Rwanda Economic Update

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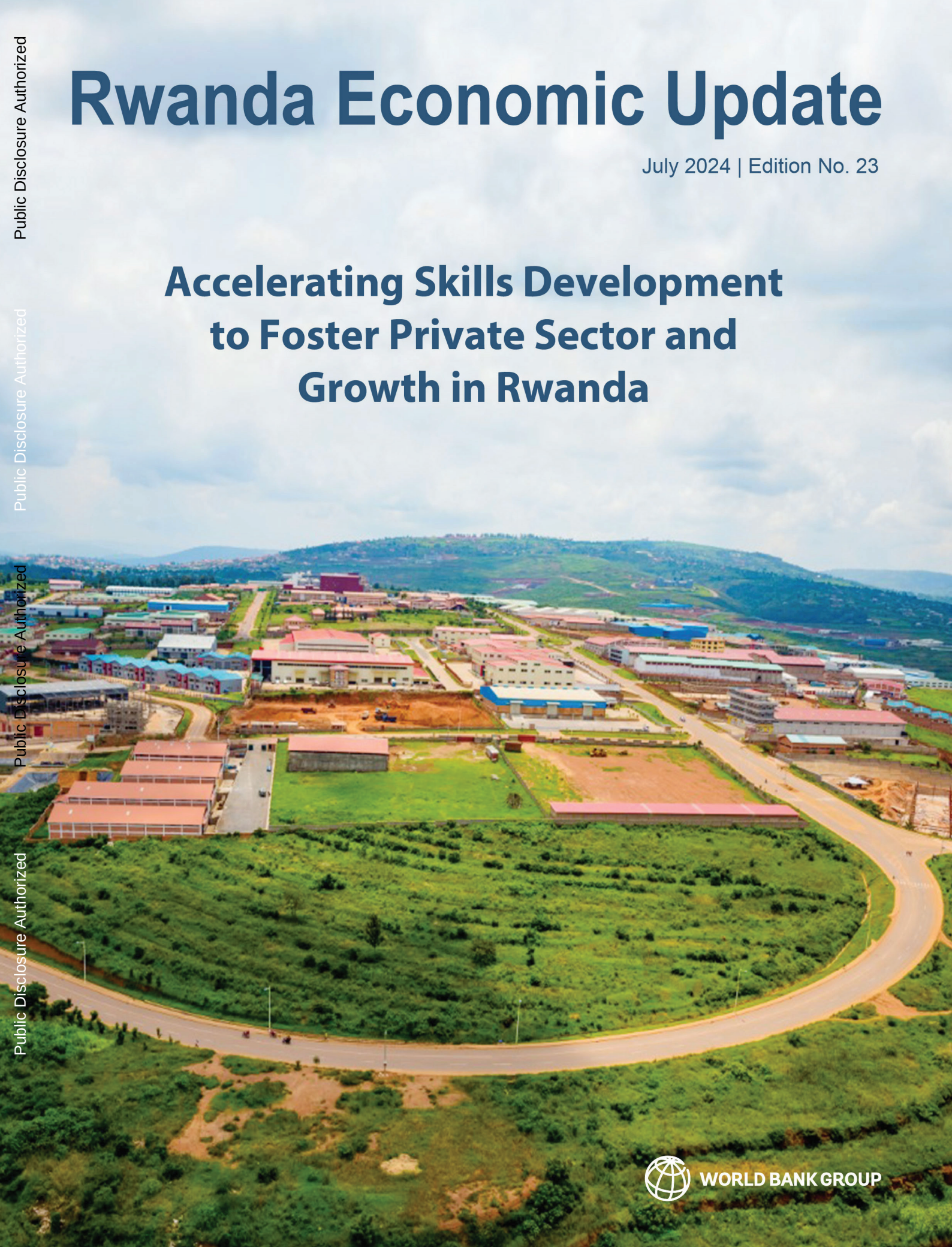
Accelerating Skills Development to Foster Private Sector and Growth in Rwanda



WORLD BANK GROUP

Rwanda Economic Update

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June 2024

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ACRONYMS

AfCFTA	African Continental Free Trade Area
AIMS	African Institute of Mathematical Sciences
ANP	Akagera National Part
ASEAN	Association of Southeast Asian Nations
ASP	Adaptive Social Protection
BAU	Business-as-usual
BFNA	Biodiversity Financial Needs Assessment
BFP	Budget Framework Paper
BNR	National Bank of Rwanda
BRD	Rwanda Development Bank
CAD	Current Account Deficit
CAF	Community Adaptation Fund
CBHI	Community-Based Health Insurance
CBR	Central Bank Rate
CCDR	Country Climate and Development Report
CET	Common External Tariff
CFS	Climate Finance Strategy
CMU	Carnegie Mellon University
COMESA	Common Market for Eastern and Southern Africa
CRM	Customer Relationship Management
DAT	Disruptive Agricultural Technology
DRC	Democratic Republic of the Congo
DSA	Dept Sustainability Analysis
DTRI	Digital Trade Restrictiveness Index
EAC	East Africa Community
ECCAS	Economic Community of Central African States
eCTS	Electronic Cargo Tracking System
EGF	Export Growth Fund
EMDEs	Emerging Markets and Developing Countries
ESC	Employment Service Centers
FDI	Foreign Direct Investment
FONERWA	National Fund for Environment and Climate Change
FPC	Foreign Private Capital
GCC	Gulf Cooperation Council
GCI	Global Competitiveness Index
GDP	Gross Domestic Product
GGCRS	Green Growth and Climate Resilience Strategy
GHG	Greenhouse Gas
GoR	Government of Rwanda
GVC	Global Value Chain
IBES	Integrated Business Enterprise Survey
ICT	Information and Communication Technology
IHSLC	Integrated Household Survey on Living Conditions
ILO	International Labor Organization
IMF	International Monetary Fund
ISA	Income Share Agreements
IPAs	Investment Promotion Agencies
KIC	Kigali Innovation City
KLP	Kigali Logistics Platform
LARS	Learning Achievement in Rwandan
LFS	Labor Force Survey
LODA	Local Administrative Entities Development Agency
LTSS	Long Term Savings Scheme
MBRP	Manufacture and Build to Recover Program
MICE	Meetings, Incentives, Conventions, and Exhibitions
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
MRV	Monitoring Reporting and Verification
NAEB	National Agricultural Export Board
NBS	Nature-based Solutions
NBT	Nature-Based Tourism
NCDA	National Child Development Agency
NCSA	Rwanda National Cybersecurity Authority
NDC	Nationally Determined Contribution
ND-GAIN	Notre Dame Global Adaptation Initiative
NDRP	National Data Revolution Policy
NISR	National Institute of Statistics Rwanda
NNP	Nyungwe National Part
NSDEPS	National Skills Development and Employment Promotion Strategy
NST	National Strategy for Transformation
NTB	Non-Tariff Barrier
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
ONA	One Network Area
OPEC	Organization of Petroleum Exporting Countries

PES	Public Employment Services
PPP	Public-Private Partnership
PPP	Power Purchasing Parity
PTA	Preferential Trade Agreement
RDB	Rwanda Development Board
REU	Rwanda Economic Update
REMA	Rwanda Environment Management Authority
RRA	Rwanda Revenue Authority
SADC	Southern Africa Development Community
SDF	Skills Development Fund
SDG	Sustainable Development Goal
SOEs	State-Owned Enterprises
SEZ	Special Economic Zone
SLBs	Ssustainability-linked Bonds
SLLs	Sustainability-linked Loans
SSC	Sector Skills Councils
SSA	Sub-Saharan Africa
STEM	Science, Technology, Engineering, and Mathematics
STRI	Services Trade Restrictiveness Index
TADAT	Tax Administration Diagnostic Assessment Tool
TFA	Trade Facilitation Agreement
TLM	Teaching Learning Materials
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
US$	United States Dollars
VAT	Value-Added Tax
VNP	Volcanoes National Part
VUP	Vision Umurenge Program
WB	World Bank
WBG	World Bank Group
WBES	World Bank Enterprise Survey
WDIs	World Development Indicators
WEO	World Economic Outlook
WTO	World Trade Organization

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The Rwanda Economic Update (REU) analyzes recent economic developments and prospects, as well as Rwanda's policy priorities. The REU is intended for a wide audience of policymakers, business leaders, other market participants, analysts of Rwanda's economy, and civil society. It draws on data reported by the Government of Rwanda and additional information collected by the World Bank Group in its regular economic monitoring and policy dialogue.

Published twice a year, each issue has a special feature spotlighting a particular topic. The 23rd edition of REU focuses on the Role of Accelerating Skills Development to Foster Private Sector and Growth in Rwanda. The current edition, led by Calvin Zebaze Djiofack and Peace Aimee Niyibizi, is a collective endeavor and involved staff from several parts of the World Bank. The team includes Ruth Karimi Charo, Ananya Shukla, Jorgen Billetoft, Lillian Mutesi, Tihtina Zenebe Gebre, Erwin R. Tiongson, and Migle Petrauskaite. The team is grateful to Philip Schuler (Lead Economist) for invaluable inputs on the structure and messaging of the report.

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ABSTRACT

Global economic growth is expected to continue declining in 2024, impacted by strict monetary policies, financial instability, and sluggish global trade. Against this backdrop, Rwanda has shown economic resilience thanks to strong consumer spending and growth in key sectors like services, mining, and construction. The labor market saw a robust recovery, with the most substantial reduction in unemployment since the pandemic. At the same time, inflation and widening trade deficits remain key challenges. To maintain its momentum, Rwanda's GDP growth is projected to average 7.6 percent in 2024-2026, supported by private investment, tourism, and favorable agricultural conditions.

Despite this strong performance, Rwanda faces significant challenges in skill development. Low educational attainment and a mismatch between market needs and educational outputs undermine economic competitiveness. Reforming the skills system is crucial for transitioning to a knowledge-based economy and meeting the needs of key sectors. Investing in technical and vocational education, targeted support for disadvantaged students, and mentorship programs can better align training with market demands. Strengthening partnerships between academia and employers, emphasizing digital skills, modernizing agriculture, and improving infrastructure are also vital.

Sector audits across agriculture, manufacturing, and other industries highlight the need for tailored interventions to meet Rwanda's labor market requirements. Expanding work-based learning opportunities, strengthening Sector Skills Councils, and increasing support for the Skills Development Fund will contribute to strategic economic growth. Developing a comprehensive skills development system can help bring Rwanda closer to achieving its Vision 2050 goals and preparing the workforce with the necessary competencies for socio-economic transformation.

EXECUTIVE SUMMARY

Recent economic developments and outlook

Global economic growth is expected to continue declining in 2024 due to tight monetary policies, financial instability, and sluggish global trade. Conflicts, financial stress, and climate change will pose significant risks to countries worldwide. Sub-Saharan Africa is projected to see modest growth recovery in 2024, but high debt service costs and inflation will hinder efforts to reduce extreme poverty.

Despite the challenging international environment, Rwanda's strong economic momentum continued in early 2024 driven by expansion in services and industry in 2023 and the recovery in food production in early 2024. Inflation peaked at over 21 percent in 2023 but has since moderated with tighter monetary policies. Despite a widened current account deficit caused by increased imports and reduced current transfers, strong tourism, and remittance inflows, along with substantial financial inflows, helped finance the deficit and bolstered foreign reserves. The fiscal deficit narrowed to 4 percent of GDP in the first half of FY2023/24, led by significant spending cuts. Public debt remains sustainable, though sensitive to external shocks.

The labor market saw significant improvements in the fourth quarter of 2023, with over half a million new jobs created—marking the most substantial reduction in unemployment since the pandemic. The labor expansion was broad-based, notably benefiting women slightly more than men. However, disparities persist, particularly in rural areas and among women, where unemployment rates remain above pre-pandemic levels despite the general upward trend.

Rwanda's GDP growth is projected to average 7.6 percent in 2024-2025, driven by private investment, tourism, and improved agricultural conditions. The government aims to maintain fiscal prudence through spending cuts and improved oversight of SOEs, with inflation expected to gradually return to the National Bank of Rwanda's target range. However, adverse global conditions and climate shocks could still challenge growth. Rwanda will remain cautious in navigating these global headwinds, balancing external risks while leveraging domestic opportunities for sustainable growth.

Skills

Harnessing Rwandan youth population, through improved training and educational opportunities along with dignified employment, will be key to Rwanda's growth prospects and ambitions. Rwanda's population is overwhelmingly young with 64% of the population being below the age of 30. The 2023 Labor Force Survey (LFS) revealed that roughly 33 percent of the total youth population were not employed, getting education, or training (NEET). Only 5 percent of unemployed youths were getting education or training during the survey period.

Despite important progress, the skill level in Rwanda is currently insufficient for meeting its development ambitions. Skill development is crucial for diversifying Rwanda's economy, improving productivity, creating jobs, and achieving Vision 2050 goals. Yet, an "inadequately educated workforce" is one of the major obstacles to growth for firms in Rwanda. As per the WBG Enterprise Survey, firms report difficulties in hiring skilled employees and highlight Technical, Vocational, and Job Specific skills as the biggest gap. The proportion of the workforce with just a basic education or less is one of the highest in the region. The scarcity of skilled workers significantly impacts the competitiveness of Rwandan firms, as employers consistently cite low educational attainment, insufficient skills, inadequate training, and poor managerial capabilities as primary barriers to adopting new technologies or remaining competitive. Workers

in agriculture and industry have particularly low educational attainment, with nearly all (98 percent) agricultural workers completing only basic education or less.

The skill deficit stems largely from challenges in basic education, including poor quality, limited access, low enrollment, and high dropout rates. Many children leave school before acquiring the foundational skills necessary for higher education or further training, which limits their ability to secure meaningful employment. Moreover, the mismatch between education outputs and market needs aggravates the situation. The labor market struggles to absorb new workers each year or provide competitive wages, which deters skilled workers. Access to higher education remains limited, suggesting that self-employment and informal labor will continue to be the main income sources for new workers in the coming years.[1] Strengthening STEM education from the foundational level and increasing investment in out-of-school initiatives will be essential to transform Rwanda into a globally competitive knowledge-based economy. Expanding public investment and capacity in TVET and higher education infrastructure is important. There are large number of private players in TVET and higher education, but enrollment is higher in the government institutions suggesting more demand for public education and high cost of enrollment in private institutions acting as barriers for students.

Skill development and educational attainment significantly influence unemployment status in Rwanda. Interestingly, those with lower and upper secondary education have the highest unemployment rates—higher than individuals with no education—indicating that the economy generates more low-skill jobs, often better suited to those with limited education. Still, completing tertiary education offers high returns on investment, translating into better job opportunities and higher salaries. This is particularly true for women and girls, who reap broader benefits in terms of better health, more economic opportunities, and increased agency.

Employment outcomes for higher education graduates vary widely across institutions and programs. While private institutions like Carnegie Mellon University (CMU) in Kigali have high employment rates due to their strong focus on practical skills, public institutions often see lower rates, highlighting a need to better align education with market demand. Evidence from tracer studies suggests that students feel they are not being adequately prepared for the job market and highlights the need for funding to improve workshop facilities, provision of updated books and digitized materials, more relevant course content, better student-teacher ratios, and enhanced industry-academia linkages. The National Skills Development and Employment Promotion Strategy (NSDEPS) emphasizes the importance of improving technical and vocational training to meet employers' expectations. Industrial attachment programs are highly valued, but implementation remains challenging due to limited opportunities and difficulties in managing interns, including gaps in workplace skills and equipment.

Select economic sectors will be key to driving growth and employment in the medium to long run. Agriculture needs technical upskilling for increased exports and sustainable practices, while manufacturing can benefit from higher capital investment and greater formalization. Enhancing transportation, logistics, and storage through reduced skill gaps can lower trade costs and boost exports. Rwanda's services-based strategy offers opportunities to shift from traditional agriculture to a high-tech and labor intensive agri-food sector, which requires new skills. Investing in research and agricultural extension will help farmers adopt advanced technology, leading to improved productivity, income, and welfare. Tailored skills development could help to address the specific needs of various labor market segments, especially for the majority of young people entering the workforce without formal qualifications. Tools like Recognition of Prior Learning, apprenticeships, short-term vocational training, and business support

can help, with the Skills Development Fund (SDF) poised to refine these strategies in its next phase.

Significant efforts are required to bridge the supply demand mismatch in the labor market and improve job matching. Too many students are not opting for degrees desired in the job market, possibly due to insufficient career guidance and mentoring, unavailability of courses and qualified instructors, and high cost of enrollment. Evidence from a higher education tracer study shows that Business / Economics graduates are overproduced vis-à-vis medicine, engineering, and ICT. Evidence from various surveys and tracer studies shows that employers overwhelmingly search for employees through their own personal networks and have limited or no contact with educational institutions. This creates an information asymmetry in the economy, presenting an additional barrier to finding employment. Sector Skills Councils should be established to ensure employer-led models, and cross-cutting skills like work readiness and English proficiency need inclusion in curricula. Quality concerns persist due to poor curriculum design, a shortage of qualified instructors, and weak industry-academia connections. Comprehensive studies will help identify gaps and attract high-quality foreign universities. Expanding work-based learning, such as internships and apprenticeships, is vital for providing practical experience.

To achieve Rwanda's Vision 2050 strategy and the National Strategy for Transformation, Rwanda's skills development system will need to be reformed to identify and mitigate barriers to higher education and training, create a systemic shift to hands-on and holistic learning, expand funding for apprenticeship programs and work-based learning, improve industry academia linkages along with job matching. This can be achieved by strengthening technical and vocational education couple with training quality, aligning training with market needs, and improving teaching staff competencies. Formal channels between academia and employers should also be reinforced, while mentorship programs can increase the appeal of science and math. Expanding scholarships and loans, particularly for disadvantaged students, is crucial, along with government support for the Skills Development Fund. Sector Skills Councils should be established to ensure employer-led models, and cross-cutting skills like work readiness and English proficiency need inclusion in curricula. These efforts must be complemented by initiatives

that encourage job creation through private sector growth and advocate for the appropriate application of labor regulations, including salaries, social security benefits, and contracts.

Skill development, high levels of unemployment and underemployment in Rwanda are as much a demand side problem as they are a result of supply side factors. Labor demand from the private sector is lacking and there are not enough high-quality jobs being created in the country. Evidence from tracer studies conducted of graduates from higher learning and TVET institutions as well as data from the labor force survey points to the inability of the sector to provide high quality jobs. As per 2021 data, 64% of all employees received less than 30,000 RWF (~$30) in monthly cash income and 81% of all employees were on temporary contracts with the figures being much worse for women and rural workers. Furthermore, main reasons for employee turnover as reported through graduate tracer surveys include low income, poor career prospects and no job security. Any sustainable solution that seeks to address unemployment and labor productivity requires simultaneous interventions to enable private sector growth to create jobs for the future and skill the youth across the low, medium, and high skills spectrum. Rwanda's private sector landscape is dominated by informal and micro enterprises. As of 2020, 88% of all establishments were categorized as informal and 92% of all establishments were categorized as micro employing between 1-3 people. As per the World Bank Enterprise Survey, access to finance and tax rates are among the top two obstacles to growth faced by firms across sectors in the country. Additional evidence suggests lack of access to business advisory as another obstacle.[2]

[1] The 19-23 years age group has the lowest participation rate at 22.7% reflecting the significant gap in students choosing to pursue higher education.

[2] The Update Future Drivers of Growth provides detailed assessment of private sector challenges in Rwanda and proposes extensive recommendations to address them.

PART ONE

RECENT ECONOMIC DEVELOPMENTS AND OUTLOOK

1.1. Global and regional context[1]

While growth in sub-Saharan Africa is projected to recover modestly in 2024, the region will still face substantial challenges, including elevated debt service costs, persistent inflation, and insufficient income gains, hindering efforts to reduce extreme poverty.

The global economy is stabilizing, following several years of negative shocks. Despite elevated financing costs and heightened geopolitical tensions, global activity firmed in early 2024. Global growth is envisaged to reach a slightly faster pace this year than previously expected, due mainly to the continued solid expansion of the U.S. economy. However, the extent of expected declines in global interest rates has moderated amid lingering inflation pressures in key economies. By historical standards, the global outlook remains subdued: both advanced economies and emerging market and developing economies (EMDEs) are set to grow at a slower pace over 2024-26 than in the decade preceding the pandemic (Table 1.1).

In 2024, aggregate commodity prices are expected to decline even as volatility in commodity markets continues. Average oil prices are anticipated to rise in 2024, before moving down in 2025as a gradual unwind of OPEC+ production cuts more than counteracts increasing demand. This is also subjected to no escalation in ongoing armed conflicts or worsening of transportation bottlenecks, including with respect to the Suez Canal. Metals prices, excluding those of precious metals, are projected to remain little changed, on average, in 2024-25, staying well above pre-pandemic levels. Weaker metals demand associated with lower real estate investment in China is likely to be substantially counterbalanced by firming global industrial demand and metals-intensive clean energy investments. Although this may contribute to easing domestic inflationary pressures, it may affect the external position of developing countries, including Rwanda. Reflecting ample supplies for grains as well as oils and meals, food prices are forecast to did in 2024-2025.

Table 1.1: Global growth and commodity prices

	2021	2022	2023e	2024f	2025f	2026f
Real GDP growth (percent changes)						
World	6.3	3.0	2.6	2.6	2.7	2.7
Advanced economies	5.5	2.6	1.5	1.5	1.7	1.8
EDMEs	7.3	3.7	4.2	4.0	4.0	3.9
Sub-Saharan Africa	4.4	3.8	3.0	3.5	3.9	4.0
Rwanda	10.9	8.2	8.2	7.6	7.8	7.5
Kenya	7.6	4.9	5.6	5.0	5.3	5.3
Tanzania	4.3	4.6	5.2	5.4	5.8	6.2
Uganda	3.4	4.7	5.2	6.0	6.2	6.6
Commodity prices (in nominal U.S. dollars)						
Crude oil, Brent ($/bbl)	70.4	99.8	82.6	84.0	79.0	
Fertilizers, DAP ($/mt)	601.0	772.0	550.0	600.0	550.0	
Coffee, Arabica ($/kg)	4.5	5.6	4.5	4.4	4.3	
Tea, average ($/kg)	2.6	3.0	2.7	2.7	2.7	
Iron ore ($/dmt)	161.7	121.1	120.6	110.0	105.0	
World Bank commodity index (in nominal U.S. dollars, 2010=100)	100.9	142.5	108.0	105.3	101.6	

Source: Global Economic Prospects (June 2024); Macro Poverty Outlook (April 2024), respective EAC countries economic updates and Commodity Markets Outlook (April 2024).
Note: mt: metric ton, kg: kilogram, dmt: dry metric ton.

[1] This section draws on World Bank (2024).

Growth in sub-Saharan Africa (SSA) is set to recover after bottoming out in 2023.[2] More than half of the countries in the region experienced a decline in their gross domestic product (GDP) growth rate in 2023. The deceleration of growth was partly attributed to slower growth of consumption and investment. Elevated inflation rates, primarily driven by higher food and energy prices as well as weaker currencies, reduced the purchasing power of SSA households and, therefore, led to a growth slowdown of private consumption in the past year. In the nearer future, growth in SSA is projected to pick up to 3.5 percent in 2024 and about 4.0 percent in 2025–26 as inflation retreats further and private consumption and investment improves. Projected increases in per capita income are insufficient to significantly alleviate extreme poverty in the region. Increased debt service costs have sharply narrowed fiscal space and heightened financing needs in many economies. Risks to the baseline growth forecast remain tilted to the downside. Downside risks include a further deterioration in global or regional political stability, including an escalation of the conflict in the Middle East; a sharper-than-expected economic slowdown in China; greater frequency and intensity of adverse weather events; and increased risk of government debt distress.

1.2. The Rwandan economy remained resilient and adaptable in the face of a poly-crisis

Despite challenges from inflation, agricultural disruptions, and a weakening currency, Rwanda's economy demonstrated resilience in 2023, with strong private consumption, a recovery in investment, and robust sectoral growth in services and construction. Early 2024 saw continued growth, driven by the recovery in food production as well as continued strong momentum in services and industry.

Rwanda's economy continued to stage a strong growth in early 2024. After averaging 8.2 percent in 2022-2023, real GDP increased by 9.7 percent in the first quarter of 2024. Robust private consumption—reflecting some improvements in the labour market—as well as strong investment drove the growth in early 2024. On the other hand, the contribution of net exports to GDP turned into negative zones, as most of Rwanda's main export items fetched lower prices on international markets. On the supply side, the growth was mainly driven by the recovery in food production as well as continued growth momentum in services and industry. For 2024 season A the volume of food crops rose by 7.8 percent compared to a decline of 3.2 percent in the same season in 2023, thanks to the use of all idle lands for agriculture.[3]

In 2023, Rwanda's economy registered strong growth in 2023, showcasing resilience and adaptability despite adverse setbacks. Real GDP expanded by 8.2 percent in 2023, a same growth as in 2022, despite some setbacks on global and domestic fronts. Rwanda saw the international prices of its traditional exports fall in 2023 compared to the previous year, widening the current account deficit. As import demand grew, official foreign reserves faced increased volatility, putting the Rwandan franc under pressure against the growing strength of the U.S. dollar. This was on top of the strained food production due to adverse weather conditions since 2022, exacerbated by the floods of April–May 2023. Therefore, inflation remained in double digits for 10 months of 2023. Despite high inflationary pressures since mid-2022, private consumption remained persistent and supported real GDP growth, reflecting improvements in the labor market, sustained remittance inflows, and rising personal loans.[4] Growing at a rate of 8.0 percent year-on-year in 2023, private consumption generated more than 70 percent of the overall GDP growth for the period (Figure 1.1A), in line with the recovery of the food production.[5] Investment bounced back as construction activities recovered.

[2] This paragraph draws on Africa Pulse (April 2024).

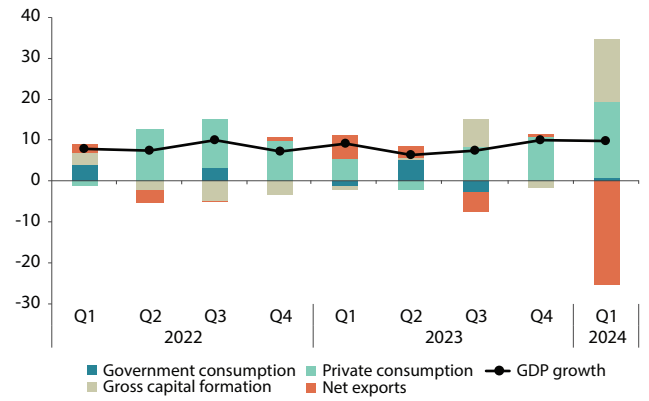
[3] Rwanda has three agricultural seasons, mostly conditioned on rainfall: Season A, September through February; Season B, March through June; and Season C, July through September.

[4] Remittances inflows reached 3.6 percent of GDP in 2023, growing on average at around 23 percent since 2021. New personal loans increase substantially at 63.6 percent year-on-year in 2023 compared to 14.6 percent in 2022.

[5] Food items represent about 40 percent of the overall Rwandan consumer basket (based on the national consumer price index).

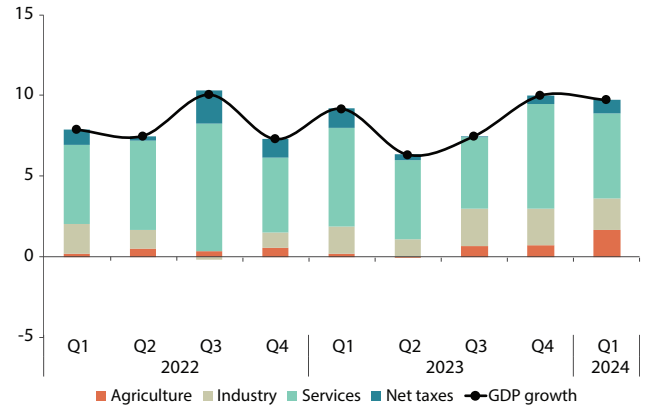
Figure 1.1: Private consumption and services

A. GDP demand components (Percent y/y; percentage points)



Source: WBG staff computation based on NISR

B. GDP sectoral decomposition (Percent y/y; percentage points)



Source: WBG staff computation based on NISR

On the supply side, the services sector experienced solid growth in 2023 and drove Rwanda's GDP growth (Figure 1.1B). The service sector grew by 11.7 percent during the year, from exponential increases in hospitality, digital, trade and transport services. The services sector generated more than 66 percent of GDP growth in 2023. Industrial growth picked up in 2023, thanks to a recovery in construction. Construction had seen double-digit growth in 2021 but fell by 5.8 percent in 2022 due to high base effects from earlier government projects and a cutback in public investment to create fiscal space for social programs amid inflation. In 2023, construction activity expanded by 11.7 percent, largely due to refurbishing work at the AMAHORO stadium and reconstruction of flood-damaged infrastructure. Agriculture, which has been under strain for six consecutive quarters since 2022, saw signs of recovery in the second half of 2023.

Box 1.1: Main trends in services sector

Tourism sector. Rwanda's tourism sector experienced strong growth with spillovers to other sectors. In 2024, the number of foreign arrivals increased by 34.7 percent and reached about 1.5 million, of which 34.2 percent came for business, including MICE, purpose, indeed, Rwanda received 104 events in 2023, which is 25 more than a year before. From the balance of payments, tourism linked earnings (i.e., travel) expanded by 40.8 percent, generating 16.1 percent of total export earnings in 2024 (equivalent to 4.0 percent of GDP). Overall, the output of the tourism related services (i.e., hotel and restaurants) expanded by 18.1 percent in 2023. These development in tourism are expected to have generated spillovers to other sectors. For instance, the number of accommodation rooms increased by 15.6 percent in 2023, reaching 21,102 rooms. The Labour Force Survey Annual Report 2023 indicates that the number of employments in accommodation and food service activities increased by 66.2 percent and accounts for about 12 percent of net employments generated in 2023. 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 handcrafts and other souvenirs.

Mobile and digital services. Output in ICT services grew by 34.9 percent in 2023, supported increases in affordable calling packs and internet sales. By the end of 2023, there were more than 12.7 million mobile phone subscribers—94.2 subscriptions for every 100 people in Rwanda—making a 16.0 percent increase from end-2022. Internet subscriptions reported a 12.2 percent increases in 2023, to about 9.4 million—68.9 subscriptions for every 100 people in Rwanda. The mobile phone penetration is supporting digital financial services and payments. As of end 2023, active mobile money accounts were about 6.9 million, a 14.2 percent higher than the previous year. In 2023, the number of mobile money transactions was about 2,263 million (48.8 percent higher than in 2022) while their value was Rwf20,776.8 billion (127.0 percent of GDP and 42.3 percent higher than in 2022). The banking system has also been expanding its mobile banking services, such as remote access to accounts by mobile phone. In 2023, the number of mobile banking transactions amounted to 23,918,417 (29.8 percent higher than in 2022) while their value was Rwf5,039 billion (30.8 percent of GDP and 69.9 percent higher than in 2022).

1.3. Rwandan labor market showed some improvement in 2023

Rwanda's labor market saw substantial growth in the fourth quarter of 2023, creating over half a million jobs and leading to the sharpest reduction in unemployment since the pandemic. This expansion was broad-based, benefiting women slightly more than men. While urban employment growth outpaced that of rural areas, disparities remain, with female and rural unemployment rates higher than before the pandemic.

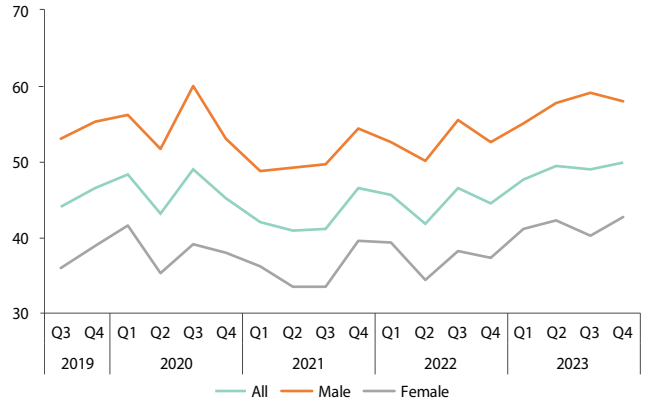
The Rwandan economy creating over half a million jobs in the fourth quarter of 2023 (year-on-year) as GDP increased. Over this period, as labor force participation expanded by 180 thousand workers, jobs increased by nearly three times as much, leading to dramatic improvements in labor market indicators. Employment rates increased by over 5 percentage points while unemployment rates fell by over 7 percentage points (Figure 1.2). To date, this has been the sharpest reduction in the unemployment rate in the post-pandemic period.

This remarkable labor market expansion has been broad-based, benefiting women slightly more than men. Female and male employment rates grew at an even pace, about 5.5 percentage points year-on-year. While unemployment rates for men and women fell by over 7 percentage points on average, female unemployment rate fell by 1.2 percentage points more. The stronger reduction in rates of joblessness among women is reflected in the growth of jobs by sector (Annex Table A1). Job creation has been strong in sectors that tend to employ more women, including wholesale and retail, accommodation and food services, and education. In fact, all jobs created in the education sector employed women.

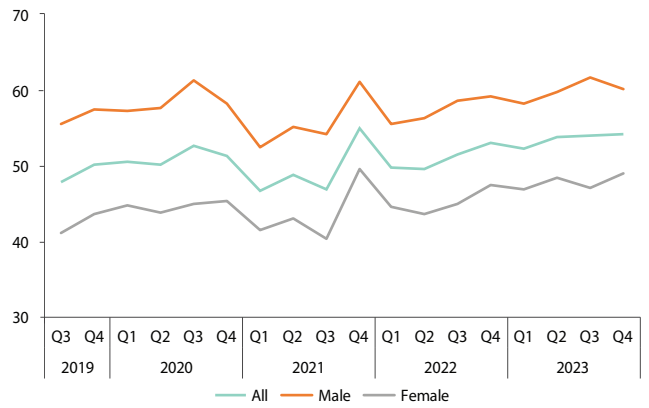
Over the longer term, employment has more than fully recovered relative to where it was in the period just before the pandemic. Compared to the fourth quarter in 2019, Rwanda's employment rate exactly four years later was over 3 percentage points higher, with female employment rate nearly 4 percentage points higher. Over this period, nearly 700 thousand new jobs were created, more or less evenly split between men and women (Annex Table A2).

Figure 1.2: Selected quarterly labor market indicators

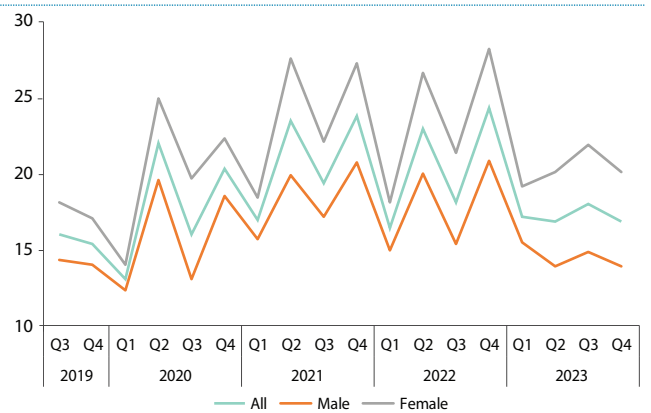
A. Labour force participation rate (%)



B. Labour force participation rate (%)



C. Unemployment rate (%)



Source: Rwanda Labor Force Surveys, various issues

Nonetheless, some gender and geographic disparities remain. As labor force participation rates increased by 5 percentage points over this period, with the increase in female labor force participation rate more than double that of the male labor force participation rate (6.7 versus 3.2 percentage points), not all new labor market entrants have found employment. As a result, despite the sharp increase in employment, the female unemployment rate in the last quarter of 2023 was 3 percentage points higher than where it was in the pre-pandemic period. Similarly, the rural unemployment rate was 2 percentage points higher over this period.

1.4. Rwanda's external position: the current account deficit has widened in 2023

The current account deficit widened in 2023 due to rising import demand and lower current transfers, despite strong tourism and remittance inflows. Nevertheless, substantial financial inflows fully financed the deficit and boosted foreign reserves.

The current account deficit (CAD) widened in 2023 due to increased import demand and reduced current transfers. The deficit rose to 11.6 percent of GDP in 2023, up from 9.4 percent in the previous year (Table 1.2). Although tourism and remittance inflows remained strong, traditional exports like coffee, tea, cassiterite, coltan, and wolfram fell by 4.4 percent due to lower international prices. Re-exports also declined by 0.2 percent because of reduced trade with the Democratic Republic of Congo (DRC). Overall, exports increased by 17.4 percent, representing about 25 percent of GDP in 2023. Import spending surged by 16.2 percent, driven mainly by higher imports of food products—especially cereals due to early 2023 food shortages—as well as construction and transport materials. Imports of goods and services reached 41 percent of GDP. Despite strong remittance inflows, official transfers dropped by about one percent of GDP in net current transfers. The CAD widening continued in early 2024 as import growth continued to outpace the export one and official transfers dropped further.

Table 1.2: Balance of payments, 2022–2023
Percent of GDP, unless otherwise indicated

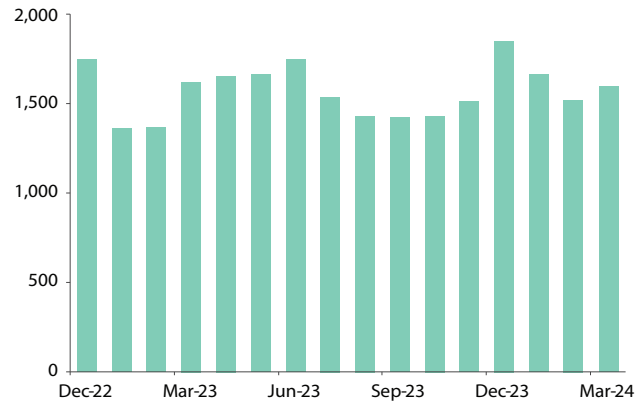
	2022				2023				2024
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1
Current account balance	**-7.9**	**-5.9**	**-13.2**	**-10.0**	**-11.7**	**-10.3**	**-12.3**	**-12.5**	**-15.9**
Trade balance (goods and services)	***-13.5***	***-15.7***	***-16.2***	***-14.1***	***-14.6***	***-18.5***	***-15.8***	***-15.8***	***-18.1***
Exports	***20.8***	***23.2***	***23.6***	***22.2***	***22.7***	***27.4***	***25.3***	***24.4***	***24.7***
o/w tourism	1.9	3.2	3.9	3.0	3.2	3.7	5.0	4.1	3.5
Imports	34.3	38.9	39.8	36.4	37.3	45.9	41.1	40.2	42.8
Primary income	***-2.3***	***-1.4***	***-2.1***	***-1.5***	***-1.5***	***-2.1***	***-2.2***	***-2.1***	***-2.6***
Secondary income	***7.9***	***11.2***	***5.2***	***5.7***	***4.4***	***10.4***	***5.7***	***5.3***	***4.7***
o/w external grants to government	4.3	7.8	1.9	2.1	1.0	6.6	1.9	1.9	0.9
o/w remittances inflows	3.6	3.4	3.4	3.5	3.4	3.8	3.8	3.4	3.6
Capital account balance	**2.5**	**2.3**	**2.5**	**2.4**	**2.8**	**3.2**	**2.7**	**2.7**	**3.0**
Financial account balance	**-0.1**	**11.1**	**2.6**	**7.2**	**13.3**	**5.0**	**3.0**	**15.6**	**5.3**
Direct investment	2.2	2.0	2.4	2.5	2.4	2.7	3.8	4.0	4.9
Portfolio investment	-0.1	-0.3	-0.3	-1.0	0.0	-2.0	0.0	-0.2	-0.3
Loans and other flows	-2.3	9.1	0.2	4.6	10.9	2.3	-0.8	11.6	0.4
o/w government borrowing	4.2	4.1	2.3	1.0	12.1	3.5	2.1	9.1	1.3
Net errors and omissions	-0.9	-2.1	0.5	4.6	-7.9	6.0	-2.5	6.0	0.3
Change in reserves (+: increases)	**-6.5**	**5.4**	**-7.5**	**4.2**	**-3.5**	**4.0**	**-9.1**	**11.7**	**-7.3**

Source: WBG staff calculation based on NBR and NISR data.

Financial inflows increased substantially, fully financing the current account deficit and boosting foreign reserves (Table 1.2). The financial account surplus rose to $1,314.9 million—4.0 percent higher than its 2022 level—due to foreign direct investment (FDI) and government borrowing. FDI gradually recovered as economic activities continued to strengthen. External government borrowing was the important funding source for the CAD, driven by disbursements from main development partners.[6] Together with the capital account, these two sources—FDI and external government borrowing—were more that was required to finance the CAD, resulting in foreign reserve accumulation. Despite some volatility throughout the year, official foreign reserves were 6 percent higher at the end of December 2023 compared to the previous year (Figure 1.3). The strengthening of the US dollar against EMDEs' currencies, together with the volatility in monthly foreign reserves throughout 2023 and increased import demand led to an 18 percent depreciation of the Rwandan franc in 2023, the largest depreciation in two decades. In early 2024, the depreciation of the Rwandan franc continued, with a 16.7 percent depreciation, year-on-year, by end-April.

Figure 1.3: Official gross reserves

(Million, US$)



Source: NBR data

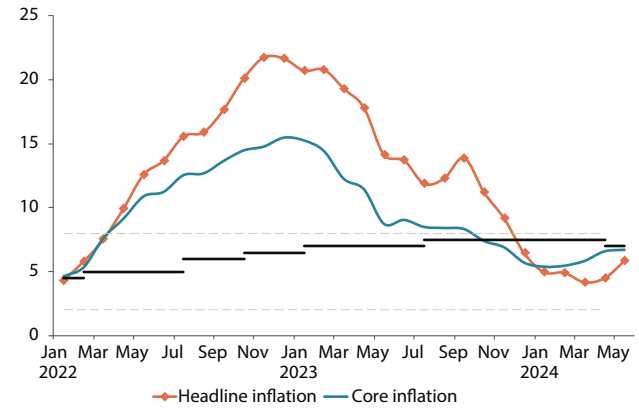
1.5. Inflation has moderated as monetary policy remains tightened

Inflation moderated in early 2023, aligning with the NBR's target range, though underlying pressures remained due to the removal of transport subsidies. Despite tighter monetary measures to rein in inflation and support the Rwandan franc, credit to the private sector expanded significantly, spurred by strong growth in new lending for commerce and personal loans.

Inflation returned within the National Bank of Rwanda's (BNR) target range towards the end of 2023 (Figure 1.4A). Inflationary pressures moderated, with the headline inflation slowing to 5.8 percent year-on-year in May 2024, down from 17.8 percent recorded a year ago. This reduction was primarily driven by lower food prices, reflecting improved supplies of fresh food items, especially vegetables, lower imported inflation as price growth cooled globally, and the tightening of monetary policy. The fall in food prices has been more noticeable in rural areas, where food items

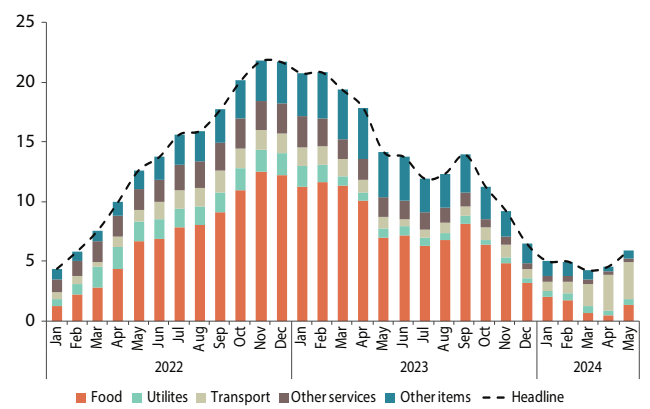
Figure 1.4: Headline inflation has moderated

A. Inflation and CBR (Percent)



Source: World Bank staff calculation based on NISR CPI data

B. Headline inflation drivers (Percent)



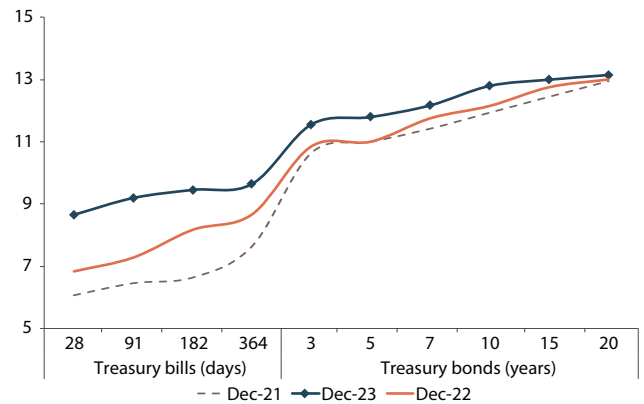
Source: World Bank staff calculation based on NISR CPI data

[6] Of which the World Bank's two development policy financing operations (US$325 million) and the IMF's RSF-SCF program (US$138.84 million).

constitute the bulk of the consumption basket. Notably, rural inflation was negative at –3.5 percent in April 2024 from 35.9 percent a year ago. However, underlying inflationary pressures persist, with core inflation exceeding headline inflation since January 2024, reflecting transport inflation as the government of Rwanda has started removing its subsidies on bus transport fares (Figure 1.4B). As of April 2024, core inflation was 6.6. percent—2.1 percentage points higher than headline inflation (Figure 1.4A).

The BNR has further tightened monetary policy to curb inflation amid rapid depreciation of the Rwandan franc. In 2023, the BNR has raised its benchmark rate—the central bank rate (CBR)—by 100 basis points to 7.5 percent. This makes a cumulative raise of 300 basis points increases since February 2023. The real CBR has, since December 2023, turned positive signaling the appropriateness of the monetary policy under the prevailing macroeconomic conditions. Moreover, interest rates on public securities have been trending upward, in line with the CBR increases in recent years (Figure 1.5). However, the monetary policy stance was challenged by rapid depreciation of the Rwandan franc against the US dollar (US$)—18.0 percent in 2023. To counteract the effect of this sharp depreciation on inflation in 2023, the BNR doubled its dollar sales to commercial banks to US$10 million per week.

Figure 1.5: Yield curve on public securities
(Percent)



Source: National Bank of Rwanda interest rates database

Despite monetary tightening, credit flow to the private sector accelerated in 2023, after a slower pace registered in the previous year. The outstanding of private sector credit expanded by 18.7 percent in December 2023, from 13.0 percent a year ago. This growth momentum was largely linked to the growth of banks' new lending, which increased by 38.7 percent in 2023, compared to 12.9 percent in 2022. Within activity sector, this reflects the large increases in new commerce and personal loans, which both accounted for about 48.0 percent of the new approved loans in 2023, reflecting higher growth in trade services and import demand. The credit growth momentum continued in early 2024, with a 25.0 percent growth year-on-year as of end-March 2024. There is no risk stemming from the domestic government borrowing: credit to the public sector—central government and public enterprises—stood at 18.8 percent of the total bank credit in March 2024, slightly lower than 19.8 percent in March 2023.

1.6. Fiscal deficit moderated in the first half of FY2023/24

Rwanda's government has reduced its fiscal deficit decreased in the first half of FY2023/24 due to significant spending cuts, despite a shortfall in tax revenue, driven mainly by tax-exempted imports from East African Community countries. While public debt remains sustainable, it is vulnerable to reduced concessional financing, changes in U.S. monetary policy, currency fluctuations, and climate shocks.

Rwanda's fiscal deficit narrowed in the first half (July-December) of FY2023/24 despite revenue collection shortfalls (Table 1.3). Official data show a fiscal deficit of 4.0 percent of GDP for this period, lower than the 7.3 percent recorded in the same period of FY2022/23 and the smallest half-year deficit since FY2019/20. Tax revenue fell short due to a shift in import origins, with most imports coming from tax-exempt East African Community (EAC) countries. This reduced revenue from taxes on international trade. However, shortfalls were partly

Table 1.3: Rwanda's public finance, FY21/22-FY24/25
(Percent of GDP)

	FY21/22	FY22/23	H1 FY22/23	FY23/24 budget	H1 FY23/24 prov. act	FY24/25 budget
Revenue	**25.9**	**22.6**	**20.6**	**22.3**	**20.4**	**22.2**
Taxes	15.7	15.2	14.4	15.2	13.6	15.8
Taxes on income, profits, and capital gains	7.1	6.8	6.2	7.0	6.1	7.4
Taxes on property	0.1	0.2	0.1	0.2	0.1	0.2
Taxes on goods and services	7.3	6.9	6.8	6.8	6.4	7.1
Taxes on international trade & transactions	1.1	1.4	1.4	1.1	1.0	1.1
Grants	6.9	4.7	3.7	4.4	3.8	3.8
Other revenues	3.4	2.7	2.5	2.7	3.0	2.6
Expenditure	**32.2**	**29.1**	**27.9**	**28.3**	**24.4**	**26.8**
Expenses	**20.6**	**19.0**	**18.3**	**18.6**	**16.2**	**17.9**
Compensation of employees	2.7	2.4	2.5	2.7	2.7	2.9
Use of goods and services	5.7	4.9	5.2	4.8	4.1	4.0
Interest	1.8	2.0	1.8	2.4	2.2	2.6
Subsidies	3.2	2.0	2.1	1.8	1.5	1.7
Grants	5.5	6.5	5.6	5.8	4.7	5.6
Social benefits	0.5	0.3	0.2	0.3	0.3	0.3
Other expense	1.2	0.8	0.9	0.8	0.8	0.7
Net Investment in nonfinancial assets	**11.6**	**10.1**	**9.6**	**9.7**	**8.2**	**8.9**
Foreign financed	4.9	5.1	5.3	5.9	5.6	5.3
Domestically financed	6.7	5.0	4.3	3.8	2.6	3.7
Net lending (+) / borrowing (-)						
Including grants	-6.3	-6.5	-7.3	-6.1	-4.0	-4.6
Excluding grants	-13.2	-11.2	-11.0	-10.5	-7.8	-8.4
Primary balance	-4.5	-4.5	-5.5	-3.6	-1.8	-2.0
Net financing	6.3	6.5	7.3	6.1	4.0	4.6
Domestic	-1.0	0.7	4.9	-0.9	-1.8	-1.2
Foreign	7.3	5.8	2.4	7.0	5.8	5.9

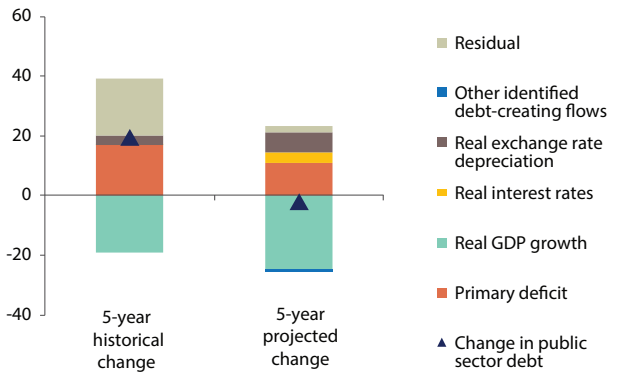
Source: WBG staff computations based on MINECOFIN various budget executions reports and budget framework papers

offset by higher non-tax revenues and external grants. Total revenues in the first half of FY2023/24 were 0.2 percentage points of GDP lower than in the same period of FY2022/23. The government has significantly cut its spending, through rationalization measures aimed at improving its spending efficiency, limiting subsidies, streamlining capital expenditure, and strengthening public finance management. Total expenditures in the first half of FY2023/24 were 3.5 percentage points lower than in the same period of FY2022/23.

Public debt remains sustainable, thanks to higher GDP growth. The Debt Sustainability Analysis (DSA) of December 2023 maintained the moderate debt risk rating, despite some increases that were driven mostly by the primary deficit (Figure 1.6). While larger primary deficits have increasingly contributed to debt accumulation, the debt levels have been sustainable due high growth rates, as well as favorable interest rates. The later reflects the fact that more than 85 percent of external debt are in concessional terms. Going forward, higher nominal interest rates and exchange rate

depreciation are likely to add to public debt to GDP ratio faster than in the past. However, their impact will be contained by high growth GDP rates as well as a reduced impact of the primary deficit. Rwanda's key risks include a decline in concessional financing, U.S. monetary policy tightening and U.S. dollar appreciation. Rwanda remains susceptible to adverse market conditions and climate shocks.

Figure 1.6: Decomposition of public debt accumulation
(Percent of GDP)



Source: WBG staff estimates based on the DSA data

1.7. Rwanda's economic outlook and risks

Rwanda's GDP growth is projected to average 7.6 percent in 2024-2026, driven by strong private investment and favorable agricultural conditions, while the government will maintain fiscal prudence through spending cuts and improved oversight. However, risks from global economic disruptions and adverse weather events could impact growth and agricultural output.

GDP growth is expected to keep momentum, increasing by 7.6 percent on average in 2024–2026. After weak performance in the last two years, agriculture is expected to rebound due to favorable weather. Growth will also be supported by continued growth in global tourism demand, construction and manufacturing activities supported by the Manufacture and Build to Recover Program. The current account deficit is projected to remain wide in 2024 due to increased imports required for the post-flood reconstruction and the large airport construction project. Sustained strong FDI inflows and concessional financing will cover external financing needs. Inflation is expected to gradually return within NBR's target of 5±3 percent. The government is committed to prudent fiscal management. In the FY24–FY26 budget framework, the government projects spending cuts largely through streamlining and gradually reducing subsidies, particularly those related to energy and fuel. It is critical to reduce energy subsidies in a way that keeps electricity affordable for low-income households. The authorities are also planning to strengthen the oversight, governance and risk management of state-owned enterprises while safeguarding fiscal space for human capital spending. The government also intends to improve revenue administration and cut tax rates while broadening the tax base through measures in the Medium-Term Revenue Strategy. Under this baseline, public debt would peak at 78 percent of GDP in 2024 before gradually improving over the medium-term.

The current account deficit is projected to expand to 11.3 percent of GDP in 2023, then gradually narrow. Rwanda's structural external deficits align with its high investment needs, financed by foreign savings. Although government spending is expected to decline in the medium term, investment momentum will persist, driven by private-sector efforts and the expansion of the MBRP, as well as foreign direct investment for the construction of the new airport. This will increase the import bill as foreign grants decline. The import bill will also rise due to the reconstruction and rehabilitation needs from the April–May 2023 floods. As a result, the current account deficit is expected to hover around 10 percent of GDP in the medium term. Foreign reserves should remain sufficient since concessional borrowing and foreign direct investment will continue to meet Rwanda's external financing needs. Construction of the Bugesera Airport is expected to boost FDI in 2024–2025.

The FY2024/2025 budget projects further expenditure reduction, signaling a continuation of fiscal prudence. According to the Budget Framework Paper (BFP) for 2024/25–2026/27, the government aims to rationalize spending with temporary savings in both current and development expenses. These savings will be achieved through increased reliance on virtual meetings instead of official travel and conferences and further digitalization of public services. The rationalization measures will also involve better management, oversight, and monitoring of public investments, prioritizing key development projects, and improving the institutional framework and technical capacity for state-owned enterprises (SOEs) to enhance oversight, governance, and risk management. Total spending is expected to fall by 1.5 percentage points of GDP to 26.8 percent in FY2024/25 (Table 1.3). The fiscal deficit is projected to be less than 5 percent of GDP, a level last seen in FY2017/18.

Risks are titled to the downside. Even though Rwanda has limited direct trade and financial links to the Middle East, an intensification of the conflict in the region could lead to further disruptions to the global trade and economy, thus affecting Rwanda mainly through a reduced global demand for its main export products. Limited access to concessional resources and lower external demand fueled by monetary tightening in advanced economies pose further downside risks. The main risk on the domestic front is linked to the increasing frequency of weather and climate shocks, which could disrupt agricultural output, jeopardizing incomes and food security for rural households, and reigniting inflationary pressures on food products.

PART TWO

ACCELERATING SKILLS DEVELOPMENT TO FOSTER PRIVATE SECTOR AND GROWTH IN RWANDA

2.1. Introduction

Skills development is crucial for diversifying Rwanda's economy, improving productivity, creating jobs, and achieving Vision 2050 goals of becoming an upper-middle-income economy by 2035 and a high-income economy by 2050. The GoR's emphasis on human capital development is well captured in the National Strategy for Transformation (NST 2018–2024), which aims to provide over 200,000 youths entering the job market each year with essential skills for quality employment. The strategy also includes a focus on expanding the proportion of students in Technical and Vocational Education and Training (TVET) from 31.1 percent in 2017 to 60 percent by 2024 and align TVET with labor market needs. The National Skills Development and Employment Promotion Strategy (NSDEPS, 2019–2024) focuses on skills development, job promotion, and improved labor market matching to meet Vision 2050 targets.

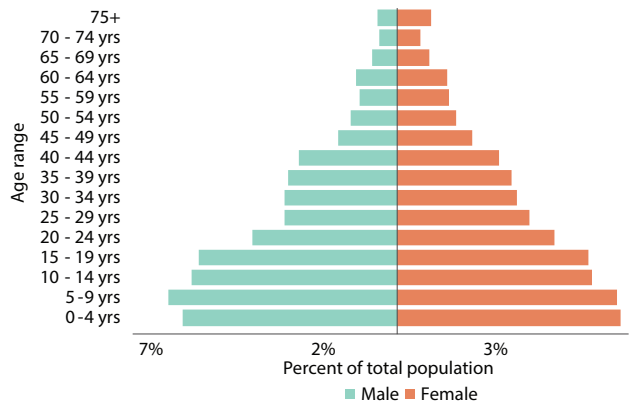
This section analyzes the labor market landscape in Rwanda and attempts to offer recommendations to boost the population's skills profile to positively impact employment and economic development in the country. While skills deficits and high unemployment rates in the labor market have both supply and demand side factors, this section will address the supply side in greater detail, while touching on constraints and enablers on the demand side. The analysis is laid out in the following order: i) labor market demographics and the state of skills development; ii) the impact of skill gaps on productivity and competitiveness; iii) the linkages between education and the labor market; iv) sector perspectives and skills for the future; v) GoR's skills development policies and vi) recommendations.

2.2. The state of skill development in Rwanda

Rwanda's current skill levels across key sectors like agriculture and industry are insufficient for meeting its development goals, partially due to challenges in basic education, in particular low quality. The skills gap is exacerbated by a mismatch between education outputs and market needs.

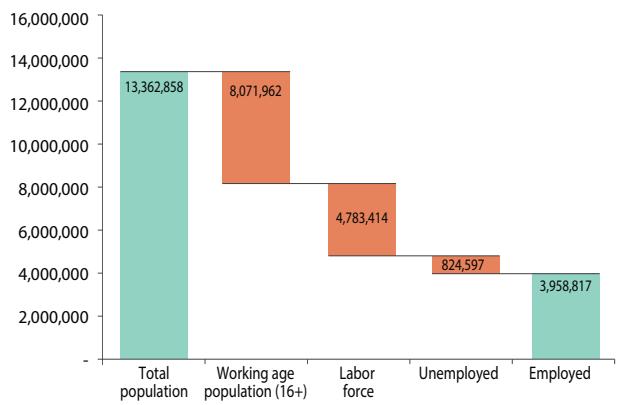
Rwanda's population is predominantly young, making it crucial to leverage this demographic through improved education, training, and dignified employment to support the country's growth prospects and ambitions. In 2023, Rwanda had a population of 13.4 million (52 percent female and 48 percent male), with 64 percent under the age of 30 (Figure 2.1). This amounts to 8.1 million working-age people, of whom around 4 million are employed (Figure 2.2). The remaining population is either outside the labor force (3.3 million) or unemployed (0.8 million). Of those employed, 1.2 million experience time-related underemployment, leaving only 2.8 million fully employed. Among the 3.3 million people outside the labor force, most are engaged in subsistence agriculture, while the rest are students, elderly, disabled, or discouraged (Figure 2.3).[7]

Figure 2.1: Population size by age group
(Percent)



Source: WBG staff computation

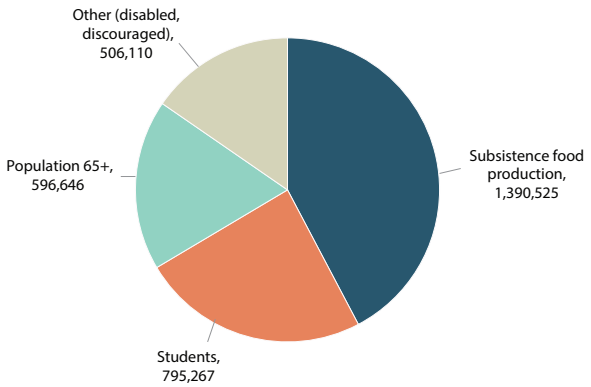
Figure 2.2: Employment waterfall



Source: WBG staff computation

[7] Labor Force Survey, 2023.

Figure 2.3: Demographics of individuals outside the labor force
(Percent)



Source: LFS 2023

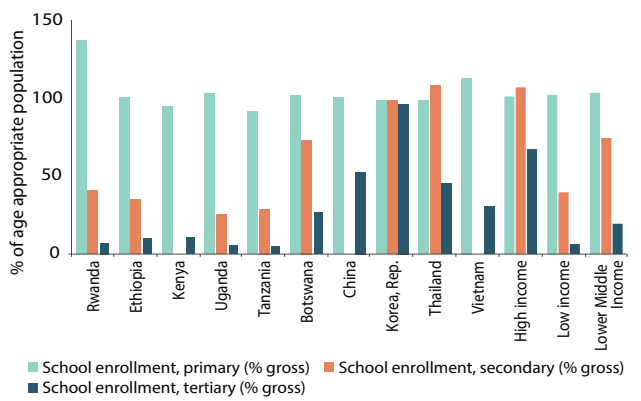
Although strides have been made, the level of skill development in Rwanda remains insufficient for achieving the country's development ambitions. Out of the 4 million employed individuals, 83 percent have completed only basic education or less, 8.8 percent have secondary education, and 8.2 percent have tertiary education.[8] The proportion of the workforce with just basic education or less is one of the lowest in the region (Figure 2.4A). As a result, Rwanda's workforce has a World Economic Forum skills score of 37.9, which is below most regional and aspirational peers, except Ethiopia (Figure 2.4B).[9]

The state of skills in Rwanda varies significantly across sectors, with agriculture and industry having the lowest skill levels. As in many countries, Rwanda's agricultural employment is marked by lower educational attainment. In agriculture, 98 percent of the workforce has basic education or less, placing Rwanda in a more difficult position than any African or aspirational peers (Figure 2.5a). Similarly, the skill level in the key tradable sectors of manufacturing and mining, with the share of basic education estimated at 78 percent and 80 percent, respectively, remains low compared to peers, underscoring competitiveness challenges for Rwandan firms (Figure 2.5b).

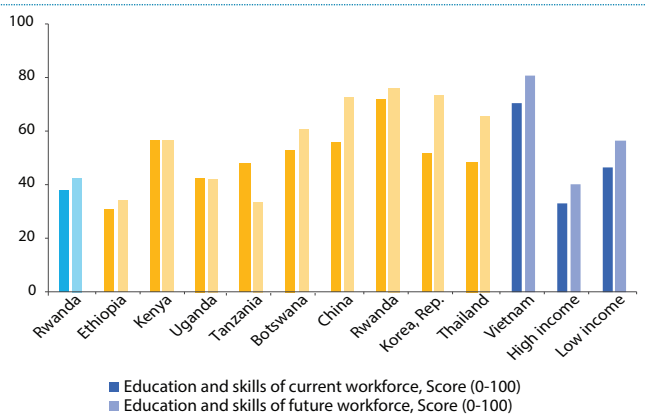
Rwanda's limited skill achievement stems from challenges in basic education, including poor quality, inequitable access, and low enrollment. The average gross enrollment ratio in primary education between 2015 and 2021 exceeded 100 percent due to the inclusion of over-aged and under-aged students, while secondary and tertiary enrollment rates remained low. Secondary school enrollment rate is estimated at 40.8 percent, partly due to high repetition rates at primary and lower secondary levels, with high dropout risks. In 2020/21, the repetition rate stood at 11 percent in primary

Figure 2.4: Rwanda's labor force education levels

A. Rwanda vs comparators: average education enrollment rates, 2015-21



B. Skills and education of the workforce, 2019



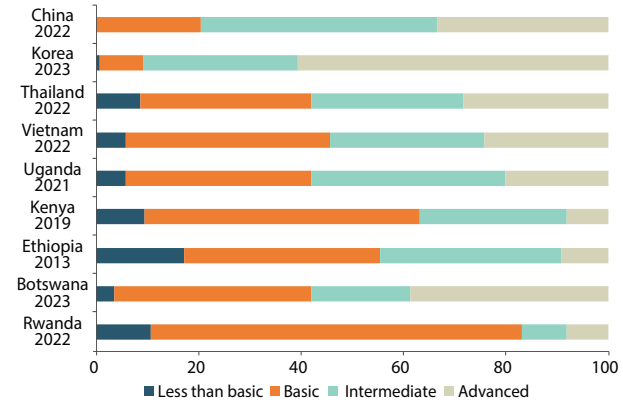
Source: World Development Indicators; World Economic Forum
Note: Gross enrollment ratio is the ratio of total enrollment, regardless of age, to the population of the age group that officially corresponds to the level of education shown.

[8] Basic education comprises primary education or lower secondary education according to the International Standard Classification of Education 2011 (ISCED 2011).

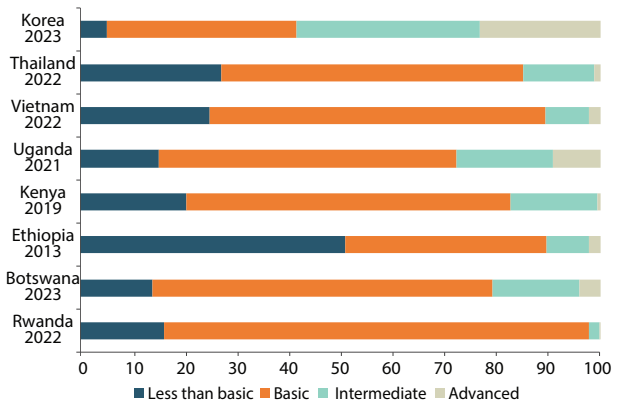
[9] Indicators are perception based and reflect perceptions on a scale from 0(worst) to 100(best).

Figure 2.5: Rwanda's employment by educational achievement- main sectors

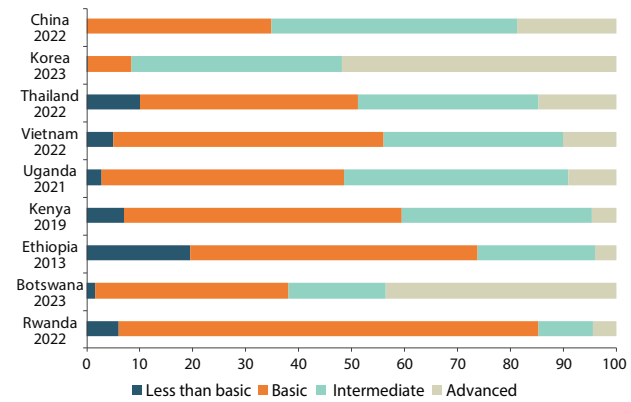
A. Total employment, %



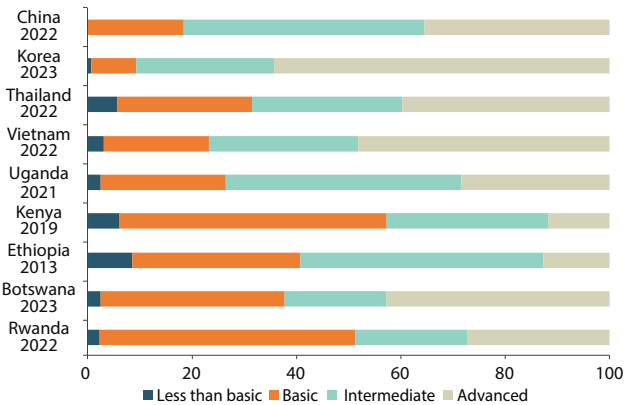
B. Agriculture, %



C. Industry, %



D. Services, %



Source: WBG staff computation

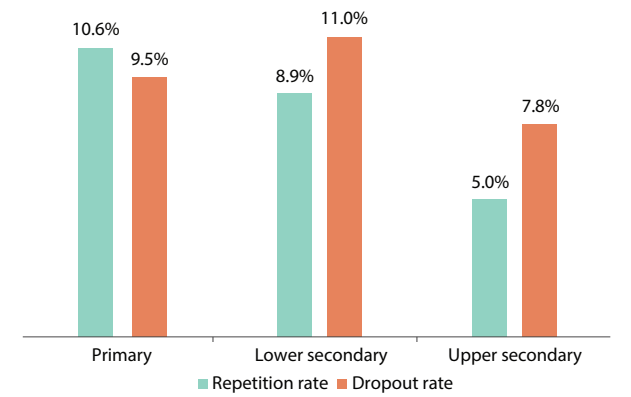
schools and 9 percent in lower secondary schools, while dropout rates were 9.5 percent at the primary level and 11 percent at the lower secondary level (Figure 2.6). This results in a low tertiary enrollment rate of 7.18 percent, below the regional and income group averages of 10 percent for sub-Saharan Africa and 9 percent for low-income countries. Consequently, many children leave the education system before gaining the foundational skills needed for gainful self-employment, higher education, or further training.

Rwanda faces low education quality alongside high dropout rates, with suboptimal learning outcomes even at foundational levels. According to the 2021 Learning Achievement in Rwandan Schools (LARS), only 10 percent of grade 3 students achieved basic proficiency in English, which is the medium of instruction for most subjects.[10] In contrast, literacy

[10] This is partially the result of the shift from French to English as the language of instruction in 2008.

Figure 2.6: Repetition and dropout rates by level of education, 2020/21

(Percent)



Source: World Bank staff replication from MINEDUC, 2022

outcomes in Kinyarwanda were stronger, with 68 percent of grade 3 students reaching proficiency. In mathematics, 61 percent of students met basic proficiency when assessed in Kinyarwanda, but only 16 percent achieved this level when assessed in English. Challenges related to recent changes to language of instruction, teachers' low proficiency in

English, limited capacity, overcrowded classrooms, and double-shifting practices all contribute to poor education quality. To realize the ambition of becoming a knowledge-based economy, Rwanda needs increased and better-targeted investments in secondary education to improve access, quality, and equity, as this is a critical transition stage into tertiary education.

Strengthening Science, Technology, Engineering, and Mathematics (STEM) education, starting from basic levels, is crucial for Rwanda's vision of becoming a globally competitive knowledge-based economy. Rwanda is investing in STEM education by establishing centers of excellence and increasing digital access in secondary schools through smart classrooms. These efforts aim to enhance digital skills and integrate ICT into teaching and learning. To translate these investments into improved outcomes, teacher capacity needs further development at all levels. Although Rwanda's ICT adoption and use scores in 2019 were higher than Ethiopia and Uganda, the country still lags significantly behind Botswana and Kenya, with the latter leading in ICT services exports.[11] The Education Sector Strategic Plan (ESSP 2018/19–2023/24), which is strongly supported by the development partners, provides clear objectives in terms of learning outcomes and STEM. Despite existing training opportunities, there remains a need for more qualified teachers in science and ICT (ILO 2021). Improving teachers' digital literacy requires investments in infrastructure, connectivity, and access to digital devices (World Bank 2018). Developing digital skills should start at the pre-service level and be bolstered with continuous training to keep pace with technological advancements and new pedagogy.

Boosting green skills will be crucial for Rwanda to achieve its carbon neutrality goal by 2050 and empower firms and workers to participate in the green economy.[12] The transition will be disruptive for carbon-intensive sectors, requiring them to transform their production processes. Knowledge, technology access, and skill development will be essential to seize new opportunities while adapting to the eventual phase-out of fossil fuels. Evidence from Indonesia (World Bank, 2023) and advanced economies underscores that skills in renewable energy and energy efficiency, natural resource conservation, pollution management, and waste recycling and reuse are in highest demand. These green jobs not only provide higher wages than non-green jobs but also see increasing demand. However, evidence also shows that access barriers for women and those lacking technical qualifications remain. To ensure an inclusive 'greening' of workforce skills Rwanda needs to invest in educational pathways and training programs that emphasize STEM qualifications while proactively addressing gender disparities.

Rwanda is making significant strides in integrating green skills into its education system through collaboration between the Rwanda Environment Management Authority (REMA) and the Ministry of Education. The two institutions have launched school curricula that emphasize environmental awareness and introduced the Eco-Schools program as an extracurricular activity. The Rwanda TVET Board (RTB) established a framework for technical and vocational qualifications, offering training in renewable energy, agroforestry, and irrigation to address green skills development. Accredited programs include solar, biogas, methane gas, and micro-hydro power plant technologies. The Integrated Polytechnic Regional Colleges of Tumba and Musanze deliver practical training, while the Cleaner Production and Climate Innovation Centre (CPCIC) is set to provide

[11] The ITC is a worldwide index that measures countries' digital adoption across three dimensions of the economy: people, government, and business. The Indicator is perception based and reflect perceptions on a scale from 0(worst) to 100(best). These scores measure the adoption and effective use of Information and Communication Technology (ICT) within a country's economy, considering factors like access, connectivity, and the integration of digital services into education, industry, and government sectors.

[12] 'Green' skills refer to those that reduce a firm's negative environmental impact or contribute to environmentally friendly outputs.

technical support to industries.[13] To drive further progress, developing a program to clearly define green technology skills requirements, ensuring their alignment with economic growth, and setting targets to measure progress within the Green Growth and Climate Resilience Strategy framework will be key.

A significant skills gap exists in Rwanda due to a mismatch between the demand and supply of qualified labor. The formal labor market lacks depth and only absorbs a fraction of the influx of new workers each year. As a result, self-employment and casual labor are expected to remain primary sources of income for new entrants for many years ahead, necessitating increased investment in out-of-school initiatives. At the same time, private enterprises face serious challenges attracting workers with the required competences. The gap is largely caused by theoretical education with limited practical training, weak industry-academia links, inadequate infrastructure, and a shortage of qualified faculty. Additionally, students may not pursue courses that align with job market needs, while the high cost of enrollment and lack of scholarships limit access to higher education (Table 2.1).

Table 2.1: Demand- and supply-side constraints

Demand side constraints	Supply side constraints
The firm landscape is dominated by informal and micro firms facing multiple challenges to growth and scaling up. As per the WBG enterprise survey, "Access to Finance," and "Tax Rates" are listed as the biggest obstacles to growth by firms.	As per the WBG enterprise survey, the most critical skill lacking in employees is "technical, vocational, job specific" in addition to languages, soft skills, critical thinking, IT and leadership skills.
The high rates of unemployment among individuals with a lower / upper secondary education demonstrate that the bulk of jobs being created in the economy are either very unskilled or very specialized.	Evidence from various tracer studies suggests that students feel they are not being adequately prepared for the job market and would prefer more hands-on learning and apprenticeship opportunities.
Results of a higher education tracer study[14] shows that the public sector employs 80 percent of higher education graduates hinting at limited ability of the private sector to absorb skilled workers and / or offer them necessary compensation and benefits.	The tracer study asked for graduates' views on improving vocational training highlighted the need for funding to improve teaching and learning facilities, more relevant course content and provision of updated instructional materials, better student-staff/ instructors ratios, and enhanced industry-academia linkages.
Labor force survey data from 2021 shows that 64 percent of all employees receive less than Rwf30,000 (US$29.6[15]) in monthly cash income of which 33 percent receive less than Rwf20,000 (US$19.7). The figures are much worse for women and rural workers. Up to 87 percent of female rural workers are paid below Rwf30,000 in monthly cash income. In addition, up to 81 percent of all employees work on temporary contracts of which 86 percent are on daily wages/contracts.	As per tracer studies, a significant barrier to industry apprenticeships for students is lack of money for transport, housing, protective gear, and equipment.
Evidence from the WBG enterprise survey and the RRT[16] tracer study shows that employers are not investing in training of employees and that upskilled workers are not necessarily retained reflecting poor career development prospects for employees.	Evidence from various surveys and tracer studies shows that employers overwhelmingly search for employees through their own personal networks and have limited or no contact with educational institutions.
Evidence from a higher education tracer study shows that the key drivers of graduate job satisfaction include job security, possibility of using acquired knowledge/skills, and the possibility of pursuing higher studies	Evidence from a Rwanda Polytechnic tracer study showed that 62 percent of students search for jobs through advertised vacancies or contacting companies directly suggesting limited assistance from their educational institution in building job market contacts. Lack of ICT facilities also hampers the job search process.

Source: WBG staff computation

[13] Rwanda Ministry of Environment (2022). 'Revised Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development.' See: https://www.rema.gov.rw/fileadmin/user_upload/Rwanda_Green_Growth___Climate_Resilience_Strategy_06102022.pdf

[14] https://hec.gov.rw/fileadmin/user_upload/DOCUMENTS/Reports/a_tracer_study_of_graduates_from_higher_learning_institutions_hlis_and_employers_satisfaction_of_graduates_competences.pdf

[15] Based on xe.com data, 1 USD was equal to 1014.9 Rwanda Francs on 31 December, 2021.

[16] https://rdb.rw/wp-content/uploads/2022/05/Rapid-Response-Training-RRT-Tracer-Study-report.pdf

Box 2.1: Gender disparities in education and employment

This box aims to summarize key areas of gender disparities in enrollment, outcomes, and employment while providing targeted recommendations to mitigate them.

Enrollment: As per the Education Statistics Yearbook, female enrollment up to upper secondary is at par or higher than males. The gender parity index in net enrollment stood at 1.02, 1.00, 1.45, 1.38 at pre-primary, primary, lower and upper secondary levels respectively. Female enrollment declines at TVET and higher education levels with the gender parity index being 0.72 and 0.76 respectively. Within TVET, female enrollment is robust at levels 1-2 but drops off at levels 3-5. At the polytechnic level, the discrepancy is the highest with female students only accounting for 25.6 percent of students enrolled. In general, higher education, female students accounted for 46.9 percent of enrolled students in 2021-22. Females far outnumber males in adult literacy centers with 62 percent of all learners enrolled being female.

Outcomes: female students tend to have lower repetition and dropout rates than their male counterparts with the national average for repetition rate being 13.6 percent vs 15.5 percent for males and dropout rate being 7.9 percent vs 9.3 percent for males. Fewer females pursue advanced higher education such as post graduate diplomas, masters or PhDs, with most opting for a Bachelors degree or advanced diploma. In 2020-21, 692 females graduated with a masters (vs 1,179 men) and 6 graduated with a PhD (vs 19 men).

STEM: Females lag behind males in pursuing STEM courses. 36.9 percent of STEM graduates in higher education were female (vs 63.1 percent men) in 2021-22. The biggest discrepancy is in the field of Engineering, Manufacturing, and Construction. In 2020-21, there were 2,771 male graduates in the field compared to just 762 females. Even at upper secondary level, the percentage of females enrolled in STEM is lower at 47.7 percent vs 52.3 percent for men, but the gap is smaller.

Technical Trades and Training: As per RLFS, very few females aged 16 years and above participated in technical trainings related to masonry, carpentry, automotive technology, computer maintenance, engineering, animal health. They mostly choose areas such as culinary arts, food processing, tailoring, livestock, front office/housekeeping, hairdressing, jewelry, and beauty services. Similarly, in terms of employment, men outnumber females in areas such as plant and machine operators (105K vs 1.5k) and technical and associate professionals (24.6k vs 8.6k) as per RFLS 2023.

Employment Outcomes: female labor force participation in 2023 stood at 52 percent, lower than males (67 percent) and lower even than the rural population (56 percent). Unemployment rates are highest among women (20 percent) compared to men (15 percent) and the rural population (18 percent). Time related underemployment is also high at 32 percent and youth unemployment rate for women is at 25 percent compared to 17 percent for men. Median monthly earnings for women stand at Rwf26,00 compared to 39,000 RWF for males. A higher percentage of females are paid less than Rwf 20,000 per month in cash income (17.3 percent vs 11.3 percent males). Only 17.9 percent of females are paid above Rwf50,000 compared to 41.4 percent males. Females also report spending more time on average in doing household chores, looking after children and elderly, collecting firewood and water for the household, and manufacturing household goods for family use.

Recommendations: Significant efforts need to be undertaken to address issues of lower female enrollment in levels 3-5 and at polytechnic level. These can include expanded financial assistance for female students wishing to pursue these courses, increased mentorship and access to female role models, more female instructors, and breaking down of gender stereotypes regarding choice of courses. More attention should be paid on mainstreaming STEM education early on, with a special focus on female students. In the labor market, wages and contracts should be standardized to eliminate discrepancies in salaries offered and types of contracts (permanent vs temporary). Regulation around maternity leave policies and workplace safety and grievance mechanisms is extremely important in encouraging females to join and stay in the labor force. Provision of childcare facilities is much needed. Educational institutions should strive to provide safe and affordable on campus housing for female students.

2.3. Impact of skill development on productivity and competitiveness

Limited skill development in Rwanda is seen as a major barrier to economic growth, with poor educational attainment, insufficient skills training, and inadequate managerial capabilities restricting firms' ability to adopt new technologies and compete effectively, both regionally and globally. This skill shortage contributes to suboptimal business scaling, limited innovation, and poor performance on innovation indicators.

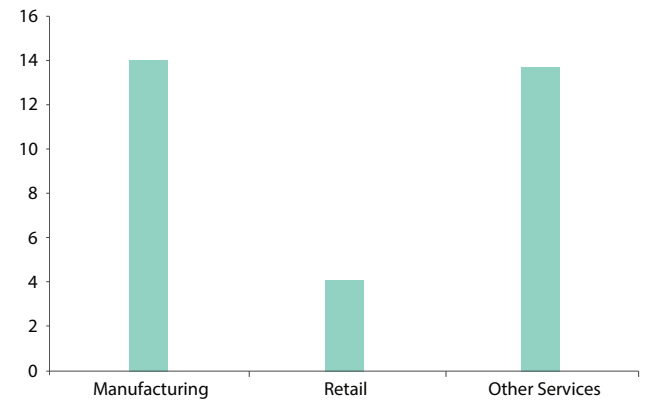
Many formal firms view Rwanda's limited skill development as a major barrier to their growth. According to the 2020 World Bank Enterprise Survey (WBES), an inadequately educated workforce was the third most frequently cited barrier to business growth. The percentage of firms identifying this as their biggest obstacle has risen over time, from 3.3 percent in 2006 to 11.5 percent in 2019 (Figure 2.7). In the 2020 survey of 360 firms, 34 percent highlighted challenges with skill gaps in technical, vocational, and job-specific skills; foreign languages; interpersonal and communication skills; problem-solving and critical thinking; management and leadership; and IT and computer skills. Compared to regional peers, Rwandan firms had the poorest perception of skills as a top barrier in 2019. Manufacturing firms suffered the most, with 14 percent ranking inadequate skills as their primary challenge, while only 4 percent of retail firms viewed this as the top obstacle.

Skill shortages are also reflected in poor managerial capabilities, limited innovation and technology adoption, which limit 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

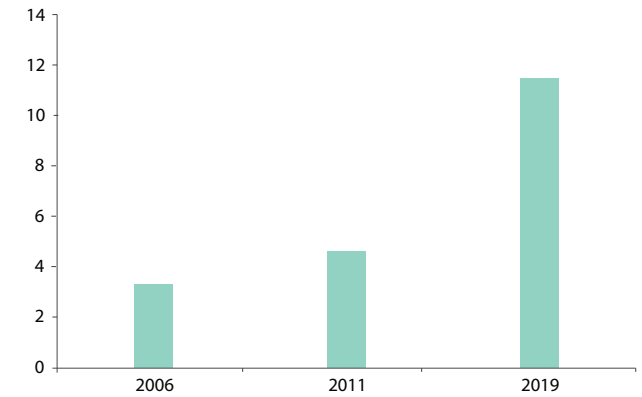
Figure 2.7: Rwanda's skills and firm performance

A. Rwanda vs Peers: Inadequately educated workforce as their biggest obstacle

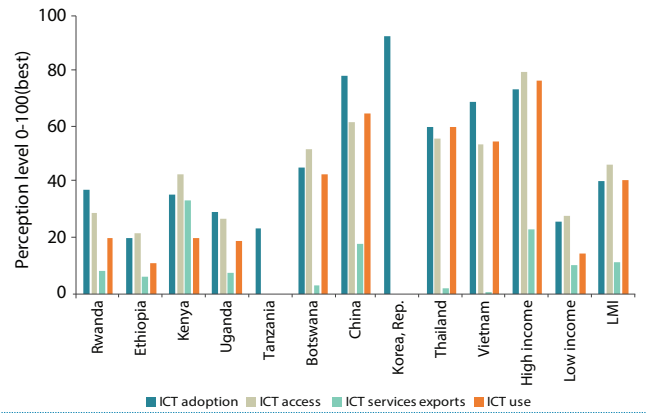
B. Rwanda: Inadequately educated workforce as their biggest obstacle by sector, 2019



C. Rwanda: Inadequately educated workforce as their biggest obstacle over time



D. Rwanda vs Peers: ICT adoption and use, 2019



Source: WBES; World Economic Forum

of total factor-productivity differences both between countries and within countries (Bloom et al., 2020). The average number of years of experience of top managers, one indicator of innovation, is lower in Rwanda than the average for low-income countries (Figure 2.7A). Rwanda is also lagging behind many comparators in firms' innovation indicators in 2010–2020 (Figure 2.7D).

Low skill quality and poor management might also be a factor in Rwanda's poor performance on innovation indicators. The percentage of establishments in Rwanda that engage in product innovation, process innovation and ISO certification, estimated at 15, 7, and 3 percent in 2019, respectively, is similar to those for low-income countries, but remain low compared to regional and global peers (Figure 2.8). For example, in 2019, the 15 percent of firms that introduced a new or significantly improved product or service during the last three years, places Rwanda in the 14th percentile of countries with a rank of 103 out of 120 (World Bank, 2022). While the GoR 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. In 2019, R&D spending as a share of GDP was only slightly above the average for low-income countries.

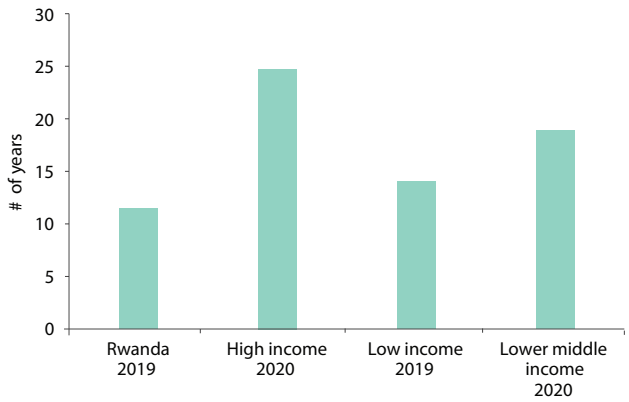
2.4. Education, skill development and labor market

Enhancing education and skill development is crucial for capitalizing on Rwanda's predominantly young population to improve employment prospects and support economic growth. Higher educational levels, particularly tertiary education, are linked to better employment outcomes, higher wages, and the ability to navigate economic challenges, although hurdles remain in scaling industrial attachments and tailoring education to meet diverse labor market needs.

Higher education and better employment prospects are inextricably linked in Rwanda. Completing university offers a high return on investment, providing individuals with better job opportunities and higher salaries. Unemployment rates are the highest among individuals with only a lower or upper secondary education (19.7 percent and 23.1 percent respectively) suggesting that the economy is creating more low skill jobs that are better served by those with no or limited education. (Figure 2.9; Table in Annex 1).Another possible explanation is that secondary school graduates are less willing to accept underemployment and, when they can afford to, prefer to wait for jobs that align with their desired work. Individuals with no or primary education have slightly lower unemployment rates, at 15.7 percent

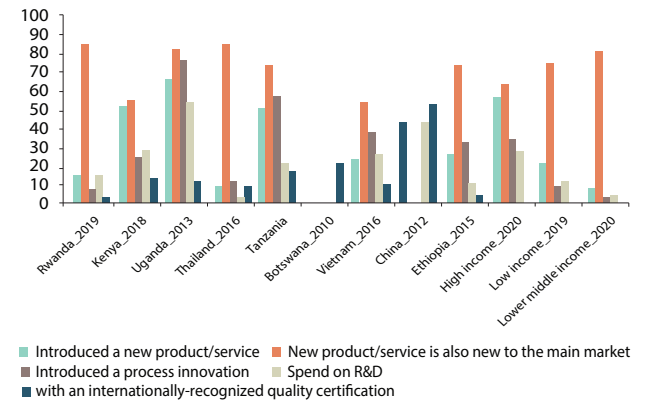
Figure 2.8: Rwanda's innovation and management practices to make further progress

A. Rwanda vs comparators: years of top manager's experience 2019-2020



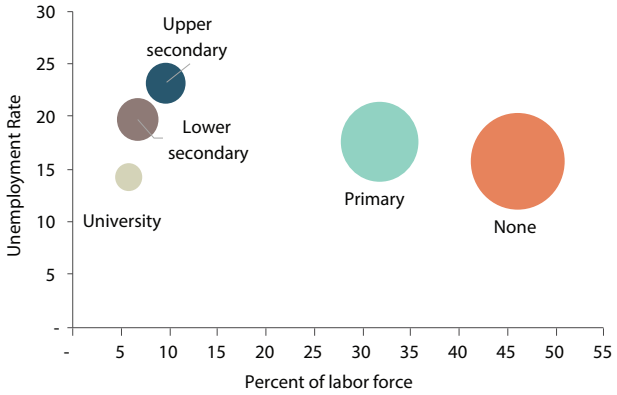
Source: World Development Indicators (WDI).

B. Rwanda vs comparators: firm's innovation indicators 2010-2020



Source: World Development Indicators (WDI).

Figure 2.9: Unemployment rates by educational attainment, 2023
(Percent)



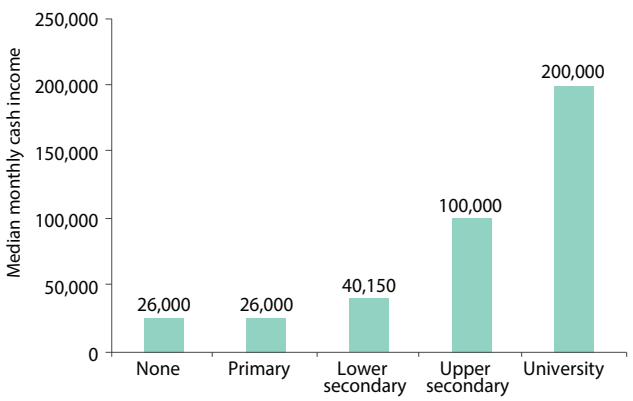
Source: LFS (2023);Note: The size of the circles corresponds to the population of the respective groups i.e. individuals with no education are the largest group at 3.8M while university graduates only number 314k

and 17.6 percent, respectively. This analysis is based on annual labor force data, quarterly data suggests that these labor market patterns might be evolving. Between the fourth quarter of 2022 and the fourth quarter of 2023, employment grew by 14 percent on average while growing by 31 percent for those with a lower secondary education. As a result, the unemployment rate of those with a lower secondary education was lower than average by the end of 2023 (16.7 percent versus 16.8 percent).

Tertiary education, encompassing technical and vocational education and training (TVET) and university studies, is closely tied to improved employment prospects. It plays a crucial role in fostering long-term economic growth and shared prosperity across all income levels, offering the highest returns compared to primary and secondary education. Workers with tertiary education are more employable, earn higher wages, and manage economic challenges more effectively. They also offer broader societal benefits, particularly for women and girls in terms of health, economic opportunities, and agency. University graduates form just 5.8 percent of Rwanda's labor force, yet they have the lowest unemployment rates at 14.2 percent, demonstrating the high value of tertiary education (see Figure 2.9). These graduates primarily hold managerial, professional, and technical positions, earning the highest median monthly incomes of around Rwf200,000. The leading employment sectors for university graduates, as identified in labor force surveys, include education, health, and public administration/defense. In contrast, individuals with secondary or primary education often work in lower-paying elementary jobs. Rwandan workers with upper secondary education, lower secondary education, and primary education have median monthly incomes of approximately Rwf100,000, Rwf40,000, and Rwf26,000, respectively (Figure 2.10). They are primarily employed in agriculture, wholesale and retail trade, and construction.

Employment outcomes for higher education graduates vary significantly by institution and program. Tracer studies show that post-graduation employment rates for tertiary education in public institutions range between 40 and 60 percent. In a 2021 survey of 363 students from eight public polytechnics, 52.3 percent had secured employment, with 39.5 percent in permanent jobs. The National Skills Development and Employment Promotion Strategy (NSDEPS) found that only 60 percent of employers were satisfied with the relevance of skills held by TVET graduates. In contrast, a private postgraduate university like Carnegie Mellon University (CMU)[17] in Kigali boasts a 90–95 percent employment rate for graduates in technical roles. Employers prefer CMU students for their strong communication, teamwork, and branding skills, alongside their technical competencies. Foreign companies such as BioNTech,

Figure 2.10: Median monthly incomes by educational attainment and occupational group, 2023 *(Percent y/y; percentage points)*



Source: Labor Force Survey, 2023

[17] CMU-Africa is a regional ICT center of excellence. It is affiliated with the Carnegie Mellon University based in Pittsburgh, USA.

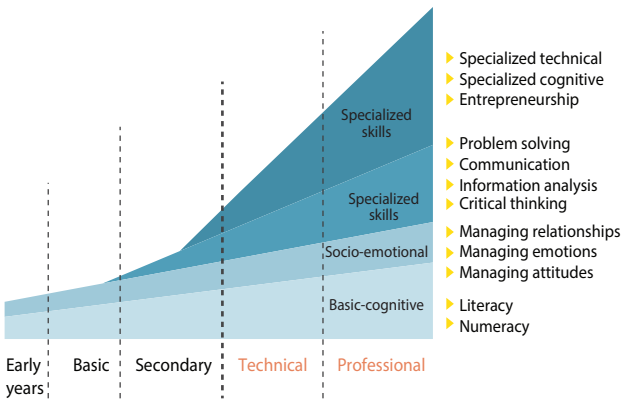
AIMS, and VW Mobility Solutions partly operate in Rwanda due to CMU's ability to produce talented graduates. However, CMU's model is challenging to replicate financially, as it relies heavily on government funding and support from development partners.

Industrial attachment programs are highly valued in Rwanda, but opportunities remain limited, and employers face significant challenges in implementation. Although industrial attachments are part of most RP and UR programs, not all students get an opportunity to improve their practical competencies. For instance, Rwanda Polytechnic's Graduate Employment Survey (2021) found that only 9.5 percent of surveyed students had completed an industrial attachment. Circumstances hindering placement of students in the industry included interns' lack of understanding of workplace requirements, disinterest, fatigue, disregard for regulations, and difficulties in managing interns effectively. Additionally, employers noted that interns often struggled to operate equipment properly and failed to bring protective clothing, while many preferred placements in Kigali. Furthermore, companies lacked insurance for damages caused by interns, and were hampered by inadequate materials, equipment, and infrastructure. This is corroborated by student surveys that cite lack of basic funds for transport, housing, equipment, protective clothing, as barriers to successfully completing industrial attachments. The World Bank has with considerable success supported internships in Rwanda as part of the Skills Development Fund.

The importance of specialized skills and socio-emotional competences increase with the level of responsibility and complexity of tasks, as illustrated in Figure 2.11. The rapid technological developments affecting most aspects of economic life has increased the importance of employees' socio-emotional competences.

Figure 2.11: Succeeding in the world of work requires multi-dimensional skillsets

(Percent)



Source: WBG staff computation

Table 2.2: Preparing different target groups for different labor market segments

	School leavers	School dropouts	Vulnerable groups	Persons in employment
Formal sector wage employment	Technical skills Socio-emotional & soft skills Digital skills			Technical skills upgrading Digital skills
Self-employment	Technical skills Socio-emotional & soft skills Digital skills Entrepreneurship Business management Loans/BDS			
Livelihood opportunities			Basic technical skills Socio-emotional & soft skills Digital skills Business management Micro credit/BDS	
Informal sector development		Basic technical skills Socio-emotional & soft skills Digital skills Business management Micro credit/BDS		

Source: WBG staff computation

Table 2.3: Skills development landscape

	Institution-/school-based development	Work-based learning (WBL)	Qualifications
Formal skills development	Formal, usually long-term TVET programs at secondary and post-secondary level	Formal apprenticeships training (dual training) Industrial attachment	Formal TVET qualification/NSQF
Industrial attachment	Diverse short and long courses serving different target groups; with or without wrapping around entrepreneurship promotion services	(Post-graduate) internships	Institutions-based qualifications, NSQF
Non-formal skills development		Informal apprenticeship training in the informal sector. Learning through work experience	None RPL NSQF

Source: WBG staff computation

Different target groups operate in distinct labor market segments and require tailored skills development packages. Skills interventions should deliberately prepare these groups for their specific segments, while acknowledging that women and men may need varied support (Table 2.2). Special tools are particularly crucial for over 90 percent of young people who enter the workforce without formal TVET or higher education qualifications. Tools like Recognition of Prior Learning, formal and informal apprenticeships, short-term vocational and socio-emotional training, and support for establishing businesses and cooperatives are essential. The Skills Development Fund (SDF) has considerable experience with these approaches, and based on recent learnings, these instruments will likely be refined further in the next phase of the SDF (Table 2.3).

Addressing skill gaps and enhancing education and training could significantly boost youth employment in Rwanda. The 2023 Labor Force Survey (LFS) revealed that 1,148,849 out of the total youth population of 3,495,825, or roughly 33 percent, were not employed, in education, or in training (NEET) (Table 2.4). Among the 1,478,873 unemployed youth, only 76,365 (5 percent) were involved in education or training during the survey period. Table 2.5 illustrates the number of youth not in the educational system or employment. Interestingly, upper secondary education has the relatively highest share of young persons who are not in employment nor under education, while youth with no formal education has the highest outside of the labor market and education system. The NEET population includes an estimated 383,505 unemployed youth and 510,712 in the potential labor force. The remaining 254,632

Table 2.4: Youth population (16-30 years) with respect to employment and education or training, 2023

	Numbers			Percentage		
	Total	Youth Male	Youth Female	Total	Youth Male	Youth Female
Total youth population (16-30 years)	3,495,825	1,692,395	1,803,429	100	100	100
In education or training	791,738	395,465	396,273	22.	23.4	22.0
In employment	1,478,873	810,203	668,670	42.3	47.9	37.1
In both employment and education or training	76,365	48,896	27,468	2.2	2.9	1.5
Not in employment nor in education/training (NEET)	1,148,849	437,832	711,017	32.9	25.9	39.4
Unemployed	383,505	160,159	223,345	33.4	36.6	31.4
Potential labor force	510,712	178,450	332,262	44.5	40.8	46.7
Others	254,632	99,222	155,410	22.2	22.7	21.9

Source: National Institute of Statistics of Rwanda (NISR), Labor Force Survey 2023

Table 2.5: Youth not in employment, education or training (NEET), 2023

	Total		Male		Female	
	Number	As share of those with the corresponding education level	Number	As share of their education level	Number	As share of their education level
None	436,431	13.4%	209,288	47.9%	227,143	52.1%
Primary	427,809	18.3%	146,121	38.1%	281,688	61.9%
Lower secondary	121,787	16.7%	32,925	28.7%	88,862	71.3%
Upper secondary	142,134	25.9%	41,071	39.8%	101,064	60.2%
University	20,617	10.8%	8,357	46.7%	12,260	53.3%
Total	1,148,779	16.2%	437,762	41.4%	711,017	58.6%

Source: Labor Force Survey, National Institute of Statistics of Rwanda, 2023

individuals fall outside these categories, with some possibly seeking employment but not actively available. Notably, 32.7 percent of them are engaged in subsistence agriculture. The NEET rate is higher among young women (39.4 percent) than young men (25.9 percent), as a greater proportion of women remain outside the labor force after completing their education or training.

2.5. Sector perspectives and skills for the future

To boost economic growth and facilitate a shift from traditional agriculture to more knowledge-intensive sectors, Rwanda needs to enhance its workforce's skills, particularly in the services sector and among youth seeking formal employment. Significant efforts are required to improve job matching, increase public investment in education, particularly in TVET and higher education, and to align education more closely with labor market demands—all while addressing the high prevalence of micro-enterprises and informal employment within the private sector.

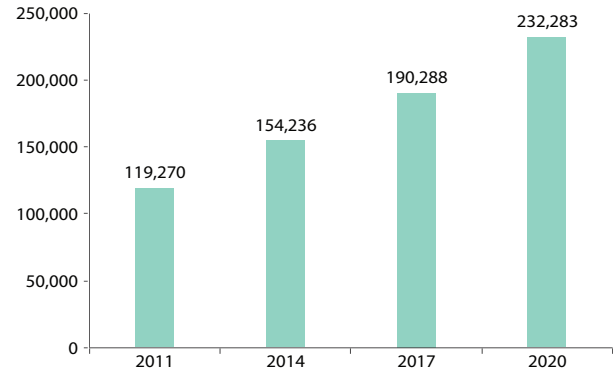
Acquiring advanced skills required by the formal sector is crucial for job seekers, particularly youth, to access higher-paying employment opportunities. The challenges that Rwanda faces require skills development and employment promotion strategies to: (a) enhance skills in the informal sector, improving enterprise productivity and worker mobility; (b) help job seekers, especially youth, gain advanced skills needed for better-paying jobs in the formal sector; (c) support non-traditional economic sectors by ensuring employers have workers with the necessary skills; (d) integrate self-employment preparation into skills training; and (e) support talented youth to develop their own business. Additionally, career centers at TVET and higher education institutions need strengthening to improve job matching for students.

Rwanda's private sector landscape is dominated by informality and micro firms. While the number of establishments in Rwanda has continued to rise over the years, informal enterprises still accounted for 88 percent of total establishments in 2020.[18] The vast majority (92.6 percent) are micro-enterprises employing fewer than four workers. Only 7.4 percent of enterprises, or 16,380 in total, meet the criteria for being "formal," with 69.8 percent of these concentrated in urban areas.[19] The reverse pattern holds for informal enterprises, which are predominantly found in rural areas (61.7 percent). Rwanda has 402 large firms employing over 100 people, accounting for 22 percent of formal employment, many of which are state-owned (Figure 2.13). These businesses are concentrated in Kigali (23.5 percent) and provinces like the East (22.6 percent), West (20.1 percent), South (19.3 percent), and North (14.7 percent). Out of the 232,283 recorded establishments (Figure 2.12), 77.2 percent operate in wholesale and retail trade (57.4 percent) and accommodation and food services (19.8 percent).

[18] NISR Establishment Census, 2020.

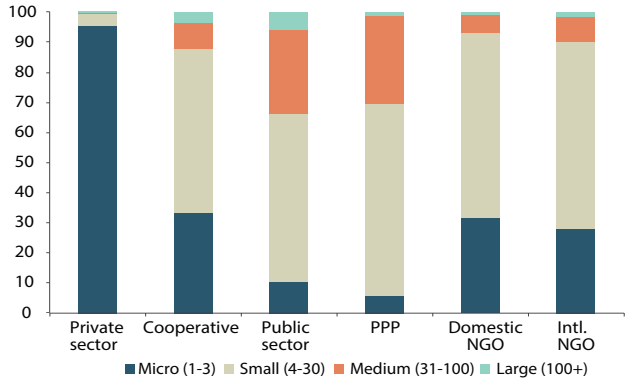
[19] The formal or informal establishments were defined according to the criteria of maintaining operational accounts and Rwanda Revenue Authority (RRA) registration in addition to the production of goods or services for sale or barter in non-agricultural activities.

Figure 2.12: Number of establishments
(Percent)



Source: Establishment Census, 2014-20

Figure 2.13: Establishments by sector and size
(Percent)



Source: Establishment Census, 2014-20

Enabling job seekers, especially youth, to acquire advanced skills required by the formal sector is crucial for securing higher-paying jobs. A 2021 employment survey conducted by Rwanda Polytechnic (RP) identified top employing sectors as tourism and hospitality (22.5 percent), technical services (18.8 percent), and construction and building services (10 percent). Most employers were private (65.3 percent) and small (62 percent). Graduates in fields like information technology, electronics and telecommunications, electrical technology, and construction technology achieved the best employment outcomes. Conversely, those with qualifications in agriculture, food processing, crop production, and culinary arts fared the worst. The World Bank's enterprise survey identifies key sectors where Rwandan firms face the largest skill gaps, while the Rwanda Development Board's State of Jobs report lists high-demand sectors in Rwanda. Most occupations in demand are within finance/management followed by manufacturing, construction and agriculture. Vacancies difficult to fill are predominantly at technician and bachelor level. Employment in the services sector is growing, but it is primarily non-tradable low-value services.

To accelerate the structural transformation of its economy from informal and low-productivity activities to non-traditional sectors, Rwanda needs to ensure that employers have access to a well-trained workforce. Rwanda aims to become a knowledge-based, service-driven economy by diversifying its export base into distribution and logistics, tourism, business travel, and financial services.[20] These sectors offer significant employment opportunities for both unskilled and skilled workers.[21] A services-based strategy enables Rwanda to capitalize on its strategic location and resources by specializing in regional logistics, adding value to agricultural products, and enhancing consumer and business travel opportunities, like conventions. The country's development strategy and industrial policy prioritize services such as ICT, logistics, and tourism (MINICOM, 2011).[22]

Rwanda faces a significant skills gap in the service sector, particularly with the recognition of regional professional qualifications. The skills shortage threatens growth prospects for high-skill service exports. A skills assessment estimated a need for 5,000 public sector accountants and 2,325 financial sector accountants, yet Rwanda has only 6 percent of that total (ICPAR 2017). Rwanda lags behind the East African Community (EAC) in the number of

[20] Rwanda aims to position Kigali as a leading financial and technology hub. In early 2020, the Kigali International Financial Centre was established to attract investors to the continent, with Rwanda Finance Limited securing strategic partnerships with local and international entities, including the Belgian Finance Center and World Alliance of International Financial Centers. These partnerships will promote investment, advocacy, and skill development. Rwanda is also developing the Kigali Innovation City in the special economic zone to foster technology and attract talent to meet future industry demand across Africa. It hosts the Carnegie Mellon University of Africa, offering postgraduate programs in technological fields. In 2021, BioNTech partnered with the government and a Senegalese research institute to begin vaccine production using mRNA technology, marking the first time this method will be used in Africa.

[21] This shift into services is set out in Vision 2020 and the National Strategy of Transformation (NST1).

[22] Ggombe and Newfarmer (2018) note that these services employ unskilled and semi-skilled workers, require less physical capital per unit of output, and exhibit high returns from the application of new technology.

professionals, and even further behind services export leaders like Mauritius and South Africa. To bridge this gap, Rwanda should recognize licenses and standards from other EAC nations and adopt shared qualification criteria. Although the EAC has mutual recognition agreements (MRAs) in accounting, architectural, and engineering services, Rwanda could benefit by extending these recognitions to other fields like financial services, health, and education (WBG-GoR, 2020). If a regionwide MRA is unavailable, Rwanda could choose to unilaterally recognize regional qualifications to address its skills gap.

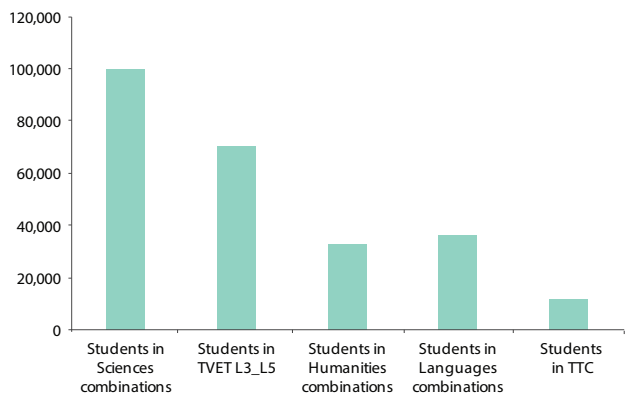
The current work permit system discourages short-term assignments in the services sector. Despite existing MRAs within the EAC, eligible professionals must still obtain permits before working, a slow and cumbersome process (Basnett 2013). They also need to register with professional bodies in both their "home" and "visiting" countries, each requiring certification and annual fees. These administrative hurdles discourage professionals from accepting short-term assignments (WBG-GoR, 2020). Liberalizing work permit regulations for EAC professionals could address this challenge and promote trade in services.

Rwanda's services-based strategy provides significant opportunities for transitioning from traditional agriculture to a knowledge-based agri-food sector, requiring new skills development. Investing in research and agricultural extension, which helps farmers adopt improved technology to boost productivity, income, and welfare, yields strong returns (World Bank, 2023). Government support for research and extension services, especially in food staples less attractive to private investors, is crucial for productivity growth and poverty reduction. The Farmer Field School approach has been effectively scaled nationwide, training facilitators and setting up schools across the country.[23]

In addition to farmer advisory and training services, international incubation centers are being established at agricultural higher learning institutions to develop skills for private firms. These centers focus on high-value products like horticulture, potatoes, dairy, and poultry farming. CAES is also creating a skills program specifically tailored for the private sector. Meanwhile, skills are needed in agricultural technology support services to maintain irrigation and solar systems, mechanization, cold chain logistics, food processing, and other agri-food services. The SAIP initiative has been training rural youth in these skills and connecting them to financing to start small workshops and provide maintenance services, but significant needs remain.

To close the skill gaps, more needs to be done to align student specialization with labor market demands. Upper secondary students tend to prefer science (40 percent) and TVET (28 percent) options, while higher education learners prioritize business, administration, and law (Figure 2.14). Over half (53 percent) of TVET students enroll in Levels 3–5, with Industrial Based Training as the most popular certificate (Figure 2.15). Courses like tailoring, masonry, and carpentry are among the most sought after. In higher education, business, administration, and law, education, and engineering attract nearly 58 percent of students (Figure 2.16). While 64 percent of graduates earn bachelor's degrees, only a small number specialize at the graduate level

Figure 2.14: Upper secondary enrollment by area of study, 2022
(Percent)

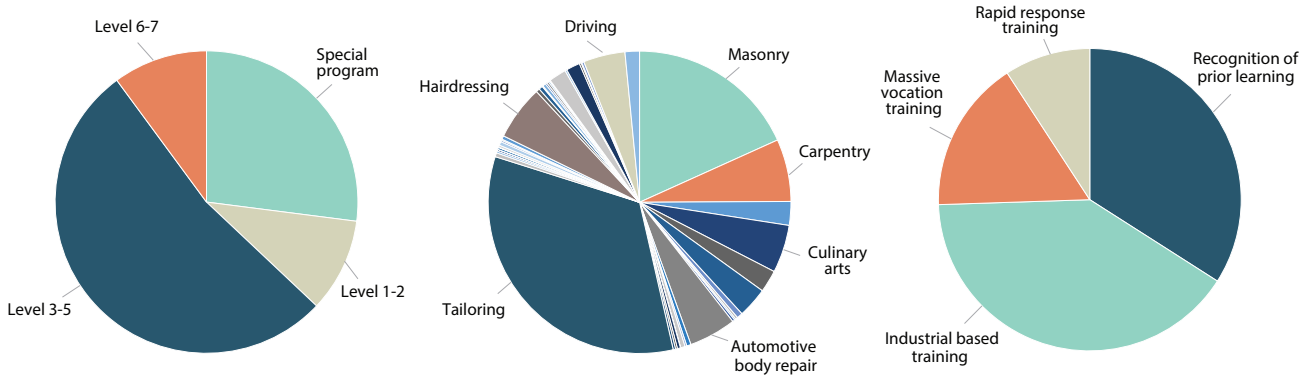


Source: WBG staff computation

[23] 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.

Figure 2.15: TVET demographics, 2022

A. TVET enrollment by level *B. TVET attendance by trade* *C. TVET enrollment by certification*



Source: WBG staff computation

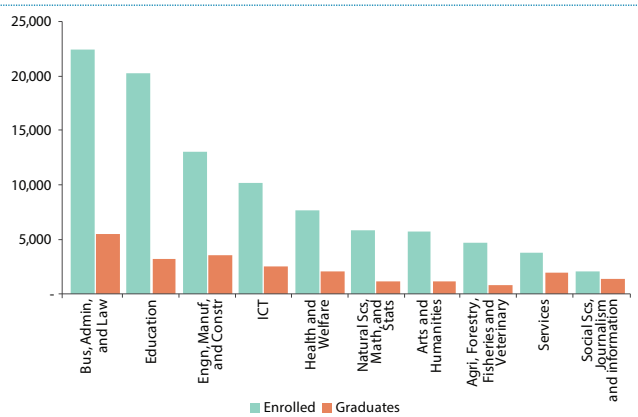
(master's or PhDs) (Figure 2.17). Efforts are being made by the Government of Rwanda (GoR), the World Bank, and other development partners to expand post-secondary and tertiary education capacity to address skill gaps. These include revising curricula to align with priority economic sectors, offering competence-based training for faculty and trainers, strengthening industry-academia links, expanding critical infrastructure and training equipment, and increasing practical learning opportunities through internships and apprenticeships.

Improving job matching for students is vital for closing the skills gap. Strengthening career centers at TVET and higher education institutions is essential to this effort. Personal networks provide the first employment source for 32 percent of TVET graduates, while 27 percent of higher education graduates rely on job ads. Expanding and improving Public Employment Services (PES) could offer valuable job search and labor market assistance that remains underutilized. Extending employment service centers beyond Huye, Kigali, and Musanze will help provide job search assistance, career counseling, and training to more workers, especially those with low skills. Currently, less than 5 percent of unemployed workers use these centers, and fewer than 2 percent of new graduates find employment through PES. An ILO assessment also highlights the need for legal and policy frameworks to better integrate PES into active labor market policies (ALMPs).

Public investment and capacity need expansion in secondary TVET, post-secondary TVET, and higher education. Despite the higher number of private

Figure 2.16: Higher education enrollment and graduation by area of study, 2022

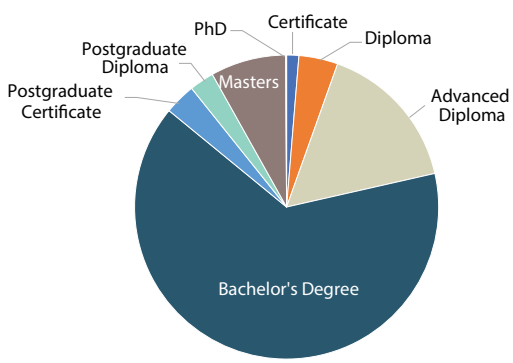
(Percent)



Source: WBG staff computation

Figure 2.17: Higher education graduates by certification, 2022

(Percent)

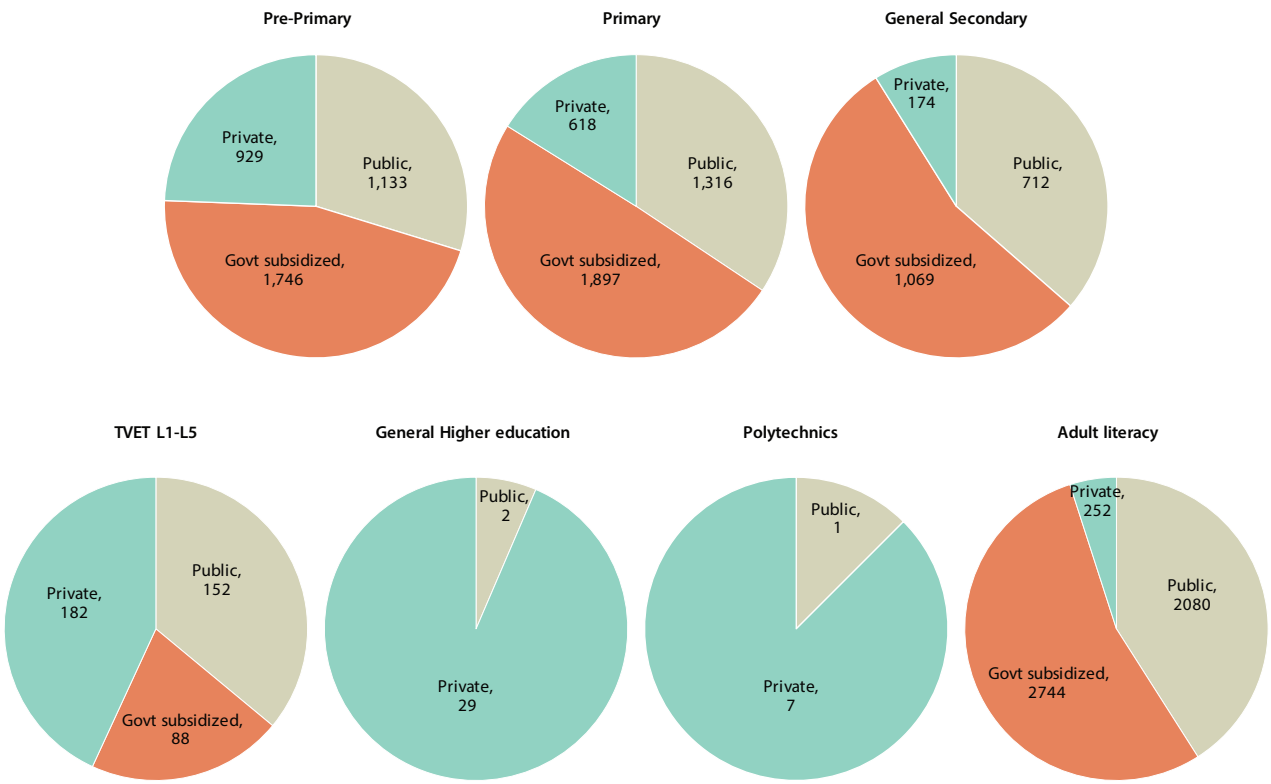


Source: Education Statistics Yearbook, 2022

institutions, enrollment is greater in government institutions, highlighting the demand for public education and barriers due to high enrollment costs. Among 422 secondary TVET schools, 152 are public[24], 88 receive government subsidies, and 182 are private (Figure 2.18). Enrollment is evenly split across these institutions. Many of the public TVET schools are in urgent need of refurbishment, and struggle with underqualified teaching staff. With support from the Korea Exim Bank, MINEDUC has launched the process of establishing 30 TVET Centers of Excellence as part of the effort to improve the quality of secondary TVET education. Rwanda Polytechnic, the sole public polytechnic, enrolls 10,511 students across its eight Integrated Polytechnic Regional Centers, compared to seven private polytechnics that enroll a combined 2,822 students. In general higher education, only two of the 31 institutions are public (University of Rwanda and the Institute of Legal Practice and Development), enrolling 32,242 students. The 29 private institutions enroll 50,288 students combined, with an average of 1,734 per institution. Public institutions are more active in nursery, primary, and general secondary education, as well as adult literacy centers. Vocational Training Centers, under the Rwanda TVET Board, cater to out-of-school youth but many require significant refurbishment.

These efforts must be complemented by initiatives that encourage job creation through private sector growth and advocate for the appropriate application of labor regulations, including salaries,

Figure 2.18: Number of institutions by ownership type, 2021–22
(Percent)



Source: WBG staff computation

[24] With support from the Korea Exim Bank, MINEDUC has launched the process of establishing 30 TVET Centers of Excellence as part of the effort to improve the quality of secondary TVET education.

social security, benefits, and contracts. Tracer studies of graduates from higher education and TVET institutions, along with labor force survey data, show the sector's inability to match the need for high-quality jobs. Key issues driving high graduate turnover include low salaries, poor career prospects, and a lack of job security. Similarly, the World Bank Group Enterprise Survey found that over 62 percent of firms lack formal training programs for permanent employees, highlighting a gap in upskilling and on-the-job training. Many firms also depend on temporary workers (25 percent in manufacturing, 9 percent in retail, and 11 percent in services), which leads to job insecurity for employees.

Select economic sectors will be key to driving growth and employment in the medium to long run and skills development will accordingly need to adjust to changes in the demand for skills in these sectors. Audits across various sectors in Rwanda—agriculture, energy, manufacturing, mining, urbanization, and MICE (meetings, incentives, conferences, and exhibitions)—highlight the urgent need for significant skills upgrading. By combining quantitative data (refer to Table 2.8) with a qualitative assessment of the strategic importance of specific economic sectors, the following sectors have been identified for skills development focus in the coming years:

a. **Agriculture, Forestry and Fishing:** Agriculture continues to be the largest employer with greater than 40 percent of the population employed in the sector. It also has the highest share of workers with no education. Improvements in productivity of the sector can enable Rwanda to be self-sufficient in food production and be an exporter. As per the NSDEPS, the sector is projected to create a large number of employment opportunities in the medium to long term. As such, a focus on technical skills upgradation for existing workers, new programs and certifications for youth still in school can impart much needed skilling and provide better employment and higher incomes in agriculture.

b. **Manufacturing:** Manufacturing's current share in employment hovers around 6 percent with a large percentage of workers having no education. The sector is expected to be a job creator in the medium to long term as the government emphasizes more growth in industry. Higher capital investment , improved labor productivity, greater formalization can help reduce import dependence, boost exports, and create more jobs.

c. **Transportation, Logistics and Storage:** This is a sector of strategic importance to the GoR and expected to contribute to > 10,000 jobs per year in the medium term. Currently accounting for 6 percent of the employed population with 45 percent of them lacking any education, there is a need to expand skilling opportunities. More private sector participation, greater formalization, reduced skill gaps can reduce trade related costs, boost exports, and create more jobs.

d. **Accommodation and Food Service Activities:** With the GoR's focus on expanding tourism and MICE, this sector is poised to grow and generate jobs in the medium to long term. Greater formalization, access to finance can help expand the size of firms in the sector faster. With 31 percent of the employed population in the sector lacking any education, there is significant room to expand skilling and improve soft skills such as customer service, and competence in foreign languages.

e. **ICT/Finance and Insurance/ Professional, Scientific and Technology related Services:** not only are these sectors expected to create a significant number of jobs in the medium and long term, but they are also enablers for other sectors in the economy to perform better, grow faster, and add more jobs. These sectors typically absorb higher skilled graduates and in some cases, are reliant on foreign labor because the required expertise is unavailable in Rwanda. Higher quality education and training programs are needed to create graduates who can be employed in these sectors.. Digital skills will be critical in Rwanda, enabling about 3 million jobs in 2030, up from 1 million in 2016. The NSDEPS divides ICT skills in

demand in Rwanda into four broad categories: (a) digital literacy, ability to understand and interact with basic ICT technology; (b) content processing, use of technology to communicate and analyze information; (c) hardware management, direct involvement with technological equipment; and (d) content creation and management, including software development and application management.

f. **Health/Education:** while these sectors are not expected to generate significant employment opportunities by themselves, they are key to the development of a healthy and educated workforce that will be supporting other parts of the economy and require crucial investment in terms of quality of training programs, upskilling programs, and infrastructure investments. There are severe shortages in specialized medical staff and qualified faculty in the country.

Please refer to Table 2.6 for detailed recommendations on skilling opportunities in each sector.

Table 2.6: Sectoral analysis on current employment trends and job creation potential

Source year	National accounts abor 2023	Force survey 2023	Establishment census 2020		Labor force survey 2023		NSDEPS (pagess 23-34) 2019	
Sector	Share in GDP	Employed popula-tion	Formal firms	Large Firms	Workers with no education	Workers with univ education	Net emp. creation proj (medium term 2025-35)	Net emp. creation proj. (long term 2036-2050)
Agriculture, forestry and fishing	27%	43%	9%	6%	65%	0%	>10,000 jobs per year	5000-10,000 jobs per year
Mining and quarrying	2%	1%	38%	9%	54%	1%	<2000 jobs per year	<2000 jobs per year
Manufacturing	10%	6%	7%	0%	35%	4%	>10,000 jobs per year	5000-10,000 jobs per year
Electricity, gas, steam and air conditioning supply	0%	0%	51%	1%	8%	43%	<2000 jobs per year	<2000 jobs per year
Water supply, sewage, waste mgmt. and remediation activities	0%	0%	22%	0%	34%	10%	<2000 jobs per year	<2000 jobs per year
Construction	9%	10%	69%	2%	45%	3%	2000-5000 jobs per year	<2000 jobs per year
Whole sale & retail trade; repair of motor vehicles and motorcycles	9%	13%	6%	0%	33%	7%	5000-10,000 jobs per year	2000-5000 jobs per year
Transportation and storage	5%	6%	51%	3%	45%	2%	>10,000 jobs per year	<2000 jobs per year
Accommodation and food service activities	1%	3%	4%	0%	31%	5%	>10,000 jobs per year	>10,000 jobs per year
Information and communication	2%	0%	15%	0%	4%	48%	>10,000 jobs per year	>10,000 jobs per year
Financial and insurance activities	2%	1%	30%	0%	7%	32%	5000-10,000 jobs per year	>10,000 jobs per year
Real estate activities	5%	0%	50%	1%	29%	14%	<2000 jobs per year	<2000 jobs per year
Professional, scientific and technical activities	2%	1%	25%	0%	2%	54%	5000-10,000 jobs per year	>10,000 jobs per year
Administrative and support services activities	3%	2%	26%	1%	32%	8%	>10,000 jobs per year	5000-10,000 jobs per year
Public administration & defense compulsory social security	5%	1%	98%	50%	6%	45%	2000-5000 jobs per year	<2000 jobs per year
Education	4%	4%	14%	1%	6%	34%	2000-5000 jobs per year	2000-5000 jobs per year
Human health and social work activities	1%	1%	24%	3%	5%	63%	5000-10,000 jobs per year	5000-10,000 jobs per year
Arts, entertainment and recreation + other service activities	5%	0%	4%	0%	16%	19%	<2000 jobs per year	<2000 jobs per year

Source: WBG staff computation

Table 2.7: High potential skilling opportunities by sector

Industry	Areas for exploration	Skilling opportunities	Source
Agriculture, forestry and fishing	• Agribusiness • Tea, coffee, horticulture, cassava • Livestock • Productivity enhancement	• Certification program for electrical and mechanical technicians to better meet need for basic agriculture related maintenance and repair • Agriscience, agribusiness management skills, agronomists • Agri-storage facilities • Processing of dried tea leaves, plucking, • Maintenance and repair of coffee washing stations (CWS) • Distribution/marketing/branding • Higher tech production tech for cassava	WBG Country Private Sector Diagnostic (2019)
	• Agricultural Services • Cold-storage facilities • Higher value agri products • Packaging • Food safety • Post harvest infrastructure	• Technicians / engineers needed for maintenance of small irrigation systems, pumping systems, solar panels • Skills in Agriculture Sensor Technology • Food technologists / processing specialists	Interviews with WBG Staff (2022)
	• Insurance • Agro-food training and curricula	• Skilled woodcraft workers • Disease mitigation specialists • "Farming as a business skills" (optimizing land and cropping practices)	RDB State of Skills Report (2022)
Mining & Quarrying	• Geological Data Access • Improved infrastructure in mining areas • Improved standards for environment protection, health and safety	• Exploration, mining and processing skills • Basic schooling/ technological access and use for those entering mining profession • Engineers, technicians, artisans, plant operators • Apprenticeship opportunities	RDB State of Skills Report (2022)
Construction	• Affordable housing	• Architects, engineers, developers • Vocational programs for electricians, plumbers, contractors	WBG Country Private Sector Diagnostic (2019)
	• Urban Planning	• Architects, Engineers, Sustainable Construction specialists	Interviews with WBG Staff (2022)
	• Working conditions, safety & health standards	• On the job training for low skill workers • University/IPRC level graduates versus TVET only	RDB State of Skills Report (2022)
Transportation and Storage		• Skilled Engineers and Technicians	WBG Country Private Sector Diagnostic (2019)
		• Project management, engineering design inspection and maintenance, green transport warehouse and logistics management, diesel mechanics contract negotiation and management, waste management, health & safety	RDB State of Skills Report (2022)
Accommodation and food service activities	• Customer service improvement	• Foreign Languages	WBG Country Private Sector Diagnostic (2019)
		• Soft skills, customer service, travel marketing, website management, digital marketing, sales, ICT skills • Bookkeeping, premises maintenance, inventory, health & safety, pricing	RDB State of Skills Report (2022)

Source: WBG staff computation

Industry	Areas for exploration	Skilling opportunities	Source
Information and communication	• IT infrastructure • ICT services	• Skilled labor to help setup IT infrastructure	WBG Country Private Sector Diagnostic (2019)
		• Software, programming, cybersecurity, 3D printing, big data & analytics, blockchain • Customer service, project management	RDB State of Skills Report (2022)
Financial and insurance activities	• Expanding local participation (33 percent foreign labor in this sector)		WBG Country Private Sector Diagnostic (2019)
		• High level skills in credit risk, financial products, accounting, law, finance/investments • Financial management, business planning, cash flow management	RDB State of Skills Report (2022)
Education	• More capital / worker needed • Labor Productivity Enhancement		WBG Country Private Sector Diagnostic (2019)
	• Pedagogical skills, curriculum development • Research and Innovation	• STEM teachers, technical trade skills for TVET instructors, education managers	RDB State of Skills Report (2022)
Human health and social work activities	• More capital / worker needed • Labor Productivity Enhancement		WBG Country Private Sector Diagnostic (2019)
	• Cost of enrollment • Urban-rural skill discrepancy • Double shifting of specialists • Standardize licensing / national testing for nurses	• Expand program offerings and enrollment in specialties missing from hospitals • Improve programs /competence for lab assistants, pharmacists	Interviews with WBG Staff (2022)
		• Hospital Managers, Physiotherapists, Medical Practitioners, Nurses, Dentists, Public Health Practitioners	RDB State of Skills Report (2022)

Source: WBG staff computation

2.6. Government's skills development policy

Rwanda's Vision 2050 strategy and the National Strategy for Transformation aim to cultivate a well-educated, highly skilled workforce through investments in human capital and economic reforms, emphasizing the creation of productive jobs, expanding educational access at all levels, and fostering a competitive knowledge-based economy. The strategy includes promoting entrepreneurship, enhancing vocational training, and improving digital literacy, with a focus on sectors like agro-processing and logistics, to drive inclusive growth and improve workforce productivity.

At the core of Vision 2050 strategy are investments in human capital development and economic reforms to ensure a well-educated, highly skilled, and gainfully employed workforce. Guided by the National Strategy for Transformation (NST 1, 2017–2024), the GoR has launched various reforms to stimulate job creation and enhance productivity.[25] Key priorities include generating 1.5 million decent, productive jobs (214,000 annually), establishing Rwanda as a competitive knowledge-based economy, and expanding access to quality education at primary, secondary, and tertiary levels. Strategic interventions are planned under these priority areas to accomplish these goals:[26]

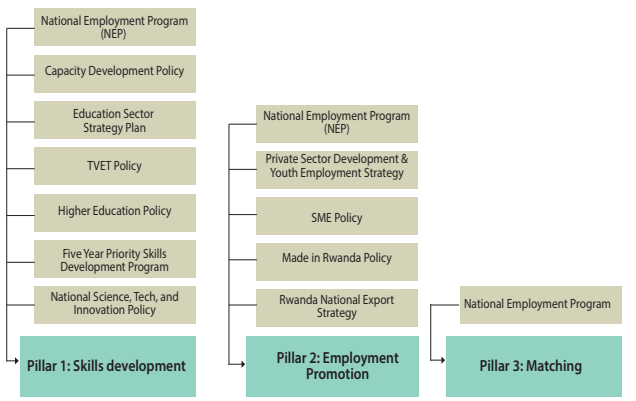
[25] https://vision2050.minecofin.gov.rw/fileadmin/user_upload/Publications/NST1/NST1.pdf

[26] This subset is not meant to be exhaustive. For the complete set of interventions, please refer to the NST 1.

- Develop and support priority sub-sectors with high growth and employment potential, such as agro-processing, construction, and logistics.
- Encourage entrepreneurship and improve access to finance, particularly for youth and women.
- Partner with the private sector to enhance workplace learning through Rapid Response Training, industry-based training, and apprenticeships.
- Scale up the number of TVET graduates with skills relevant to the labor market.
- Strengthen the national employment program.
- Ensure digital literacy for all youth.
- Strengthen existing and establish new Centers of Excellence, emphasizing science and technology.
- Upgrade school infrastructure and provide access to necessary equipment.
- Reduce school dropout rates, improve teacher welfare, and enhance teacher quality.

The National Strategy for Development and Employment Promotion (NSDEPS) remains key to driving Rwanda's goal of developing a skilled workforce through the expansion of market-relevant TVET and higher education. Building on the National Employment Program, the NSDEPS seeks to amplify successes like the SDF, which supports upskilling for private companies, while addressing issues such as limited private sector involvement and weak accountability (Figure 2.19; Table 2.8). The RDB oversees its implementation across three main pillars: skills development, employment promotion, and matching. The strategy targets both existing workers and new entrants to

Figure 2.19: The NSDEPS pillars are guided by a wide range of existing national strategies



Source: NSDEPS

Table 2.8: NSDEPS Pillars

Pillar 1 – Skills Development	Pillar 2 – Employment Promotion	Pillar 3 – Matching
National Training and Education Excellence Program: Institutions are incentivized to deliver quality education and Excellence awards for TVET and Higher Education are granted to the most effective programs	Access to Markets Program: Businesses are supported to access domestic and international markets.	Evidence-based Workforce Planning and Analysis: Labor market insights and policy making is driven through a comprehensive, aggregated understanding of the skills being produced and the demand in the market, leveraging a public sector database.
Market-led Education Initiative: Private sector relevance and labor market preparedness are put at the forefront of formal education.	Access to Adequate Capital Program: Firms can access appropriate finance, in line with their business potential, to grow and create employment.	Strengthening Employment Services and Career Guidance: Career services are revamped, while private and social matching providers are subsidized based on performance.
Capacity Development Program: (a) Investors (both foreign and domestic) are offered targeted training support, tailored to their needs, alongside their investment and (b) public servants receive on-demand training financed by the fund.	High-Quality Business Advisory Services Program: Capabilities are built within private sector firms, increasing productivity and unlocking their growth potential.	Graduate Labor Market Transition Program: Youth gain relevant skills and experience while firms and institutions can test their talent.
	Labor Market Analysis Program: Government of Rwanda institutions are informed, by a specialist research unit, about the impact of existing and proposed policies on employment.	Global Talent and Opportunities Program: The best of foreign and diaspora talent is proactively sought to support national growth; and global study and work opportunities are promoted for Rwandans to develop capabilities to then bring back to Rwanda.

Source: WBG staff computation

the labor market, including students in TVET, tertiary education, or non-formal training courses. Although implementation was interrupted by the COVID-19 pandemic, the government has extended the program to FY 2027/2028.

Despite surpassing job creation targets, Rwanda must improve education quality and expand skill development opportunities for youth to ensure inclusive growth and productivity. The 2022 NST1 mid-term review showed cumulative job creation at 942,000, exceeding the target of 857,000, despite COVID-19-related job losses. However, issues remain around training quality, insufficient private sector participation in tertiary curriculum design, a shortage of qualified instructors, and a poor learning environment at both basic and tertiary levels. Only 9.5 percent of surveyed workers completed industrial attachments, according to the 2021 Graduate Employment Survey. NST2 emphasizes the importance of enhancing youth opportunities by improving education quality and expanding skilling opportunities for NEET youth. Furthermore, pathway-based skill development needs to increase to help out-of-school youth gain relevant job market skills, especially in fields like construction.

Box 2.2: Skills development fund

The World Bank, through the PSG (2017-2024, Additional Financing) operation, has supported the i) development of new / updated TVET and degree programs in energy, transport, and agro-processing and increased student enrollment in these programs, ii) expanding the number of programs taught by staff who have completed industrial attachments, iii) scaling up of the Skills Development Fund (SDF), iv) upgrading of teaching and learning environment, improvement in student loan recovery rates by Development Bank of Rwanda (BRD), v) strengthening of NSDEPS implementation, M&E and reporting, vi) capacity building of government bodies, vii) updating of the Labor Market Information System, among other interventions.

The SDF has two objectives: a) to minimize skills gaps experienced by existing private companies and investors; and b) to ease the entry of new entrants to the labor market by providing them with labor market-relevant skills. The Fund is based on a challenge fund approach, whereby interested services providers and enterprises respond to calls according to a number of predefined criteria. SDF target groups are defined in terms 'windows' and 'sub-windows' (see below). In total, over 22,900 youths (38 percent females), have benefitted from training activities supported by the SDF.

The executing body for the PSG project is the Ministry of Education, while the Rwanda TVET Board is the implementing entity for the SDF. A Grant Committee comprised of a combination of private sector and government representatives oversees the SDF operations.

During the next phase of the SDF, more attention will be given to strengthening the quality of learning in the informal sector, inspired by the IDEAS project in Nigeria.

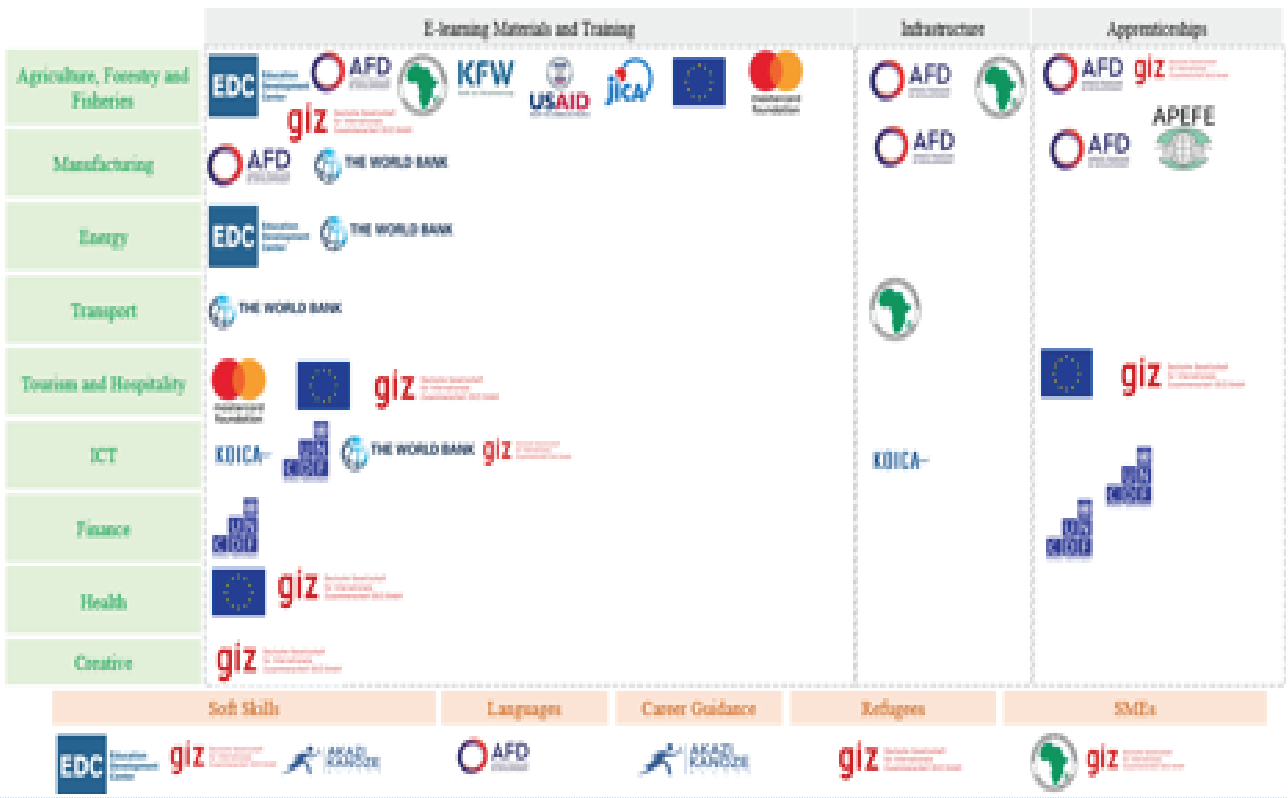
Window	Target	Actual as of Dec. 2022
1. Rapid response training/skills upgrading of existing workers/ST for Investors	5,995 (30% women)	6,250 (38% women)
2. Out-of-school youth	5,125 (30 % women)	5,610 (35% women)
3. Internship/apprenticeship/informal sector/RPL	12,750 (305 women)	13,960 (40% women)

The 'Improving Skills Formation in the Informal Sector' component of the IDEAS project aims to deliver capacity development interventions for the improvement and modernization of informal apprenticeships to selected informal sector clusters. The support includes: (i) organizational development support to trade and cluster organizations; (ii) setting up of digital platforms and business networks; (iii) skills upgrading training, digital literacy training, pedagogical and business management training and environmental awareness creation; (iv) supplementary basic skills, theory, soft and digital skills and entrepreneurship training for apprentices, as well as foundational skills training as needed; (v) access to NQF-based assessment and certification for formal recognition of skills for both MCPs and apprenticeship completers; and (vi) business development support through mentoring; (vii) limited provision of tools and shared modern equipment; and (viii) facilitation of access to other needed business development services.

The mid-term review of NSDEPS in December 2022 recognized the strategy's comprehensiveness and relevance, but there is room for improvement to ensure effective implementation. The review found that the NSDEPS requires more time for implementation, better collaboration with the private sector, increased funding, clearly defined projects with partners, improved dissemination to beneficiaries, and a stronger monitoring and evaluation framework. The report highlighted progress in improving the quality and relevance of TVET and higher education programs, expanding access to short-term training through the Skills Development Fund (SDF), providing MSMEs with capital and advisory services, and supporting evidence-based workforce planning. While the strategy has been more effective in the skills development and matching pillars, its employment promotion efforts require greater involvement of the private sector as partners. Efforts must better target beneficiaries (especially women, out-of-school youth, and individuals with disabilities) and broaden communication channels. NSDEPS is funded by the GoR, the World Bank, MasterCard Foundation, GIZ (Gesellschaft fur Internationale Zusammenarbeit), and KOICA (Korea International Cooperation Agency) but needs additional financial backing to fulfill its planned interventions.

In recent years, the government has implemented essential skills programs for youth at various educational levels as part of its NST development plan. With development partners, it aims to bridge skills gaps across sectors through materials, training, infrastructure expansion, and apprenticeships. Initiatives include setting up a national skills development fund (with MINEDUC and the EU), conducting a feasibility study to establish 30 secondary-level TVET centers of excellence with Korea Exim Bank financing, enhancing ICT and TVET quality management through KOICA, and expanding the Digital Ambassadors Program and Rwanda Coding Academy with World Bank support (Figure 2.20).

Figure 2.20: Partners in the implementation of essential skills programs for youth



Source: WBG staff computationt

Lessons learned from the World Bank and other Development Partner interventions in the skills sector so far include, aligning workforce development to priority economic sectors, enhancing relevance of training programs, expanding TVET pathways, leveraging data and technology, and ensuring equity. There is a need to ensure that political and technical will alongside funding is present to back up the national workforce development strategy. Private sector and employers need to be structurally incentivized to engage in policy making and providing training. TVET pathways for skills acquisition and upgrading need to be clear such that TVET is not seen as a last choice for students who fail in university. Improving the quality of middle level training programs and demonstrating employment outcomes for TVET graduates can improve the attractiveness of these programs. A robust LMIS and leveraging of existing labor force data should be used to inform skills development. Technology needs to be leveraged to improve curriculum conceptualization and delivery through modern and flexible learning environments; blended learning programs that combine face-to-face or remote synchronous teaching with autonomous online learning through eLearning systems; explore emerging disruptive technologies such as verifiable digital credentials, micro-credentials, digital portfolios, electronic invigilation (e-proctoring), artificial intelligence and virtual reality. Inequities in the system must be addressed to ensure students from the most poor and vulnerable background, and rural areas have access skilling opportunities. For instance, of the 88,448 students enrolled in public higher education in Rwanda, ~33 percent are on scholarships however, scholarships decisions are rarely based on income or gender-based criteria. Choice of course (STEM vs non-STEM) and grades in Senior 6 factor into the decision more predominantly. Given high tuition fees even at UR and RP, creating a more nuanced and comprehensive scholarship system could help address inequities in access to higher education.[27]

Building on the established foundations is crucial to support further employment growth in priority economic sectors, like energy, agro-processing, and transport/logistics under the PSG. Scaling up interventions like the Skills Development Fund can benefit more youth, particularly women and out-of-school individuals, and help upskill workers in micro and small enterprises. Accelerating digital development will expand the integration of digital tools in TVET and degree programs, while addressing capacity gaps in institutional frameworks will enhance private sector engagement in skills development. Additionally, skills associated with climate adaptation and decarbonization need special focus, such as those related to solar power value chains, climate-smart agriculture, and e-mobility.

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.[28] 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 Masters 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.

Investing in skills development from a comprehensive perspective will better prepare Rwandan children and youth to apply their skills and contribute to socio-economic growth. Improving the quality of basic education is crucial for further skills development and productive employment, as Rwanda's workforce averages only 4.1 years of schooling, below both the Sub-Saharan and low-Human Development Index country averages. Greater efforts are needed to increase female participation in STEM subjects in secondary

[27] Analysis based on data received from Higher Education Council (HEC) in Rwanda.

[28] https://ace2.iucea.org/rwanda-launches-4-africa-centers-of-excellence

education. Only 32 percent of women pursue STEM at the tertiary level, despite the government's goal of gender parity in STEM by 2024/25. A structured pre-university support program could help address these gaps and ease young women's transition to higher education (Box 2.1).

2.7. Recommendations

Rwanda needs a comprehensive improvement of its skills development system to enhance labor matching, quality, relevance, and equity across sectors. Institutional mechanisms for identification of skills gaps and market opportunities need to be strengthened, while the quality of technical and vocational education has to be improved. Moreover, access to scholarships and financial aids should be eased, and ties between academia and employers intensified. Additionally, the government should focus more on sector-specific skills development and enhance digital literacy to ensure an educated, skilled workforce that aligns with Rwanda's economic transformation goals.

Strengthening of the skills development system should focus on improving labor matching, quality, relevance, and equity. Rwanda should improve mechanisms to identify skills gaps and labor market opportunities while strengthening formal channels between academia and employers. Sector audits (agriculture, energy, manufacturing, mining, urbanization, and conferences) reveal a pressing need for skills improvement. Enhancing TVET quality involves improving teaching staff competencies and employment conditions, creating demand-driven curricula, and upgrading learning conditions in key economic sectors. Additionally, mentorship programs can make science and math subjects more attractive. Student access to scholarships and loans should be expanded, particularly for disadvantaged students, including affordable laptops and internet. Direct government funding for the Skills Development Fund (SDF) must gradually be established to support various programs, with priority economic sectors crucial for driving growth and employment. Annex 1 provides an overview of education and training policies implemented by the "Asian Tiger" economies in the course of their development that can help provide lessons as Rwanda follows a similar growth trajectory.

The section below highlights three areas for additional interventions to strengthen the ongoing efforts to improve the skills ecosystem in Rwanda.

1. Access and Equity: considering the high dropout rates and low levels of higher education completion among youth and constrained capacity at public higher education institutions, there is a need to identify and mitigate barriers to higher education and training.
    a. Undertaking a mapping study to understand the capacity and quality of the higher education system at institution level with a focus on variety of programs offered, quality of faculty, infrastructure, teaching learning materials (TLMs), student to teacher ratios, student demographics, employment prospects, enrollment and graduation rates will help identify gaps and areas for improvement. This will allow targeted public sector investment and expansion of capacity for under-offered programs.
    b. Application volumes at public TVET institutions, especially IPRCs, are extremely high. Capacity constraints force IPRCs to reject students who meet admission criteria. The mapping study highlighted above can allow the government to prioritize further investment in higher education and identify areas where external expertise is needed and high-quality foreign (technical) universities via Public Private Partnerships (PPP) may be attracted.
    c. Gaps in student financing and affordable housing further hinder access to higher education. To address these challenges, a Public-Private Partnership (PPP) framework for affordable student hostels is under development. More financial assistance and incentives should be offered to students pursuing post-secondary and tertiary education, particularly in priority programs

relevant to the labor market. Innovative mechanisms like Income Share Agreements (ISAs) can be explored – there is an initiative underway by the UBS Optimus Foundation in collaboration with Chancen International, to offer ISAs to students at select colleges and universities in Rwanda.

d. Expanding access should also include greater outreach at the secondary education level highlighting the benefits of a higher education and creating mentorship programs for school students with young graduates. One example of such outreach is provided by CMU in Kigali – their pipeline building efforts include i) 5 week "bridge programs" for promising students at local universities (140 students reached in 2021), ii) outreach programs for displaced persons and iii) a cybersecurity competition for high school students. Some of their future interventions will focus on women, refugees, and lower income students.

2. Quality and Relevance: Despite improved access to TVET and tertiary education, program quality remains a concern due to a shortage of qualified teaching staff, outdated curriculum design, and inadequate industry-academia collaboration. There is a strong need for a systemic shift to a hands-on learner-centered model, and a roll out of a soft skills and work readiness curriculum.

   a. Transitioning teaching methods, materials, student evaluations at a systemic level to focus on practical skills versus theoretical learning will equip graduates with employable skills. Investing in physical and digital infrastructure to enable "action learning," examples of which include workshops/lab-based learning, simulation software, case-studies, flipped classrooms, class projects that offer free consulting services to industry partners, is one such way.

   b. Cross-cutting skills like work readiness, English proficiency, and problem-solving must be included in regular training and offered to the general population through employment service centers, youth centers, and bootcamps. IPRC Musanze, for instance, includes entrepreneurship, soft skills and language courses as part of its mandatory curriculum and demonstrates better employment outcomes for its students and boasts greater student satisfaction. Similarly, bootcamps offered through RDB to improve English language skills, communication skills and confidence levels, have supported 7,000 individuals and resulted in 48 percent of participants receiving salary increases, promotions or new job offers.

   c. Tracer studies highlight skills mismatches and gaps in TVET and tertiary education. To address this, training programs should align better with labor market needs and private sector involvement in skills audits and curriculum reviews can help identify gaps. The existing Sector Skills Councils (SSCs) should be further empowered to institutionalize employer-led models.

   d. Improving instructor/teacher quality can include partnering with regional and international universities to share knowledge on best practices, expanding study abroad / training opportunities for instructors, and bringing in guest faculty. Improving incentives to attract high-quality faculty and frequent training of trainers should be considered.

3. Matching: Information asymmetries create barriers to successful employment for labor market participants. Strengthening information flow between jobseekers and employers is essential to reduce reliance on personal networks for job searching.

   a. RDB's work on creating an updated and useful Labor Market Information System (LMIS) must continue. Other efforts can include i) creating dedicated career services centers equipped with qualified career guidance counsellors, staff dedicated to building linkages with employers and adequate resources to offer resume and interviewing advice through staff or software at TVETs and other higher

education institutions, ii) encouraging institutions to setup job fairs, track and engage with alumni networks, and iii) establishing new and upgrading the existing three employment service centers that serve the general population (Huye, Musanze, Kigali).

b. Higher education institutions should be incentivized to improve graduate employment outcomes. One method can include establishing a national ranking of institutions based on their employment outcomes and matching grants and public aid to performance on these rankings. This will require expanding capacity at the Higher Education Council (HEC) such that it can credibly perform such a function.

4. Other areas that could benefit from further investment include:

a. Work Based Learning (WBL): While internships or apprenticeships are already part of most TVET curricula, there is scope for upscaling of the practical element of many TVET programs as part of the shift to a Competency-Based Training approach. Greater support from the educational institutions and the host company is required to make these internships successful for students. While there are a number of existing apprenticeship initiatives, they need to be coordinated and formalized, and aligned with the NQF. Basic financial assistance should be offered on a need basis to students selected for apprenticeships as many times they cannot afford to cover basic travel, living, equipment and gear expenses. In addition, there is need for greater investment in on-the-job training and upskilling programs for employees already in the labor force. Given the informal nature and small size of most enterprises, on-the-job-training is rarely offered to employees. With support from the Government, there can be targeted offering of such programs that include enforceable agreements with the host companies regarding retention of employees post training and clear understanding of training objectives.

b. Enhanced Entrepreneurship Ecosystem: the entrepreneurial ambitions of young graduates can be honed by integrating a business development and startup practicum at TVET and higher education institutions. Access to affordable capital or "soft loans", startup toolkits, business advisory services, and incubators will allow youth to launch their own small businesses or pilot a product.

c. Comprehensive digital skills framework: building digital skills requires training, technology access, and practice opportunities. Establishing a Digital Skills framework for TVET will help guide instructor training and provide high-quality internet, digital devices, and accessible digital content. Continuous learning and assessment are vital to validate skill progression over time. While GoR has launched a number of initiatives intended to improve the teaching staff's digital competences, a comprehensive policy outlining a clear vision, time-bound targets, and stakeholder roles is not yet in place.

d. New TVET Pathways: Ways should be found to open up more pathways within the TVET system, including the opportunity for dropouts and unemployed to improve their formal qualifications. This may include introduction of micro-credentials as part of the modernization of the NQF.

Efforts to improve the skills ecosystem, however, will fall short without corresponding initiatives to spur job creation in the economy by supporting private sector growth. Key areas for intervention include:

i) Expanded access to affordable finance and business advisory services for MSMEs to stimulate growth and job creation

ii) Supportive entrepreneurship ecosystem with startup capital, business advisory services, and incentives, enabling young graduates to establish businesses, as indicated by tracer studies and student conversations.

iii) Simplification of formalization and international certification processes while adjusting tax rates and tariffs to remove barriers to growth, as highlighted by the WBG Enterprise Survey.

iv) Assistance to MSMEs in establishing basic HR frameworks and training them in effective onboarding and employee retention, as tracer studies reveal high turnover due to inadequate training. Similarly, training of firms to manage interns and young graduates while investing in HR capacity-building at host companies.

v) Development and appropriate application of labor regulations around salaries, social security payments, and contracts.

REFERENCES

Republic of Rwanda. Vision 2050. https://www.minecofin.gov.rw/fileadmin/user_upload/Minecofin/Publications/REPORTS/National_Development_Planning_and_Research/Vision_2050/English-Vision_2050_Abridged_version_WEB_Final.pdf

Rwanda Development Board. Tracer Study of Graduates From Rapid of Rapid Response Training (RRT). https://rdb.rw/wp-content/uploads/2022/05/Rapid-Response-Training-RRT-Tracer-Study-report.pdf

Rwanda Ministry of Education (2015). A Tracer Study of Graduates From Higher Learning Institutions (HLIs) and Employers' Satisfaction of Graduates' Competences. https://hec.gov.rw/fileadmin/user_upload/DOCUMENTS/Reports/a_tracer_study_of_graduates_from_higher_learning_institutions_hlis_and_employers_satisfaction_of_graduates_competences.pdf

Rwanda Ministry of Environment (2022). 'Revised Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development.' See: https://www.rema.gov.rw/fileadmin/user_upload/Rwanda_Green_Growth___Climate_Resilience_Strategy_06102022.pdf

Rwanda National Institute of Statistics of Rwanda (2023) Labor Force Surveys.

ICPAR (Institute of Certified Public Accountants of Rwanda). 2017. "ICPAR Five Year Strategy: 2017–2021." ICPAR, Kigali.

World Bank Group; Government of Rwanda (2020) Future Drivers of Growth in Rwanda : Innovation, Integration, Agglomeration, and Competition. Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/30732

Basnett, Y. (2013). "Labour Mobility in East Africa: An Analysis of the East African Community's Common Market and the Free Movement of Workers," Development Policy Review, Overseas Development Institute, vol. 31(2), 131-148.

MINICOM. 2011. National Industrial Policy. Ministry of Trade and Industry, Government of Rwanda.

Ggombe, K. and R. Newfarmer. 2018. "Rwanda: From devastation to services – first transformation," in R. Newfarmer, J. Page and F. Tarp (eds.), Industries without Smokestacks: African Industrialization Revisited. Oxford University Press, 316.

World Bank (2023) Rwanda - Fostering Rwanda Competitiveness and Resilience in the Post-COVID-19 Era (English). Washington, D.C. : World Bank Group.

ANNEX

ANNEX 1. DEVELOPING SKILLS FOR ECONOMIC GROWTH AND TRANSFORMATION IN THE "ASIAN TIGER" ECONOMIES[29]

Five to six decades ago, the Republic of Korea, Singapore, and Taiwan, China—the original Asian Tiger economies—faced existential threats, rampant joblessness and poverty, and overwhelming odds in their pursuit of industrialization. Yet, in the space of a generation, all three have lifted living standards to levels that took high-income countries three or more generations to reach. Proactive policies in education and training were a critical enabler. What approaches did the three economies share? Are they still relevant today?

The Asian Tigers each followed their own path to develop their economies. Singapore opted to attract multinational corporations to spearhead its drive up the value chain; Korea developed its own national conglomerates (the chaebols) modeled after Japanese counterparts; and Taiwan, China, relied on indigenous small and medium family-owned businesses and on some state-owned enterprises (subsequently privatized), which adopted, where appropriate, leading-edge technology (Ashton et al. 2002). These economies shared three features in their approaches to education and training: (1) mechanisms to link decisions about the output of graduates to priority skills needed by the new industries; (2) regulation of access to the various types of education and training; and (3) continuous upskilling of the workforce aligned to employer demand. Mistakes were made and corrected, in the process building domestic capacity to sustain reforms over decades and achieving tangible economic transformation.

They all aligned education and training to the evolving needs of their new industries. All three Asian Tigers created what might be described as "super-ministries" as the institutional mechanism for this purpose. These entities had the power, over many decades, to steer, coordinate, and, if necessary, override the priorities of other ministries and interest groups, including parents, so as to keep the needs of the economy paramount. In Singapore, it was the Ministry of Trade and Industry; in Korea, the Economic Planning Board; and in Taiwan, China, the Council for Economic Planning and Development. These high-level entities set overall economic strategy, oversaw the distillation of its implications for education and training, and formalized the setting and enforcement of relevant targets through additional structures. In Singapore, this was accomplished through the Economic Development Board and the Council for Professional and Technical Education; in Korea, through Presidential Commissions on Education Reform and other advisory bodies; and in Taiwan, China, through the Council for Economic Planning and Development's Manpower Development Commission and the National Youth Commission (Ashton et al. 2002).

They all affirmed the value of technical and vocational education and training (TVET). While emphasizing a solid foundation in basic education, all three economies used their limited resources at the postsecondary level, especially in the early decades, to expand TVET rather than academic higher education. The employment of TVET graduates was a key metric used to reflect the value of TVET. In Singapore, substantial investments, beginning in the early 1990s, created the Institute of Technical Education as an explicit part of the postsecondary system (no longer part of general education) that today enrolls 25 percent of tenthgrade completers

[29] World Bank and Government of Rwanda. 2020. Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition. Washington, DC: World Bank. doi:10.1596/978-1-4648-1280-4. License: Creative Commons Attribution CC BY 3.0 IGO.

(Law 2015). Singapore's Economic Development Board also partnered with foreign firms to establish numerous stand-alone training institutes, which, after 20 years, were consolidated in 1993 to create a new polytechnic, mainstreaming best practices in industry-relevant training (Tan and Nam 2012). In Korea, as the chaebols were being established and demand for semiskilled labor was rising, the government expanded vocational secondary programs, which at the peak in 1973 graduated 60 percent of all high school graduates (Lee and Hong 2014). Parental pressure proved too powerful to sustain these high shares, however (Yoon and Lee 2009). In Taiwan, China, heavy government investment boosted TVET students' share in secondary schools from 40 percent in 1960 to 72 percent by 1990. In line with its development strategy, in 1970 the government created the National Taiwan Institute of Technology, which was authorized to offer degree-level training; it also set and achieved high targets for enrollment in science and engineering in tertiary education (for example, in 1984 these fields enrolled 48 percent of undergraduates) (Ashton et al. 2002). They all offered and funded continuous upskilling of workers. In the 1980s, Singapore's National Productivity Board sponsored modular training to equip workers for jobs higher up the value chain in the country's target industries (for example, pharmaceuticals, petrochemicals, and electronics). Of the 170,000 participants during 1983–86, 75 percent were in the Basic Education for Skills Training course, which was designed explicitly for workers with an incomplete primary education to improve their English and mathematics skills (Law 2015). For employers, Singapore previously relied on wage policies (found ineffective and thus dropped) and levies to stimulate employers' investment in worker training. In 2001 the Life Long Learning Endowment Fund, seeded by a large allocation from the government's budget surpluses, replaced the levy scheme. Interest income from the endowment now funds incentives for both workers and firms to invest in workforce skills. Such spending also creates a countercyclical macroeconomic dynamic, protecting jobs and increasing training during an economic downturn, as it did during the 2008–09 global financial crisis. Korea's levy scheme was initially successful—for about a decade—and was later replaced by the Employment and Insurance Scheme. Firms use their claims to subsidize approved in-house reskilling and retraining (Yoon and Lee 2009). In recent years, a tripartite arrangement (called BRIDGE) involving the chaebols, universities, and small and medium enterprises has emerged to ensure that skills upgrading remains solidly focused on equipping workers to improve their productivity (Tan and Nam 2012). Finally, in Taiwan, China, the levy scheme met with limited success partly because of the predominance of small and medium enterprises. Budget allocations thus remain a major source of funding for upskilling the workforce. In all three countries, employers are involved in training their workers, by practicing or hosting workplace learning, providing inputs for curriculum design, or contributing faculty for course delivery.

Rwanda is already learning from the Asian Tiger economies. The political leadership is strongly committed to investing in workforce skills across the full spectrum of the education and training system. The country faces different conditions, however. The headwinds of today's integrated global economy are possibly stronger, and the workforce needs rising levels of general education to harness technology's full promise. The Asian economies were relentless in building systemic capacity to manage their education and training systems, treating skills for transformation as teamwork across multiple entities, working collaboratively and pragmatically to overcome implementation difficulties, relying on market forces to shape incentives, but also not shying away from government action, and using simple performance metrics to correct mistakes, test new ideas, and check for progress. A similar mind-set will help Rwanda to overcome its own enormous challenges of system construction in the coming years.

ANNEX 2. SUPPLEMENTARY FIGURES AND TABLES

Table A1: Employment by sector and gender: 2022 Q4 and 2023 Q4

(In absolute terms)

	2022 Q4			2023 Q4			Change		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Employed population	3,571,136	1,990,620	1,580,616	4,074,629	2,222,880	1,851,749	503.393	232,260	271,133
Agriculture, forestry and fishing	1,616,544	768,586	847,958	1,883,567	907,821	975,746	267,023	139,235	127,788
Mining and quarrying	65,304	51,423	13,881	62,486	57,445	5,041	(2,818)	6,022	(8,840)
Manufacturing	172,259	95,328	76,931	209,962	110,389	99,573	37.703	15,061	22,642
Construction	349,928	295,610	54,317	304,377	268,790	35,588	(45,551)	(26,820)	(18,729)
Wholesale and retail	376,880	159,624	217,256	491,311	212,063	279,248	114,431	52,439	61,992
Transportation and storage	210,487	204,740	5,747	201,361	193,681	7,697	(9,126)	(11,059	1,932
Accommodation and food services activities	94,045	59,268	34,777	141,801	69,975	71,825	47,756	10,707	37,048
Education	179.074	86,725	92,349	189,779	86,638	103,142	10,705	(87)	10,793
Human health and social work activities	51,150	23,286	27,865	58,766	30,144	28,622	7,616	6,858	757
Other service activities	105,396	59,272	46,124	105,853	62,371	43,428	7,616	3,099	(2,642)
Activities of households as employers	144,071	45,344	98,727	177,788	61,576	116,212	457	16,232	17,485

Source: Rwanda Labor Force Surveys, various issues

Table A2: Employment by sector and location: 2022 Q4 and 2023 Q4

(In absolute terms)

	2022 Q4			2023 Q4			Change		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Employed population	3,571,236	1,990,620	1,580,616	4,074,616	2,222,880	1,851,749	503,393	232,260	271,133
Agriculture, forestry and fishing	1,616,54	768,586	847,958	1,883,567	907,821	975,746	267,023	139,235	127,788
Mining and quarrying	65,304	51,423	13,881	62,486	57,445	5,041	(2,818)	6,022	(8,840)
Manufacturing	172,259	95,328	76,931	209,962	110,389	99,573	37,703	15,061	22,642
Construction	349,928	295,610	54,313	304,377	268,790	35,588	(45,551)	(26,820)	(18,729)
Wholesale and retail trade	376,880	159,624	217,256	491,311	212,063	279,248	114,431	52,439	61,992
Transportation and storage	210,487	204,740	5,747	201,361	193,681	7,679	(9,126)	(11,059)	1,932
Accommodation and food service activities	94,045	59,268	34,777	141,801	69,975	71,825	47,756	10,707	37,048
Education	179,074	86,725	92,349	189,779	86,638	103,142	10,705	(87)	10,793
Human health and social work activities	51,150	23,286	27,865	58,766	30,144	28,622	7,616	6,858	757
Other service activities	105,396	59,272	46,124	105,853	62,371	43,482	457	3,099	(2,642)
Activities of households as employers	144,071	45,344	98,727	177,788	61,576	116,212	33,717	16,232	17,485

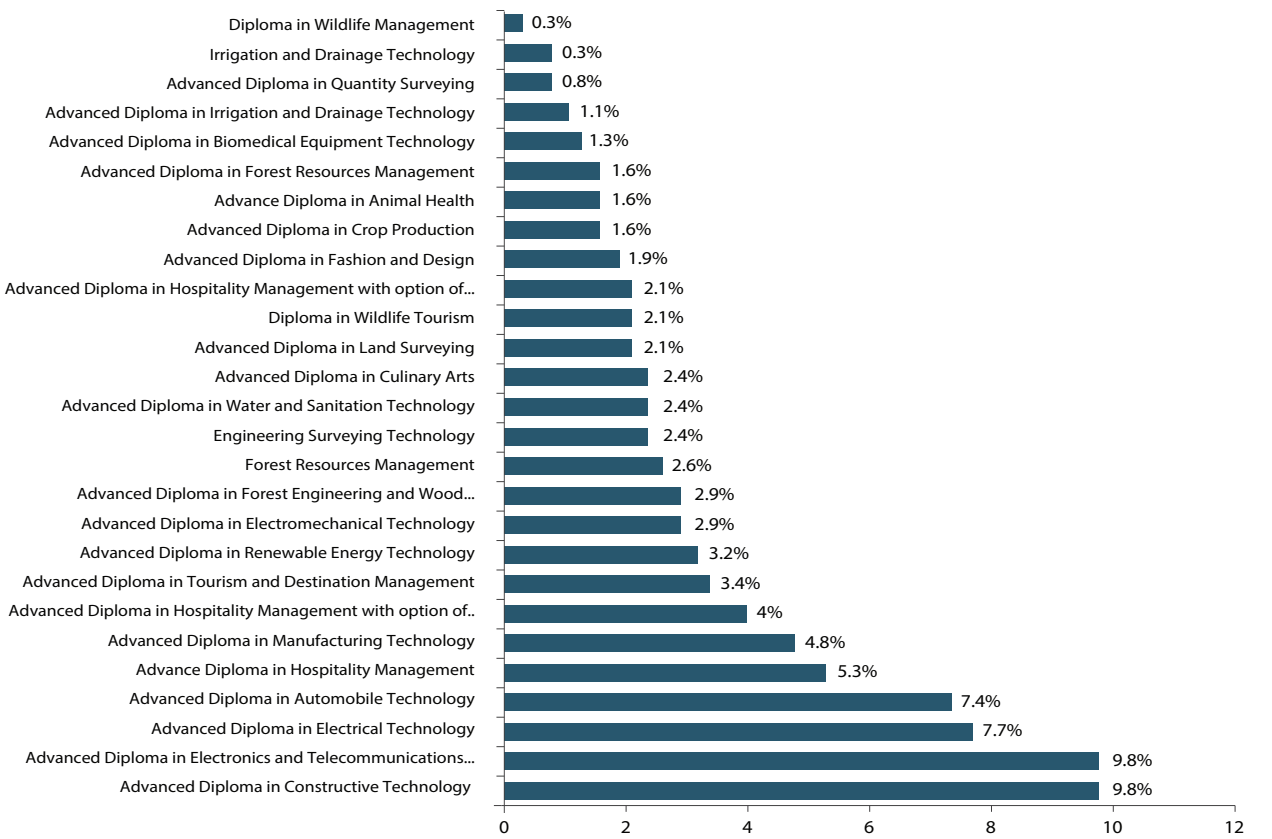
Source: Rwanda Labor Force Surveys, various issues

Table A3: Employment by sector and gender: 2019 Q4 and 2023 Q4
(In absolute terms)

	2022 Q4			2023 Q4			Change		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Employed population	3,571,236	850,518	2,720,718	4,720,718	1,434,504	2,640,125	503,393	583,986	(80,593)
Agriculture, forestry and fishing	1,616,544	66,275	1,550,269	1,883,567	189,535	1,694,032	267,023	123,260	143,763
Mining and quarrying	65,304	3,846	61,458	62,486	8,722	53,764	(2,818)	4,876	(7,694)
Manufacturing	172,259	51,016	121,242	209,962	98,384	111,577	37,703	47,368	(9,665)
Construction	349,928	100,698	249,230	304,377	162,971	141,406	(45,551)	62,273	(107,824)
Wholesale and retail	376,880	163,266	213,614	491,311	279,914	193,398	114,431	134,648	(20,216)
Transportation and storage	210,487	63,037	147,450	201,361	97,895	103,465	(9,126)	34,853	(43,985)
Accommodation and food service activities	94,045	45,098	48,947	141,801	74,583	67,217	47,756	29,485	18,270
Education	179,074	53,525	125,549	189,779	67,126	122,654	10,705	13,601	(2,895)
Human health and social work activities	51,150	34,880	16,271	58,766	29,417	19,348	7,616	4,537	3,077
Other services activities	105,396	45,619	59,777	105,853	68,068	37,785	457	22,449	(21,992)
Activities of households as employers	144,071	97,499	46,572	177,788	151,493	26,295	33,717	53,994	(20,277)

Source: Rwanda Labor Force Surveys, various issues

Figure A1: Enrollment by program at RP (IPRCs)
(Percent)



Source: WBG staff computation

Table A4: Programs offered at Levels 1-5 in TVETs

Construction & building services	Energy	Technical services	Hospitality & tourism	ICT & multimedia
• Masonry • Carpentry • Road construction • Machinery operation • Domestic plumbing • Painting & decoration • Building construction • Public works • Plumbing technology • Interior design • Land surveying	• Electrical technology • Renewable energy • Domestic electricity • Peat energy • Biomass & improved cooking	• Electronic services • Electronics & telecommunication	• Food & beverage services • Housekeeping • Culinary arts • Tourism • Front office	• Computer application • Computer maintenance • Multimedia production • Software development • Computer systems and architecture • Software programming & embedded systems • Network and internet technology
Art & crafts	**Agriculture & food processing**	**Transport & logistics**	**Manufacturing & mining**	**Beauty & aesthetics**
• Tailoring • Graphic arts • Ceramic & sculpture • Fashion design • Fine & plastic arts • Music & performance art	• Forestry • Wood technology • Water & irrigation • Leather tech • Food processing • Animal health • Tree nursery operation • Flower production • Bee keeping • Cash crop production & processing • Fish farming	• Driving • Motorcycle repair & maintenance • Automobile body works • Automobile repair & maintenance • Heavy machinery • Automobile technology	• Welding • Small scale mining • Manufacturing technology • Mining technology	• Hairdressing

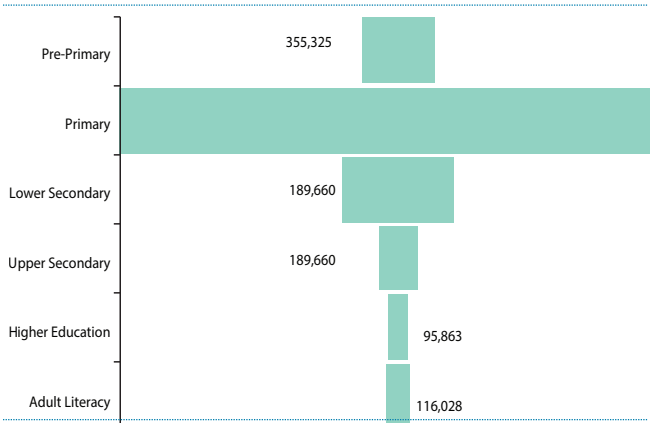
Source: Rwanda Polytechnic, Rwanda TVET Board (RTB).

Table A5: Employment by sectors of economy

Sector	Total		Male		Female	
	Number	Share	Number	Share	Number	Share
Agriculture, forestry and fishing	1,720,078	43%	781,372	36%	938,705	53%
Wholesale, retail, repair f motor vehicles, motorcycles	515,948	13%	216,654	10%	299,295	17%
Construction	386,365	10%	338,939	16%	47,426	3%
Transportation and storage	231,489	6%	222,008	10%	9,481	1%
Manufacturing	217,799	6%	122,699	6%	95,100	5%
Eduction	164,997	4%	83,928	4%	81,069	5%
Activities of households as employers	162,606	4%	59,892	3%	102,714	6%
Accommodation and food service activities	122,162	3%	65,806	3%	56,356	3%
Other service activities	109,800	3%	65,433	3%	44,367	2%
Administrative and support service activities	77,547	2%	51,493	2%	26,054	1%
Public administration and defence	56,093	1%	40,720	2%	15,372	1%
Mining and human quarrying	49,968	1%	44,703	2%	5,265	0%
Human health and social work activities	43,905	1%	21,698	1%	22,207	1%
Financial and insurance activities	36,775	1%	18,007	1%	18,768	1%
Professional, scientific and technical activities	25,247	1%	16,261	1%	8,986	1%
Information and communication	11,279	0%	7,957	0%	3,322	0%
Arts, entertainment and recreation	9,452	0%	6,577	0%	2,875	0%
Electricity, gas, steam and air conditioning supply	5,377	0%	3,749	0%	1,628	0%
Real estate activities	4,977	0%	4,113	0%	864	0%
Activities of extraterritorial organizations and bodies	4,259	0%	3,187	0%	1,072	0%
Water supply, sewerage and waste management	2,693	0%	1,512	0%	1,181	0%
Total Employed Population	**3,958,817**	**100%**	**2,176,709**	**100%**	**1,782,108**	**100%**

Source: Labor Force Survey, National Institute of Statistics of Rwanda, 2023.

Figure A2: Number of Learners, 2021-22



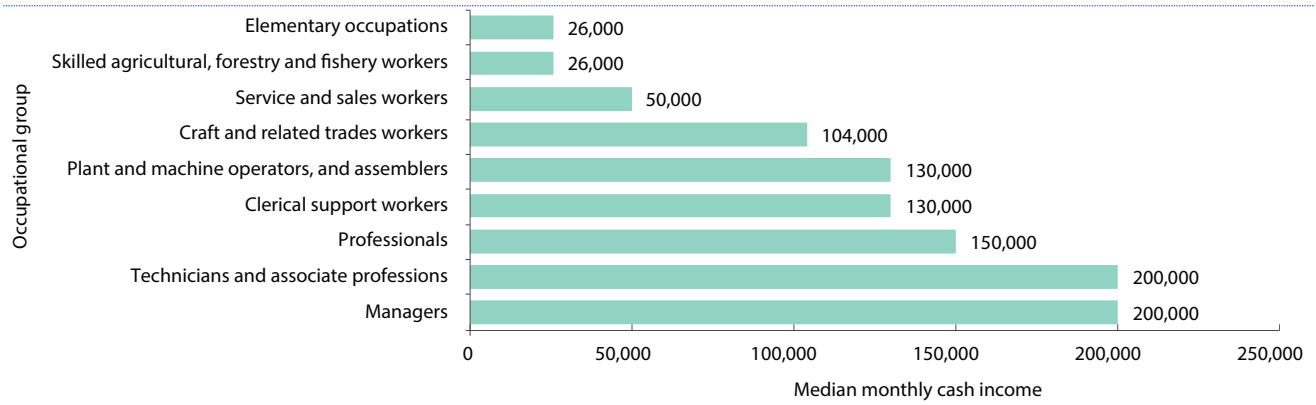
Source: Education Statistics Yearbook, 2022

Table A6: Population 16 years old and over by labor force status and level of educational attainment, 2023

Level of education	Total	Labor force status				Labor force participation rate (%)	Unemployment rate (%)
		Labor force	Employed	Unemployed	Outside labor force		
Population above 16	8,071,962	4,783,414	3,958,817	824,597	3,288,548	59.3	17.2
None	3,756,574	2,204,139	1,857,068	347,071	1,552,434	58.7	15.7
Primary	2,598,974	1,516,973	1,249,319	267,654	1,082,000	58.4	17.6
Lower secondary	738,699	324,067	260,304	63,763	414,632	43.9	19.7
Upper secondary	663,548	462,955	355,801	107,154	200,593	69.8	23.1
University	314,167	275,279	236,324	38,955	38,888	87.6	14.2

Source: NISR: Labor Force Survey Trends, 2023

Figure A3: Median income per occupational group



Source: Labor Force Survey, 2023

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