet clear what informed the government's decision to discontinue MININVEST, and what

this may mean for the institutional arrangements for SOE management going forward. Furthermore, in addition to government ownership and management, there are at least four holding companies who themselves have an oversight role over the SOEs they control. This gives the portfolio a "tiered" structure which, although not unusual, creates institutional complexity.

Going forward, one of the government's top priorities for the sector should be to enhance MINECOFIN's capacity for the successful execution of its mandate. This includes (a) hiring personnel with well-honed, specialized skills in finance, business strategy, accounting and auditing, legal matters, and human resources management and good knowledge of the sectors in which the key SOEs operate; and a continued effort to training the staff in relevant areas including secondments, study visits and regular peer-to-peer exchanges with ownership entities in other countries; (b) equipping MINECOFIN with a management information system that enables it to carry out its business efficiently; and (c) putting in place efficient coordination mechanisms with the policy ministries in the sectors where key SOEs operate, and the also different SOE holding companies to make coordination as seamless as possible. Furthermore, revamping its privatization function and assessing the effects of SOEs in markets on private investment is necessary as well (See section 2.3.1.2).

Performance management framework of SOEs

As the government moves towards more holistic monitoring of SOEs beyond financial risks, it will need to clearly define a performance management framework that balances the competing operational purposes that SOEs are often faced with. The government's intention is to focus on more holistic monitoring and performance management of SOEs including operational performance. This would entail clarifying a performance target setting and evaluation framework for SOEs. One major challenge in creating performance frameworks for SOEs is that these entities are usually established (and continue in government ownership) because they have both commercial and non-commercial objectives. Often, achieving these non-commercial objectives may carry financial implications which affect the financial health and viability of the entities. The World Bank's toolkit on Corporate Governance of State-Owned Enterprises recommends that a sound performance-monitoring framework should address the inherent tensions between commercial and non-commercial objectives by explicitly identifying the core financial and non-financial objectives of the SOE and by clarifying the government's priorities for the various strategic objectives of each SOE. Ideally, this should lead to the development of appropriate performance targets that reflect and balance both types of priorities.

Defining SOE performance indicators presents the government with an opportunity to articulate broader social and government goals. SOE performance indicators can either be financial or non-financial. On the one hand, financial indicators would cover issues such as profitability, revenue, and debt management, and focus on the financial health and viability of the SOEs. On the other hand, non-financial indicators provide a broader perspective of the company's performance and could be tied to specific government programs or the government's overall social goals, philosophy, or manifesto. Examples of these indicators include customer satisfaction, innovation, climate-smart operations, and employee involvement, amongst several possibilities. In choosing these indicators, the government of Rwanda can ensure that SOEs are furthering the development agenda of the government.

Financial reporting and disclosures

Financial reporting both by individual SOEs and on the overall portfolio needs to be expanded. Currently, only Agaciro and REG publish (on their websites) financial reports with a clean audit opinion.[10] SOEs should submit regular, reliable financial reports, with an appropriate level of public disclosure. Also, the government should publish an annual, aggregate report for the SOE portfolio as a whole. There are no publicly available reports specifically analyzing the performance of the entire SOE portfolio. Examples of countries that publish high-quality aggregate reports include Bhutan, France, Lithuania, Norway, Slovenia, and Sweden.

BOX 7.3: State-owned enterprises

Like most countries in Africa, Rwanda has a large portfolio of SOEs and government shares in private companies. Based on information accessed as of July 2023, the portfolio includes 22 firms that are fully owned by the state (referred to as 'state-owned companies') and 16 companies in which the state holds more than 40 percent but less than 100 percent of the shares (see Annex Tables A7.4 and A7.5). Of these SOEs, four are holding companies, with Agaciro the most prominent (Annex Table A7.6 lists AGACIRO's holdings). * There also are 24 companies in which the state owns less than 40 percent. The state's portfolio is a combination of traditional SOEs (e.g., electricity and water utilities, the post office, the airport management company, the national airline, a state-owned commercial bank, and the national printing company), and companies in competitive markets (for example, agriculture—coffee, cassava, and other cash crops—and agribusiness, climate change, construction, engineering, entertainment—casinos—hospitality, and logistics). Many of these companies represent the government's efforts to act as a business incubator in growth sectors.

Financial position of SOEs

A lack of information on SOEs makes it difficult to estimate their financial position or performance. Financial statements are available for an aggregate of 27 "public corporations", which includes the RSSB and the National Bank of Rwanda (NBR), plus individual statements for Agaciro and RGE (see Annex Tables A7.8 –A7.11). The aggregate financial statement for the year ending June 30, 2022, shows a net profit margin of 25 percent of revenues and a debt-to-equity ratio of 1.1. However, since RSSB in 2019 had assets exceeding Rwf 1.1 trillion and no debt, while no financial statement is available for RSSB in 2021–22, it is impossible to draw any conclusion concerning the financial position of the remaining public corporations.

TABLE 7.2: Summarized financial information of government portfolio as of June 30, 2022
(27 Public Institutions, in million Rwf)

Income statement			Balance sheet		
	30-Jun-21	30-Jun-22		30-Jun-21	30-Jun-22
Revenues	1,052,327	1,379,812	Total assets	6,210,806	7,530,383
Of which subsidies	199,165	105,439	Borrowings	2,337,846	2,837,345
EBITDA	309,619	476,634	Financial liabilities	444,782	443,751
Depreciation and amort.	(143,788)	(62,207)	Other liabilities	853,919	1,165,879
Operating income	165,831	414,427	Equity	2,574,259	3,083,408
Finance costs	(52,447)	(69,733)	Debt/equity	1.1	1.1
Surplus for the period	113,384	344,694			
Net profit margin	11%	25%			

Source: Audited consolidated financial statements for the year ended 30 June 2022.

SOEs receive substantial subsidies, some incur large losses, and in aggregate they owe a significant amount of debt guaranteed by the government of Rwanda. Total subsides to Rwandair, Rwanda Energy Group (REG) and Water and Sanitation Corporation (WASAC) averaged Rwf480 billion a year over 2018–22, equaling 39 percent of revenues over the period (Annex Table A7.7), reflecting their importance to the national economy or compensation for public-service obligations. REG registered losses of Rwf35.5 billion during the financial year 2021–22 (Annex Table A7.10), due mainly to a sharp increase in the cost of electricity sourced from diesel-fuel plants.** The guaranteed debt of SOEs at the end of 2022 amounted to Rwf465.5 billion, equivalent to 3.4 percent of GDP.*** 90 percent of that debt was in local currency, the balance being denominated in US$. The Fiscal Risk Statement (FRS) concludes that "the risk of default in deemed to be low." However, the government of Rwanda views Rwandair, REG, and WASAC as posing a very high fiscal risk. This assessment, which uses the IMF's "SOE Health-check" tool, reflects negative or very low returns on equity, and liabilities that substantially exceed assets, although REG's liabilities are overstated because they include grants which don't have to be repaid. Overall, the available data indicates that SOEs are not a major drag on Rwanda's public finances, but some of them have incurred large losses in the recent period, face significant uncertainties, and therefore represent a potential contingent liability for the state.

Note:

** Agaciro has a portfolio of mostly equity investments valued at Rwf256 billion at the end of 2021, in which the main holdings by far are a controlling stake in the Development Bank of Rwanda (BRD) and 22% of Bank of Kigali (BK) Group Plc.*

*** REG's annual reports for 2020–21 and 2021–22 (https://www.reg.rw/public-information/reports/)*

**** Source: Government FRS, April 2023.*

Policy recommendations to improve SOEs governance going forward

Rwanda has taken positive steps to improve the management and performance of SOEs and increase the value for money of public investments. These include updating its legal framework and performing an initial comprehensive analysis of the financial health of key SOEs. Building on recent achievements, the government of Rwanda could take further steps to improve the way it monitors and manages the SOE portfolio to improve corporate governance practices and strengthen the management of public finances. Key policy recommendations include:

- Address gaps in the legal and regulatory framework governing SOEs to better cover the entire universe of SOEs. This includes strengthening and adopting the Presidential Order on SOCs, and defining the way oversight over mixed ownership entities, particularly those in which the state has a majority stake, will be carried out.
- Clarify the institutional arrangements for SOE ownership management. Having only tested the more centralized management approach for a year and given that MININVEST had not yet been fully operationalized at the time it was collapsed, it is not yet clear what informed the government's decision to halt this approach. There is need for stability and clarity on how the SOE ownership management role will be carried out within the government and the respective roles of MINECOFIN and the policy ministries in the respective sectors. Additionally, a specific issue to address as part of that is how to engage with the holding companies to maximize efficiency and effectiveness.
- Enhance institutional capacity for SOE portfolio monitoring and ownership management. This includes developing and implementing a comprehensive plan to support the full professionalization of staff working on SOE ownership management and deploying better approaches and tools to carry out this key function especially the monitoring of the SOEs' performance and finances. In this respect MINECOFIN will need to assess the different options in terms of ICT solutions to monitor the SOE portfolio and prepare an annual aggregate report on it.
- Enhance the SOE performance monitoring system. For the purpose of carrying out its SOE monitoring activities (including the monitoring of fiscal risk associated with the SOEs), MINECOFIN should develop a methodology to compile and analyze SOE-related data. Such methodology should provide for forward-looking data (e.g., budgets and three-year plans), not just historical data, to be used for monitoring purposes. Furthermore, in its role of SOE ownership management, MINECOFIN should start expanding the scope of its monitoring activities to include other facets of the SOEs' performance and activities including operational/service-delivery/customer-related, human resource/training and corporate governance aspects, through a system of "corporate scorecard" or equivalent. Evaluation of SOEs' achievement of intended public policy goals should also be complemented with an evaluation of indirect effects on market performance and private sector participation in the sectors they operate, and consideration of alternative government interventions to achieve the same policy goals.
- Increase financial reporting and transparency both at the levels of both the portfolio (aggregate) and the SOE themselves. At the portfolio level, MINECOFIN should prepare an annual report presenting the economic performance and the financial situation of the SOE portfolio as a whole and the key SOEs. The report prepared on the basis of the IMF's Health-check tool would be a good starting point for this, as it contains the information for almost of the SOEs. Significant holdings in other companies (e.g., the 22 percent stake in BK), although not SOEs, should also be covered – albeit more briefly in the aggregate report.[11] At the SOE level, a key measure would be the systematic and timely publication of annual audited financial statements.

7.4.4. Fiscal space and efficiency gains in capital expenditure programs might be achieved through a larger role of private sector financing in infrastructure projects

Increasing infrastructure investment in a fiscally sustainable manner is critical to supporting Rwanda's development objectives. Under the second National Transformation Strategy, a key development challenge is the need to increase infrastructure investment. Infrastructure investment will have to rise by 8.8 percent of GDP per year to meet the goal of 6.5 percent annual real GDP growth and reach upper middle-income status by 2035 and by 14.6 percent of GDP per year to achieve the SDGs (Oxford, 2023). However, given fiscal constraints, public and concessional financing alone will not be sufficient to close Rwanda's infrastructure financing gap.

Increased private sector investment in infrastructure will be essential to alleviate the overall pressure on the capex/GDP ratio, as well as to seek efficiency and improved effectiveness in sectors other than infrastructure. Rwanda has performed well compared to regional peers in attracting private investment in infrastructure, but further reforms are required. The government of Rwanda identified PPPs as essential tools for promoting infrastructure in Vision 2050. Consequently, strong government commitment has supported the delivery of a large PPP pipeline, including 39 closed transactions prior to the enactment of the 2016 PPP Act, and a further 24 transactions after the law's enactment, generating a total infrastructure investment of more than US$900 million.[12] However, while the PPP Act and 2018 PPP Guidelines were positive steps in establishing an appropriate legal and regulatory framework for PPPs, further reforms are required to enable PPPs to make a more impactful contribution to the country's infrastructure development agenda.

Attracting further private investment will be essential to meeting infrastructure investment needs, closing the infrastructure financing gap, and pursuing a Green, Resilient, Inclusive Development (GRID) approach. Given that Rwanda is already at moderate risk of debt distress, a significant increase in public investment is unlikely. Similarly, any increases in concessional financing from development partners will likely be minimal. Under these constraints, 55 percent of infrastructure investment required to meet the SDGs will need to be financed by the private sector, a sharp increase on its current share of about one-third of total infrastructure commitments. Rwanda has already established a strong track record in attracting private investment. The country's PPI commitments of 5.6 percent of GDP since 2008 exceeded that of structural comparators (Burkina Faso, Malawi, Mali and Uganda),[13] twice as high as the second-best performer (Uganda) and six times higher than the worst performer (Malawi). And Rwanda's private participation in infrastructure (PPI) (as a percent of GDP) was very close to that of the highest performer among aspirational comparators, Senegal (6.0 percent of GDP). Foreign direct investment (FDI) has been the backbone of private investment in infrastructure, and most FDI is focused on infrastructure. FDI inflows to infrastructure sectors totaled US$235 million in 2018, or 62 percent of total FDI inflows. Inflows as a share of GDP exceeded the level in Rwanda's structural comparators and were higher than the SSA average.

Further reforms to Rwanda's PPP framework are required. Reforms should prioritize efforts to address gaps in substantive provisions of the Act, streamline institutional roles and the PPP process flow, create a strong capacitated and funded central PPP Unit, provide a framework for management of fiscal commitments and contingent liabilities, regulate unsolicited proposals, provide for an objective methodology for project screening and prioritization, embed climate change considerations, establish a framework for local content development, and provide for formal mechanisms for funding project preparation and underpinning public support to PPPs which may include a Project Development Fund and a Viability Gap Fund. These improvements would deliver various benefits, as illustrated below:

- Strengthening the institutional framework. Inconsistencies need to be addressed between the PPP Act and PPP Guidelines. In particular, the guidelines create new and additional institutions, over and above those expressly prescribed under the law, and prescribe a PPP process flow different from that in the PPP Act. Greater clarity is therefore required on the roles of the various institutions (RDB, MINECOFIN, PPP Steering Committee, Public Investment Committee, etc.) to ensure alignment between the PPP Act and the PPP Guidelines and deliver an effective PPP project cycle process.
- Strengthening control of the fiscal commitment and contingent liabilities (FCCL) framework in PPPs. The PPP Act is completely silent on FCCL, while the Organic Budget Law and the PPP Guidelines assign responsibility to MINECOFIN for the assessment and management of FCCL. However, none of these instruments prescribe the process or methodology for FCCL administration (assessment, quantification, approval, management, and reporting). The government of Rwanda has adopted a basic version of the World Bank and IMF's PFRAM tool to support this, and the government of Rwanda received technical assistance from the IMF in 2022 on conducting fiscal risk assessments of PPPs (IMF, 2022b).
- Aligning the PIM-PPP framework. Linkages between the public investment management (PIM) and PPP frameworks need to be developed, where the PPPs could benefit from consistent and systematic processes to identify, prioritize and structure sector investments, as in the PIM framework. Projects considered for PPP suitability by the PPP Steering Committee established in the PPP Act already should have been considered by the Public Investment Committee, while the latter should involve the PPP Steering Committee in reviewing proposed projects. Projects should also be prioritized based on their alignment with the Green, Resilient, Inclusive Development (GRID) approach and ensure the incorporation of green aspects into PPPs.
- Developing a project selection methodology. The PPP Act is silent on the methodology and normative values governing PPP project selection, does not address climate considerations within the project selection process, and does not provide for sub-national PPPs. While the PPP Guidelines include a high-level project selection methodology, based on the World Bank's Project Screening and Analytics Tool (PSAT), in practice the application of the methodology is inconsistent, meaning not all projects are subjected to an identical and uniform evaluation framework.
- Improving project preparation and the design of PPP contracts. The PPP Act contains basic features that a feasibility study should address, with a more comprehensive prescription on how a PPP feasibility study should be undertaken included in the PPP Guidelines. The PPP Act should be amended to provide for more comprehensive coverage on feasibility studies and synergize it with the PPP Guidelines. In addition, the PPP Act contains limited information on tender disputes and renegotiations, except to confirm that the PPP Steering Committee is the administrator and adjudicator of tender complaints.
- Providing for government support mechanisms. The PPP Act and PPP Guidelines are silent on government support mechanisms. There is no reference to a project development or preparatory facility, viability gap fund, or liquidity mechanism for management of contingent liabilities. Effective frameworks for government support mechanisms can be catalytic in PPP program development, and these should be anchored in law.
- Strengthening engagement with stakeholders. Efforts should include developing a communications plan to educate the public sector and civil society on the potential benefits of PPPs, communicating the government of Rwanda's objectives and plans, and explaining the role of the PPP Law in procurement (particularly sensitizing the private sector to competitive procurement processes, which are a departure from the previous use of USPs and direct regulation).

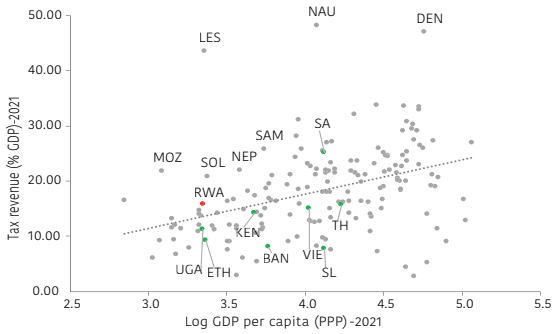
In addition to increasing local financing and using PPP arrangements, efforts to attract additional FDI could be strengthened. Rwanda has a strong legal framework for FDI. There are not de jure restrictions on foreign ownership, capital flows, or capital gain exemptions on sales or transfer of shares. The February 2021 Investment Law formalized the process for the review of strategic investment projects, introduced more performance-based investment incentives, required efforts to accelerate the resolution of investors' issues, and identified priority sectors. Since the establishment of the RDB, company registration can be completed within a few hours, all permits and documents can be obtained at RDB's one-stop shop, investment promotion activities have increased and have been more targeted to priority sectors, and private sector concerns are better addressed across the wider government. Eight of the 17 high-risk grievances registered with RDB's Reinvestment and Aftercare Department have been resolved, resulting in US$26.6 million in retained investment. Rwanda now ranks second in investment climate for FDI in SSA, after Mauritius (World Bank, 2023d). Further efforts at investor promotion, and at increasing the efficiency of investments, should be assisted by regulatory impact assessments and consultations on new regulations, to avoid any unnecessary negative impact on many investors.

7.4.5. Efficiency and effectiveness under existing tax burden

Since Rwanda's fiscal space has narrowed in recent years and the worsening in the public accounts position has been driving up public debt, mobilizing domestic revenue becomes essential to ensure a fiscal consolidation path. Careful attention to any distortionary impact on the private sector represents one dimension amongst others, as the overall tax burden is enhanced. The tax mix, including the use of tax expenditures, are core entry points, and the generous use of tax expenditures in Rwanda during recent periods of significant increase in the tax burden may have had distortionary impacts on doing business across and within priority sectors. At the same time, the revenue capacity to service debt is a core underpinning of a sound fiscal space. For Rwanda, the number of tax years, to repay outstanding debt, rose gradually from 1.5 in 2012, the lowest recent level, to 4.1 years in 2022, signaling that fiscal space is constraining.

Rwanda has had considerable success in increasing tax revenues, but there is still room for improvement. Tax revenues rose from about 11 percent of GDP in 2009 to 16 percent in 2022. Substantial increases in income taxes and in VAT revenues reflected tax reforms and modernization of tax systems and administration. In 2021, Rwanda's ratio of tax revenue to GDP was around 4 percentage points above the average of regional peers (11.6 percent) and around 0.5 percentage points higher than the average for SSA (15.2 percent). Nevertheless, Rwanda's tax performance remains below that of some top-performing comparators, particularly South Africa. For example, Rwanda's tax revenue of 16 percent of GDP is well below South Africa's level of 25 percent. Indeed, Rwanda is only slightly above the level of tax receipts expected, given its GDP per capita (Figure 7.11). The World Bank estimates that Rwanda could raise its ratio of tax revenue to GDP by 3–4 percentage points.[14] A major contribution to this goal would involve reducing the size of the informal sector, which currently accounts for about 80 percent of the workforce, as well as addressing inefficiencies issues in the tax expenditure portfolio.

Figure 7.11: Tax revenue vs GDP per capita (2021)



Source: World Economic Outlook (IMF), October 2023 and World Bank Revenue Dashboard.

Recent tax measures include the introduction of new taxes and improvements in tax compliance. The government of Rwanda introduced a new income tax in 2017 and a property tax in 2018. Several steps have been taken to strengthen VAT compliance, in part based on recommendations from a 2019 Tax Administration Diagnostic Assessment Tool (TADAT), including: (i) measures to boost registration by using information from other government databases and (ii) intensive relying on technology by, for instance, expanding the use of electronic billing machine (EBM) software to provide real-time information to the RRA on VAT transactions, using SMS messages to send reminders to file and pay taxes, and linking EBM and customs declarations to the E-tax systems to detect underreporting. This digitalization of tax services has accomplished a key strategic objective in the Transformational Governance Pillars of the NST-1.

Complementary innovations in reporting technology and tax incentives have the potential to further improve compliance and revenue mobilization going forward. As of 2020, the EBM for All policy requires large firms to provide EBM receipts issued by their suppliers in order to deduct expenses on their tax declarations. Aligning incentives along the supply chain has led to greater adoption of EBM technology by small suppliers, more reliable expense accounting among large firms, and higher tax revenue, as documented in a Background Note jointly prepared by DIME and RRA staff. Expansion of these incentives has the potential to reduce informal economic activity and ease the cost of doing business in the medium term, advancing the Economic Transformation Pillar of the NST-1.

Revenues from excises could be enhanced, to support objectives in human capital development. Excise taxes can both raise revenues and help to achieve broader policy objectives, including combating pollution, improving health indicators, or improving equity. The demand for goods and services subject to excises are often relatively price-inelastic, making revenue generation predictable and relatively robust. World Bank (2023) points to options for improving 'gift taxes', combining revenue enhancements and a positive impact on health. Increasing the tax burden on the consumption of these items may also have an impact on the longer-term growth agenda, through a 'healthier' human capital foundation, as well as re-prioritization of health measures, towards other needy areas than 'gift-related diseases. Despite having among the highest cigarette taxes in the region, the current 64 percent is lower than the 75 percent total tax burden (tax as a percent of average RSP) recommended by WHO. Excises on soft drinks, and on wine/liquor may also be enhanced, in terms of rates applied and the use of ad valorem principles, while a high yield is already arising from excises on beer. Any revenue enhancement efforts through rate changes in Rwanda's excise taxes should comply with the EAC's excise harmonization framework prohibiting higher taxation of imported goods than on similar domestic production.

The revision of tax expenditures should strongly discontinue those that were created to mitigate the effects of the pandemic and intended to be temporary. There currently are at least 51 provisions on tax expenditures, including half of them for VAT, 16 for income tax, and 10 for import duty (MINECOFIN, 2023); where most of the income taxes measures aim at fostering investment. The 2019 tax expenditure reports estimated total foregone tax revenue at 17.9 percent of total tax revenue collection in 2019, which is equivalent to 3.2 percent of GDP. The revision of tax expenditures should result in a discontinuation of those that were created to mitigate the effects of the pandemic and intended to be temporary. During 2022, however, the government of Rwanda added on new tax expenditures, raising the importance of seeking a more sustainable level of tax expenditure portfolio (IMF, 2023).

While the increase in tax expenditure in response to COVID was partly designed to mitigate the rising cost of inputs, much of the forgone revenue is leaked via VAT exemptions. A tax holiday was granted on inputs for the factory producing masks in Rwanda,

while a reduction in the fuel levy was introduced to mitigate the effect of the international oil price increase. The government of Rwanda also adopted temporary tax incentives under the Manufacture and Build to Recover Program (MBRP) to fast-track investments to support the recovery. Tax expenditure related to VAT is estimated at 1.5 percent of GDP in 2019, or 46.4 percent of total tax expenditure. The five largest categories of VAT expenditures included education (12.1 percent of VAT tax expenditure), financial services (11.0 percent of VAT tax expenditure), transport services (10.6 percent of VAT tax expenditure), petroleum products (8.5 percent of VAT tax expenditure) and machinery and equipment (8.2 percent of VAT tax expenditure). The second largest source of tax expenditure are import duties, which in 2019/20 accounted for 40.1 percent of total tax expenditure or 1.3 percent of GDP. Corporate income tax expenditures are estimated at 13.6 percent of total tax expenditure or 0.4 percent of GDP.

Enhanced focus on fiscal management of tax expenditures is key to ensure portfolio efficiency and to target tax expenditures towards key sectors of importance in the growth agenda. If the structure of the tax base changes, expenditures can grow unexpectedly large. For this reason, tax expenditure reporting is crucial to transparent fiscal management. MINECOFIN's Chief Economist office have published three tax expenditure reports, promoting transparency and prudent fiscal management of Rwanda's domestic revenue. By annually estimating and publishing the financial cost tax expenditures, or fiscal revenue foregone, this reporting applies the same scrutiny to tax incentives and exemptions as other forms of public expenditure. For example, efforts to evaluate VAT tax expenditures are especially important. as VAT is charged on value-added; zero-ratings and exemptions can pass through supply chains to unexpected or undesired beneficiaries. Other best practices include sunset clauses, where all tax expenditures are set to expire in 3–5 years, limiting the size of the tax expenditure envelope.

To complement ongoing tax expenditure reporting, rigorous impact evaluation can enable holistic cost-benefit analyses. Tax expenditure reporting reveals estimates of the government outlay of a given tax policy. To make a concrete statement about impact, policymakers require estimates of the social value of a given policy. Credible estimates of benefits use rigorous impact evaluation research methods, predicated on the creation of a credible counterfactual.[15] The research team at the Rwanda Revenue Authority have placed concerted efforts on research which evaluates the benefit of tax expenditures. Recent evaluations completed jointly by RRA and DIME staff include fee waivers for overdue VAT payments during COVID-19 and tax exemptions for manufacturers of masks during COVID-19.

The Medium-Term Revenue Strategy (MTRS) measures established central guidelines to consolidate tax revenue. MTRS measures and the unwinding of temporary exemptions are expected to add 1.5 percentage points of GDP to tax revenues. Alongside this, the government of Rwanda has also recently started taxing immovable property. The unfolding of these measures aimed at maintaining domestic revenue mobilization is crucial to preserving debt sustainability while supporting the nascent recovery, provided any increase in tax burden is not creating disincentives for economic growth or dampening equity and household welfare.

TABLE 7.3: Tax expenditure by type - Rwanda
(percent GDP)

Rwanda's tax expenditures	2017/18	2018/19	2019/20
VAT	1.5	1.5	1.5
Corporate Income tax	0.3	0.4	0.4
Import duties	0.7	1.1	1.3
Total tax expenditure	2.4	3.0	3.2

Source: World Bank staff calculations using data from MINECOFIN.

Annex 7.1. Matrix of key policy recommendations: Fiscal sustainability

Note: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
4.7.1	**Policy Area 1: Addressing the Underlying Challenges to Foster Efficiency Across Social Spending.**				
	Priority Area 1: Strengthen PFM in the Health Sector.				
	Identify and exploit opportunities to strengthen PFM in health.				
	Encourage MINISANTE to develop a PFM reform roadmap to foster efficiency and accountability across the budget cycle, in close collaboration with MINECOFIN and the districts.		HP	ST	HF
	Strengthen facility and hospital financial management capacity.				
	Implement a training program in accounting and reporting of various financing sources.		MT	HP	HF
	Ensure that FMIS deployment to district hospitals is matched with human capacity for system utilization.		MT	HP	HF
	Consider a support structure of districts accountants to facility managers when no accounting staff is on site.		MT	HP	HF
	Enable the IFMIS to respond meaningfully to health managers' information needs.				
	Create a cross tabulation in the FMIS that allows for a summary of spending by meaningful categories for the health sector.				
	Include a functionality enabling a data presentation by total wage bill, drugs and medical supplies, spending on community health workers, and transfers to RSSB.		HP	ST	HF
	This is critical for health sector management and is not easily generated given the categories in the FMIS.		HP	ST	HF
	Create this presentation through manual tagging in the health sector as the budget is developed.		HP	ST	HF
	Draw customized reporting from this adapted presentation to the health sector.		HP	ST	HF
	Strengthen expenditure data integration.				
	Build on existing expenditure management systems and strengthen integration of systems		HP	MT	HF
	Ensure ability of the IFMIS to capture holistically what financing sources are paying for what spending categories in the health sector.		HP	MT	HF
	Strengthen the capacity to purchase health services strategically, based on reliable information on costing, improving evidence-based decisions.		HP	MT	HF
	Priority Area 2: Strengthen the Impact of the Insurance System.		HP	MT	
	Reduce administrative costs of RSSB from 21 percent to under 10 percent, as in many OECD countries.		HP	MT	HF
	Expand RSSB capacity to carry out informed decision-making more effectively.				
	Invest in an RSSB member database, provider database and claims database at RSSB.		HP	LT	LF
	Build capacity for data management and conduct periodic analysis.		HP	LT	LF
	Design RSSB data system to prepare for the transition to capitation-based payments and to ensure efficiency in operations.		HP	LT	LF

Note: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
	Improve membership enrollment to CBHI.				
	Streamline membership enrolment by scanning individual's ID documents.		HP	LT	LF
	Fasttrack CBHI enrolment mechanism of foreign nationals living in Rwanda.		HP	LT	LF
	Prepare members for a shift to subsidized enrolment under a dynamic social registry.		HP	LT	HF
	Prepare shift to capitation per member per month based on the number of members registered with health center during previous month.		HP	LT	HF
	Continue strengthening the management of RAMA for better benefits to members.				
	Revisit and monitor contribution rates and expenditures for RAMA members.		HP	ST	HF
	Ensure a comprehensive benefit package and insurance solvency.		HP	ST	HF
	Consider the impact on labor cost.		HP	ST	HF
	Revisit/ review the adequacy of social security contributions.		HP	ST	HF
	Consider aligning social security contributions to regional/ global best practices, which, at current level of 16 percent of gross wages, are high and a tax to the competitiveness of the private sector and encourages contribution evasion.		HP	ST	HF
	Rationalize the excessive annual surplus that RAMA is accumulating.		HP	ST	HF
4.7.2	**Policy Area 2: Addressing the Underlying Challenges to Stronger Tax Efficiency**				
	Priority Area 1: Make Administrative Reform to Reduce the Fixed and Variable Costs of Compliance by Small Firms.				
	Facilitate small firms' compliance.				
	Extend the usage of the free EBM software to MSMEs.		HP	ST	HF
	Consider subsidizing airtime for accessing relevant administrations informing on compliance requirements.		HP	ST	HF
	Priority Area 2: Make Interventions to Promote Taxpayer Compliance.				
	Support a knowledge sharing and training program for taxpayer compliance.				
	Develop the capacity of taxpayers on legal requirements for compliance.		MP	ST	HF
	Provide technical skills to taxpayers on compliance.		MP	ST	HF
	Sensitize taxpayers on the financial benefits of compliance.		MP	ST	HF
	Priority Area 3: Increase Compliance by Large Firms. Utilize EBM and CIT Data to Identify Noncompliance by Large Firms and Inform Auditing Activities.				
	Reduce the willingness for and/ or incidence of noncompliance in the large firms' segment.				
	Utilize EBM and CIT data to identify noncompliance by large firms.		HP	ST	MF
	Inform auditing activities to carry out timely audits and eventual tax redress.		HP	ST	MF
	Priority Area 4: Deepen the Impact of EBM Technology on Tax Revenue/ Compliance.				
	Make periodic adjustments on the EBM technology to accelerate its wide adoption.				

Note: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT). **Feasibility**: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
	Recalculate the optimal threshold of income tax expenses to be supported by EBM receipts.		MP	LT	MF
	Add a module on EBM usage, supply chain relationships, and informal transactions to NISR statistical products, such as the Establishment Census or Industrial and Mining Survey.		MP	LT	MF
	Consider alternative policies increasing compliance through EBM technology and supply chain incentives (taxation of HNWI, validation of PIT, validation of CIT turnover).		MP	LT	MF
	Priority Area 5: Expand evidence-based decision-making in tax policy				
	Incorporate cost-benefit analysis and rigorous impact evaluation methods into implementation of tax revenue and expenditure policies.				
	Partner with external organizations to evaluate policies and develop capacity to evaluate policies internally.		HP	LT	HF
	Incorporate impact evaluation into project budgets and implementation plans.		HP	LT	HF
4.7.3	**Policy Area 3: Improve Public Investment Efficiency for Strong Growth and Improvements in Equity.**				
	Priority Area 1: Enhance Public Investment Management (PIM) Efficiency.				
	Improve project appraisal.				
	Issue guidelines on project appraisal for use by all contracting agencies.		*HP*	*LT*	*HF*
	Require an assessment of risks and mitigation plans in project appraisals.		*HP*	*LT*	*HF*
	Compile a database of one-off or micro/small projects, with a view to combining them to enable use of framework agreements or consolidated procurement.		*HP*	*LT*	*HF*
	Improve project selection.				
	Approve only projects with thorough feasibility studies and appraisals.		HP	LT	HF
	Establish a ranking system for proposed projects.		HP	LT	HF
	Require an independent external review of major projects.		HP	LT	HF
	Improve project implementation review.				
	Expand training of project and contract management.		HP	LT	HF
	Devote greater scrutiny to projects in sectors with a history of greater implementation problems.		HP	LT	HF
	Ensure that the project rationale is reviewed after major cost adjustments are made.		HP	LT	HF
	Eliminate abandoned and stalled projects.		**HP**	**LT**	**HF**
	Give priority to ongoing over new projects in the budget process.		HP	LT	HF
	Analyze the procurement and budgeting system to determine the root cause of stalled projects.		HP	LT	HF
	Increase the capacity to undertake quality maintenance.				
	Provide standards for the costing of maintenance.		HP	LT	HF
	Hire more experienced staff as facility managers		HP	LT	HF
	Review asset registers for completeness and accuracy.				

Note: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT).
Feasibility: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
	Promote impeccable transparency.				
	Promote the systematic publication the multitude of national and sub-national government reports that often goes unpublished.		HP	LT	HF
	Operationalize remaining modules in IFMIS (modules for receipts, reporting assets and inventory are not).		HP	LT	HF
	Priority Area 2: Support Equity and Sustainability.				
	Rebalance the current investment model to address the declining trend of the growth elasticity of poverty in recent years.				
	Operate a shift in priorities from large strategic capital-intensive projects in urban areas toward projects critical for broad-based social returns (agriculture, allied activities, and rural infrastructure).		HP	LT	HF
	Increase the share of infrastructure projects implemented by districts , building on its successful experience in the decentralization of social spending. Publish data on sector and urban / rural composition of projects and shares of budget devoted to rural beneficiaries.		HP	LT	HF
	Assess Allocation of capital expenditure planning and implementation across tiers of government.				
	Align more closely roles on recurrent and capital expenditures in health and education, to enhance the role of subnational governments, where feasible.		HP	LT	HF
	Evaluate MINECOFIN's efforts to improve coordination through planning and budgeting call circulars		HP	LT	HF
4.7.4	**Policy Area 4: Addressing the Underlying Challenges for Stronger Private Sector Financing of Infrastructure (Public Private Partnership - PPP).**				
	Priority Area 1: Strengthen the PPP Framework.				
	Strengthening the quality/ readiness of PPP projects.				
	Strengthen the institutional framework to remove inconsistencies, ensure alignment between the PPP Act and the PPP Guidelines, and deliver an effective PPP project cycle process (amendment to PPP Act & Updated PPP guidelines).	MINECOFIN; RDB	HP	ST	MF
	Develop methodology to provide clear and consistent process for project selection and prioritization, also incorporating climate change considerations (amendments to PPP Act, Updated Guidelines).	MINECOFIN; RDB	HP	ST	MF
	Provide more detailed guidance, aligned with the PPP Guidelines, in the PPP Act to support preparation of higher quality feasibility studies and draft contracts (amendments to PPP Act).	MINECOFIN; RDB	HP	ST	MF
	Consolidate the skills of PPP managers.				
	Strengthen control of FCCL in the PPP Act and the PPP Guidelines to provide for adoption of a framework, process, and methodology for FCCL management. In addition, recognition of PPPs within Organic Budget Law. (Amendment to PPP Act, development & adoption of FCCL Guidelines/ Framework).	MINECOFIN; RDB	HP	ST	LF
	Improve management of USPs by tightening the grounds of admission of USPs to and encouraging competition in the procurement process via updates to the PPP Act and the PPP Guidelines (amendment to PPP Act, updates to PPP guidelines).	MINECOFIN; RDB	HP	ST	HI

Note: **Priority**: High (HP) Medium (MP). **Timeframe:** Short-term (ST), Medium-term (MT), Long-term (LT).
Feasibility: High (HF), Medium (MF), Low (LF)

	Actions	Responsible Agency	Priority	Time-frame	Feasibility
	Enable the use of government support mechanisms in the PPP Act and PPP Guidelines (amendment to PPP Act, updates to PPP guidelines).	MINECOFIN; RDB	HP	ST	MD
	Build capacity of staff from key government institutions in PPP project identification, preparation, procurement, contract management and good practices.	MINECOFIN; RDB; MININFRA	HP	MT	HF
	Develop communications plan to strength engagement with the public sector and civil society on the potential benefits of PPPs.	MINECOFIN; RDB	MP	LT	HF
	Priority Area 2: Develop the PPP Pipeline.				
	Pursue a small number of flagship projects to test and strengthen the institutional and regulatory framework.	MINECOFIN; RDB	MP	LT	HF
	Build the capacity through learning-by-doing.	MINECOFIN; RDB	MP	LT	HF
4.7.5	**Policy Area 5: Improve State-Owned Enterprises (SOEs) governance to mitigate fiscal risks and improve business environment**				
	Priority Area 1: Strengthen the legal and institutional framework for SOE governance and oversight				
	Bridge gaps in the legal and regulatory framework governing SOEs by improving and adopting the Presidential Order that is currently in draft form	government of Rwanda	HP	MT	HF
	Assign clear responsibilities for SOE ownership management within the government and develop coordination mechanisms	MINECOFIN	HP	ST	HF
	Enhance MINECOFIN's institutional capacity for SOE management by: • Training of staff on corporate governance, monitoring and evaluation and corporate finance • Upgrading the SOE monitoring tool	MINECOFIN	MP	MT	HF
	Priority Area 2: Strengthen SOE performance monitoring				
	Build an SOE performance management system and expand the scope of monitoring to operational/service-delivery/customer-related, human resource/training and corporate governance aspects, through a system of "corporate scorecard" or equivalent	MINECOFIN	MP	LT	MF
	Priority Area 3: Increase financial reporting and disclosure				
	Prepare and publish an annual aggregate report for the SOE portfolio as a whole	MINECOFIN	HP	MT	HF
	Establish guidelines for individual SOEs to produce and disclose their annual financial reports	MINECOFIN	HP	ST	HF

Annex 7.2. Medium-term macroeconomic trends

Historical macroeconomic trends

Rwanda made significant economic and social progress in the two decades before the outbreak of the COVID-19 pandemic. As a result of rapid growth and decisive reforms during the last two decades, real economic growth averaged 7.4 percent in 2000–22 and per capita GDP almost tripled in constant price terms. This is significantly higher than their counterparts in SSA. This group of countries has grown at an average rate of 4 percent in the same period, leading to an increase in per capita GDP of about 30 percent.

The outburst of the pandemic and global recession affected the economy of Rwanda in 2020. After growing at an average rate of 7.4 percent in the five previous years, Rwanda's GDP contracted by 3.4 percent in 2020, surpassing the slowdown in SSA (–1.6 percent). Thanks to strengthened vaccination efforts, a pickup in external demand, accommodative macroeconomic policies, and base effects from the economic contraction observed in 2020, Rwanda's economy has rebounded strongly in 2021, even more than SSA (+10.9 percent and +4.7 percent respectively).

Inflation decelerated in 2020 and remained subdued in 2021 but peaked in 2022 amid global turmoil. End-of-period inflation reduced from 6.7 percent in 2019 to 3.7 percent in 2020 and 1.9 percent in 2021. However, inflation surged to 21.6 in 2022, mainly driven by Food and non-alcoholic beverages (44 percent).

The current account deficit has been widening in recent years, reaching a peak in 2022. The current account deficit increased by 0.7 percentage points in 2022 compared with the 2015–19 average, and by 1.7 percentage points compared with the improvement registered in 2021. This was mainly a result of the strong economic recovery which is reflected in imports but partially offset by the recovery of metals and manufacturing exports. As tourism receipts remained weak in the context of the pandemic, the current account benefited from strong growth in remittances.

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Notes

[1] In this chapter 7, the efficiency analysis of public expenditure means responding to the following basic question: have public resources been used efficiently in delivering public services, i.e., allocated to the 'right' interventions, with the 'right' mix of inputs and at an optimal per unit cost? (See (Republic of Indonesia; World Bank, 2020)]). Relying on the framework in Pradhan (1996) (Pradhan, 1996)[Pradhan, Sanjay. 1996. "Evaluating Public Spending: A Framework for Public Expenditure Reviews. World Bank discussion papers; no. WDP 323, Washington, D.C.: World Bank Group"] that guided for instance Indonesia 2020 PER, we define efficiency as "...the use of inputs (e.g., monetary and non-monetary) to produce outputs (goods and services) at the lowest cost possible, or commonly referred to as "doing things right". Efficiency generally has two dimensions: allocative efficiency and technical efficiency. Allocative efficiency refers to whether resources are being spent on the 'right interventions' (i.e., optimal mix of inputs to produce outputs) across or within the sectors. Technical efficiency refers to the capacity to produce the outputs and to do so at the lowest cost (minimizing cost per unit of output)".

[2] The efficiency of spending can be assessed by looking at budget execution rates (See Republic of Indonesia; World Bank (2020, p. 150)).

[3] Aggregate expenditure outturn was between 85 and 115 percent of approved aggregated expenditures in 2 of the last 3-year period 2017–19. According to the PEFA guidelines, this performance corresponds to a score of "C" (with "A" being the highest score), which suggest significant differences between budget estimates and actual expenditure that reflect inefficiencies in budget planning and execution.

[4] The International Monetary Fund points out to the importance of regularly issuing updated guidelines on the permissible use of virements, alongside closely monitoring which expenditure lines virements are concentrated on, and advising to only approve virements that are "business critical".

[5] ...putting special attention to spending units that are at high risk of re-accumulating expenditure arrears.

[6] The UHC index is a composite index comprised of 23 indicators drawn across a range of health service areas.

[7] To the extent possible, partners should relax co-financing requirements for vertical disease interventions.

[8] The Incremental Public Capital Output Ratio (IPCOR) measures the marginal productivity of capital. A higher IPCOR value for a given country indicates a higher investment required to earn an additional point of GDP growth, and thus a lower marginal productivity of capital. It is computed as the ratio of GDP growth (denominator) to the rate of capital spending to GDP (numerator) (World Bank Group, 2015).

[9] In 2022, the Ministry of Public Investments and Privatization (MININVEST) was created as a dedicated public investment ministry, hived off from MINECOFIN, with the mandate to promote and ensure productivity of profit-oriented public investments and privatization. The Ministry was tasked with unlocking the potential for growth that public investments present for the Rwandan economy. MININVEST's mandate covered profit-oriented public investments, which includes for profit SOEs. At the time, MININVEST's core responsibilities included developing national laws and policies on public investment and privatization; identifying and analyzing strategic opportunities for profit-oriented public investments which will lead to economic growth for Rwanda; monitoring the performance of profit-oriented public investments to ensure their financial and economic viability; identifying public investments that should be privatized and the modalities to do this; and identifying and optimizing government assets through strategic monetization.

[10] BDR also publishes its annual financial statements.

[11] Examples of countries who publish "best-practice" SOE aggregate reports include inter alia France, Lithuania, Norway and Sweden.

[12] Forward Looking Joint Sector Review for FY (2018/2019); Least Cost Development Plan (2019 – 2040); Rwanda Investment Teaser (2020); Accelerating investments in Affordable Housing Development (2020); Investment Incentive Performance Review (2020). Sources collated in World Bank Rwanda Economic Update, 2021.

[13] These are low-income countries with GDP per capita (based on Atlas method) below US$1,035, and lower middle-income countries (LMICs) have GDP per capita (Atlas method) of between US$1,036 and US$4,045.

[14] The World Bank estimates the potential tax capacity of a country by using the Stochastic Frontier Analysis module from Stata, controlling for per capita GDP and the openness of the economy.

[15] In impact evaluation, a credible counterfactual is an estimate of the outcomes of the population targeted by the policy's outcome, in the absence of the policy.

CONCLUSION

Improving on, and even continuing, its remarkable rates of growth and poverty reduction Rwanda will need to address several key issues. These include low levels of domestic savings, the low quality of education and skills, limited innovation and productivity growth by firms, the high concentrations of exports in primary commodities, low coverage of improved seeds or irrigation, high vulnerability to climate change and the accelerating degradation of natural assets, and a mounting public debt burden all constrain development.

Rwanda's stellar economic performance in the face of these limitations speaks to the quality of its institutions and policies. Nevertheless, there remains considerable potential to strengthen the policy framework, which is essential if the government is to achieve its development ambitions. Key goals include removing constraints on private sector competition and improving programs that support firms (particularly in innovation), continued infrastructure investment in key areas (e.g., to support trade, ICT), improving education and skills, increasing access to public services and expanding social protection, supporting agricultural productivity, using nature-based solutions to maintain natural assets, adapting to climate change, reducing greenhouse gas emissions in ways that improve the quality of growth and welfare, and strengthening fiscal sustainability. The main policy recommendations, while interlinked, can be divided into four major themes: sources of growth, productivity and competitiveness, inclusiveness and sustainability.

Recommendations to boost growth focus on savings, education and skills, and heath. Improvements to the Ejo Heza scheme, increased digitization, training in financial literacy, and support for innovative savings products would increase savings. Priorities for education include improving teachers' skills, expanding access, focusing on foundational skills and remediation at the lower grades, and strengthening STEM education and addressing gender gaps in secondary school. Other efforts to improve skills include addressing skills mismatches, and expanding internships, apprenticeships, scholarships and loans. Policies to improve the efficiency of health services could focus on assessments of the issues confronting quality of care, reallocating resources from vertical disease programs to the RSSB/CBHYI benefits package and investing in health workforce education. Equity considerations should play a larger role in planning, for example in the workforce establishment plan and district health budget allocations.

Improving technological capabilities and innovative activities, supporting for ICT and digitization, reinforcing the insolvency regime, strengthening the privatization legislation, rationalizing the SOE portfolio, and strengthening programs to promote competitiveness would help to increase productivity. The portfolio of SME support programs should be upgraded and rationalized, while training, support to the digitalization and consolidation of SACCOs, and improving financial institutions' services could increase SMEs' access to finance. Support for ICT and digitization could include strengthening digital capacity, data infrastructure and cybersecurity, supporting interoperable systems (e.g., payments systems), and expanding online commerce. Efforts also are needed to develop and deepen technological capabilities and innovative activities, for example to help firms achieve ISO Certification, and to encourage firms to use a combination of short- and long-term production targets.

Trade openness is also critical to improving productivity. Key steps to increase export growth include supporting firm innovation and productivity, reducing restrictions on services trade, strengthening the legal framework for cross-border data transfers, building closer trade links to the DRC and implementing measures to benefit from the African Continental Free Trade Agreement (AfCFTA), strengthening Rwanda's role as a regional hub for transit trade, and using investments and international agreements to attract FDI in modern sectors.

Policies to promote inclusiveness should focus on generating high-quality jobs and strengthening social protection. Urban planning should promote a more balanced approach to structural transformation, densification and more compact urban growth. Developing secondary and satellite cities, and upgrading informal settlements, would promote equity. Increasing the coverage of social protection following a life cycle approach, providing uninterrupted access to contributory social insurance schemes, and expanding school feeding programs should be based on a system that ensures adequate and predictable financing. The flexibility of the social protection system could be increased through on demand registration, digitized cash transfers, and the operationalization of shock-responsive transfers. The adequacy of social benefits should be increased, taking into account household composition and size. Public employment services and institutions should be strengthened to improve the inclusiveness of services and increase collaboration with the private sector. Finally, efforts should be made to improve RDB's overall effectiveness in attracting FDI, its ability to identify investment opportunities in sectors and locations that can contribute to inclusive and green growth, and the integration of inclusive and green considerations in all its operations (e.g., dispute resolution, investor outreach, data collection and target setting). FDI promotion could attract projects benefiting women and young workers, as well as poorer districts.

Increasing the productivity of agriculture and the demand for off-farm employment is critical to promote inclusiveness. Encouraging and deepening business-oriented farming, modernizing the seeds sector and supporting private sector investment in export-oriented infrastructure would strengthen the commercialization of agriculture. Efforts to improve farm productivity could involve developing sustainable financing strategies and appropriate instruments and promoting more efficient use of water in farming (e.g., through water fees and improved irrigation water management). Programs to support small-scale farmers could be improved through taking stock of lessons from experience. Vocational training and start up programs for agricultural support services (e.g., food processing, cold chain infrastructure) could be scaled up. Food security risk management could be strengthened based on PSTA-5. The uptake of agricultural insurance could be increased. Finally, efforts to promote an equitable agro-food sector could include developing a strategy and promoting investments in local food sector development and enhancing private investments through PSTA-5.

Urgent steps are required to improve sustainability by reducing vulnerability to climate risks. Key areas include reducing dependence on fuelwood and charcoal; using data analysis based on local monitoring, reporting and verification to determine optimal strategies to preserve natural vegetation; investing in flood control and water storage; promoting intercropping; encouraging formal nature-based solutions to conservation; reducing the growth of unplanned settlements and promoting sustainable urban development; encouraging the use of renewable materials in construction and other sectors; and encouraging the mainstreaming of climate considerations in private sector activities through communications and enabling land aggregation. A wide range of innovative debt and non-debt instruments could be used to mobilize climate finance, and financing needs could be reduced by shifting expenditures to more climate-friendly projects, and shifting taxes, subsidies and transfers to favor climate resilience.

The contribution of NBS to growth could be enhanced by increasing awareness (e.g., through improved extension and outreach) of the wide variety of trees suitable for agroforestry systems, promoting sustainable ecotourism and recreation, operationalizing the law governing national parks and nature reserves, establishing payments for ecosystem services to cover the costs of reforestation and terracing on slopes, and finalizing the carbon framework so owners of forests and woodlots can benefit from carbon capture. Improving access to finance, improving skills of personnel and adopting innovative financing mechanisms, such as PPPs for land, infrastructure and housing development, would contribute to maintaining a low-carbon growth path.

Strengthening fiscal sustainability will require raising revenues and improving the efficiency of public expenditures. There is scope for increasing revenues by expanding the coverage and rates for excise taxes and reducing tax exemptions. Tax compliance could be improved through administrative reforms to reduce the costs of compliance by small firms, promoting compliance through the dissemination of information and capacity building, using EBM and CIT data to identify noncompliance by large firms and to inform auditing activities, and deepening the impact of EBM technology on tax revenue/compliance.

There is substantial potential for improving the efficiency of social spending by strengthening public financial management in the health sector, reducing the administrative costs of RSSB while expanding capacity, improving procedures for membership enrollment in CBHI and continuing to strengthen the management of RAMA. Processes for project appraisal, selection, review, maintenance and transparency in public investment could be improved. Efficiency gains also are possible through assessing the allocation of capital expenditure planning and implementation across tiers of government, strengthening the quality/readiness of PPP projects and developing the PPP pipeline. A shift from large, capital-intensive projects in urban areas towards projects critical for broad-based social returns and increasing the share of infrastructure projects implemented at the district level, could improve equity.

While all of these numerous recommendations are important for growth and development, only a few can be integrated into the aggregate categories of the long-term growth model (LTGM) framework, so that the model can be used to estimate the impact of policy reform. In the most optimistic scenario, implementation of the reforms could enable Rwanda to grow at the same rate as high growth economies (see chapter 1). The policies recommended to boost domestic and foreign savings (recommendations 1.1.1, 2.35, and 3.5.5), could help fund an acceleration in investment from 28 percent to 35 percent of GDP, as envisioned in the ambitious scenario Recommendations contributing to the development of human capital, such as recommendation 1.1.2, would help to boost schooling quality and the years of schooling, Recommendations 1.1.4, 3.5.3 and 4.71 would help to increase the efficiency of health spending, as well as enhance social protection, which should contribute towards the health metrics in the ambitious scenario.

Ten policy areas focus on boosting productivity and would contribute towards the ambitious scenario goal of accelerating TFP growth to 2.5 percent. These include improving the efficiency of the labor market (recommendation 1.1.3), enhancing firm productivity (recommendation 2.2.2) and better allocating finance across firms (recommendation 2.2.3), boosting digitization and innovation (recommendation 2.2.4), enhancing transportation to boost trade and services efficiency (2.3.2., 2.3.3, 2.3.4) and improving agricultural productivity (3.4.1 and 3.4.2).

Even assuming strong policy implementation, the Rwandan economy will continue to depend on external factors and will remain vulnerable to economic shocks. This underlines the importance of accelerating reform efforts while taking steps to strengthen the resilience of its economy through climate changes, environment protection, pandemic preparedness, education, and fiscal sustainability, and adaptative social protection measures presented in this report.

Implementing to Succeed

Strong leadership with clear vision, and sustained implementation based on lessons learned remain critical for bringing about economic reforms. Essential ingredients for success in the recent episode of FDG reforms have been a strong political will and large consensus to implement difficult policy decisions. The future agenda can also benefit from five lesson learned of similar reforms worldwide that could be applied to Rwanda: (i) PRs benefit from added precision on their phrasing and requirements jointly formulated with Authorities; (ii) PRs also benefit from adopting results indicators: (iii) Focusing on the approval of new laws is as critical as prompt passing their key implementing regulations and setting solid coordination mechanisms; (iv) Flexibility of the reforms pace in adjusting to unexpected shocks is needed; and (v) Continuous and carefully selected and funded TA is relevant to reforms, given limitations in institutional capacity. Implementing

these lessons would avoid "stop and go" policies. Once the new NST-2 strategy is adopted, making a string start, and appointing a competent team responsible for following through with solid and steady implementation will be essential.

Moreover, four additional lessons from the implementation of recent FDG reforms can be extracted from Rwanda's own successful experiences.

- An institutional restructuring of key ministries may become essential for success. This was the case of MINECOFIN's 2021 restructuring to strengthen the Public Investment Management System; the 2019 creation of the National Agricultural Insurance Scheme (NAIS)'s subsidized mechanism; and the 2020 setting of the TVET Board ensuing the 2019 RDB's National Skills and Employment Strategy.
- Dedicated human and financial resources are critical to the success of well-selected initiatives. Both supports were relevant for the success of the Integrated Early Childhood Development, Nutrition and WASH (2018-24) strategy; the 2022 abolition/reduction of school fees; and progress on Tertiary Education relying on a significant increase in the percentage of scholarships given to STEM and higher education (including grants from foreign universities like Carnegie Mellon.
- Adoption of multi-year targets positively contributes to introducing a performance-based culture in the public sector. The experience with Imihigo has been positive in gradually adopting performance contracts as part of the Sector Strategic Plans and the annual assessment of ministries' performance.
- Policies to attract pioneer foreign firms may prove decisive for the successful launching of some regional logistic hub initiatives. This has been the case with Kigali's Logistic Platform, run by DP World, operational since 2019 with a cost of US$35 million and covering an area of 13,000 square meters. Its example is being followed by other logistic operators like Bollore Logistics and Magerwa, whereas major international operators like Maersk and GCM (shipping lines) have started operations.

Last but not the least, a few lessons from pending reform or unsuccessful FDG reform point to key difficulties that should be handled when implementing reforms.

- Private entrepreneurs tend to avoid policy reforms that foster a culture of financial transparency, likely for tax avoidance purposes, which raises the cost of credit and contributes to lower domestic savings. Examples of this were: (i) The difficulties to build a pipeline of credible (firms) issuers of non-government bonds, (ii) the resistance of commercial farmers and SMEs grouped in cooperatives to fill report requirements as a pre-requisite for obtaining banking credits. In response, fiscal incentives to create a culture of business transparency might be needed.
- Significant human skill gaps may prevent/delay the implementation of more complex reforms. The lack of qualified professionals prevented carrying on (i) the planned regularization of urban plots into grids; and (ii) urban land valuation. This requires previous institutional capacity development efforts to be achieved ex-ante.
- Isolated fiscal reforms benefits do better when integrated into a comprehensive tax reform. The elimination of the exemption of the VAT on service exports, had a dead-start (except for Business Process Outsourcing—BPOs—whose tax exemptions became approved on a case-by-case basis).
- Strong resistance to reform from SOEs requires a comprehensive rather than a piecemeal approach, accompanied by strong political support. As this is a matter of political will, in response, the Government could start selecting those SOEs that represent the higher fiscal burden and major sources of fiscal risks.
- A bad diagnostic not leading to focus on the most pressing challenge can only lead to an unsatisfactory outcome. Tackling high energy costs the two non-compliant PRs had a wrong focus on electricity generation: (i) Institutionalize least-cost sector planning and competitive procurement supported by a (ii) comprehensive assessment of Rwandan energy sources. However, whereas these instruments

are essential for mastering energy costs in the medium term, Laterite's report (2023) pointed out that the major energy problem were well-featured gaps in electricity transmission and insufficient distribution.

- Under the best of circumstances, PRs relying on regional agreements may at best achieve significant progress gradually and only if political tensions among countries are minimized. Two unmet PRs suffered from major disappointments: (i) The long-awaited reform of the Common External Tariff (CET) which not only did not lower tariffs on inputs but created another tariff at the upper end (35 percent for certain finished products) thus raising overall protection; and (ii) the failed proposal for a regional energy market. In contrast, small but promising achievements have been obtained from the PR aiming at the expansion of the regional trade for Rwandan food products through strong engagement in the EAC and COMESA agricultural markets.

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