# **Rwanda Economic Update**

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# Protect and Promote Human Capital in a Post-COVID-19 World



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January 2021

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### ACRONYMS

| BCG       | Bacille Calmette-Guerin (Vaccine for<br>Tuberculosis) |        | National Action Plan for Health Security           |
|-----------|---|--------|--|
| BDFs      | Business Development Funds                            |        | National bank of Rwanda                            |
| CAD       | Current Account Deficit                               | NGOs   | Non-Covernment Organizations                       |
| CBR       | Central Bank Rate                                     | NISR   | National Institute of Statistics of Rwanda         |
| ССТ       | Co-responsibility Cash Transfer                       |        | Non-Performing Loans                               |
| CPR       | Contraceptive Prevalence Rate                         | NSDS   | Nutrition Sensitive Direct Support                 |
| cPW       | Classic Public Works                                  | OFCD   | Organisation for Economic Co-operation and         |
| DPO       | Development Policy Operations                         | OLCD   | Development  |
| DS        | Direct Support  | PER    | Public Expenditure Review                          |
| DSSI      | Debt Service Suspension Initiative                    | PIMA   | Public Investment Management Assessment            |
| DTP       | Diptheria, Tetanus Toxoids and Pertussis              | PPP    | Purchasing Power Parity                            |
|           | Vaccine   | PSNP   | Productive Safety Net Program                      |
| EAC       | East Africa Community                                 | R&D    | Research and Development                           |
| EICV      | Integrated Household Living Survey (Enquête           | RCF    | Rapid Credit Facility                              |
|           | in French)  | REB    | Rwanda Education Board                             |
| ELFB      | Extended Liquidity Facility for Banks                 | REU    | Rwanda Economic Update                             |
| ePW       | Expanded Public Works                                 | RSSB   | Rwanda Social Security Board                       |
| ERP       | Economic Recovery Plan                                | RT-PCR | Reverse Transcription Polymerase Chain<br>Reaction |
| EYRS      | Expected Years of Schooling                           | Rwf    | Rwandan Franc                                      |
| FY        | Fiscal Year   | SACCOs | Savings and Credit Cooperatives                    |
| GDP       | Gross Domestic Product                                | SAM    | Social accounting matrix                           |
| GoR       | Government of Rwanda                                  | SARS   | Severe Acute Bespiratory Syndrome                  |
| GPE       | Global Partnership for Education                      | SBCC   | Social and Behavior Change Communication           |
| HCI       | Human Capital Index                                   | SMS    | Short Message Service                              |
| HIPC      | Highly Indebted Poor Countries Initiative             | SOEs   | States Owned Enterprises                           |
| HLO       | Harmonized Test Scores                                | SSA    | Sub-Saharan Africa                                 |
| HWS       | Household Welfare Scorecard                           | SSN    | Social Safety Net                                  |
| IMCI      | Integrated Management of Childhood                    | TFP    | Total-Factor Productivity                          |
| 1145      | lillnesses  | TV     | Television   |
| JEE       | International Monetary Fund                           | TVET   | Technical and Vocational Education and             |
| LARS      | Learning Assessment System                            |        | Iraining   |
| LAYS      | Learning-Adjusted Years of Schooling                  |        | United Nations                                     |
| LiST      | Lives Saved Tool                                      | UNESCO | Cultural Organization                              |
| LODA      | Local Administrative Entities Development             | UNICEF | United Nations Children's Fund                     |
|           | Agency  | US\$   | United States dollar                               |
| LTSS      | Long-Term Savings Scheme                              | USAID  | United States Agency for International             |
| MICE      | weetings, international Conferences and Events        | VAT    | Value-Added Tax                                    |
| MINALOC   | Ministry of Local Government                          | VUP    | Vision Umurenge Program                            |
| MINECOFIN | Ministry of Finance and Economic Planning             | WHO    | World Health Organization                          |
| MINEDUC   | Ministry of Education                                 | Y-O-Y  | Year-On-Year                                       |

### FOREWORD

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 16<sup>th</sup> edition of REU focuses on the impact of COVID-19 on human capital 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 Social Protection and Jobs team, led by Ramya Sundaram, includes Erwin Tiongson, Florentin Philipp Kerschbaumer, Silas Udahemuka, and Iftikhar Malik. The Health, Nutrition & Population (HNP) team, led by Miriam Schneidman, includes Patrice Mwitende, Jonathan Kweku Akuoku, Gil Shapira, Tashrik Ahmed, Rwema Jean De Dieu Rusatira, and Ali Winoto Subandoro. The Education team, led by Huma Kidwai, includes Kabira Namit, and Lillian Mutesi. The Global Macro-Modelling team, led by Hasan Dudu, includes Lulit Mitik Beyene, and Luc Savard. Other team members were William Shaw, Karen Stephanie Coulibaly, John Ashton Loeser, Florence Kondylis, Saahil Ninad Karpe, Himanshi Jain, Hugues Champeaux, Clement Joubert, and Melis Guven. The team is very grateful to Philip Schuler and Allen Dennis for additional inputs on the structure and messaging of the report.

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Views expressed in the REU are those of the authors and do not necessarily reflect the views of the World Bank Group, its Executive Directors, the countries they represent, or the Government of Rwanda.

### ABSTRACT

The lockdown, social distancing, and increased costs associated with the COVID-19 pandemic have reduced output and employment, increased poverty, and depressed trade transactions; in the absence of a strong response by government, output will be lower over the next decade due to COVID-19. The pandemic-driven rise in the fiscal deficit is increasing public debt, thus exacerbating existing challenges to sustainability and increasing the urgency of shifting from large public investments to human capital development as the main driver of growth. The government's rapid response to the pandemic has succeeded in keeping the population share of new infections and of deaths well below that of most other countries. However, critical health services, particularly childhood immunization and nutrition services, have been disrupted, which is increasing stunting and preventable diseases. The combination of poorer nutrition, limited health services, learning losses from school closures, and the likelihood that some children (particularly adolescent girls and children from poor households) may never return to school will reduce incomes and productivity over the medium term. The government responded rapidly and effectively to the challenges posed by the pandemic, putting in place the Economic Recovery Plan (ERP) to support households and firms, quickly imposing constraints on mobility to limit the spread of the disease, ramping up social protection programs, and setting up remote learning. Key priorities going forward include: (i) improving the government's expenditure allocation, financial management and revenue mobilization; (ii) strengthening the resilience of the health system and preparing for administration of a vaccine; (iii) reducing learning losses (targeting the most vulnerable), improving skills and strengthening accountability in education; and (iv) expanding the flagship social safety net program, building adaptive systems to respond quickly to shocks, improving poverty targeting of safety net programs, and scaling up the use of digital payments.

# COVID-19 has pushed Rwanda's economy into its first contraction since 1994 and onto a slower long-term growth trajectory

The lockdown and social distancing measures, which were critical to limiting infections, sharply curtailed economic activities. GDP in real terms fell by 3.6 percent (y-o-y) in the third guarter of 2020, following a 12.4 percent contraction in the second guarter. GDP is estimated to have dropped by 0.2 percent for 2020, compared to a projected expansion of 8 percent before the COVID-19 outbreak. While the pandemic affected all major sectors, education and Rwandan strategic sectors (travel and hospitality) declined the most. The employment to population ratio fell by 5 percent during the lockdown from February to May 2020. Unemployment soared over this same period from 13 to 22 percent of the labor force, while nearly 60 percent of workers who kept their jobs through the lockdown reported receiving lower salaries.

In the absence of major policy intervention, Rwanda's long-term growth is likely to be significantly lower than the pre-pandemic trajectory. A quick recovery in Rwanda's strategic growth sector (MICE) is unlikely due to the continued prevalence of COVID-19 in the developed economies, as well as a fear factor that will probably continue after the crisis. Further, there is considerable potential for a lasting impact on capital accumulation and productivity, as observed in similar crises in the past. In the absence of robust policy intervention, disruptions in the health and education systems and a deterioration in the level of human capital more generally (see Huber, Finelli, and Stevens 2018) are likely to continue to depress economic activities after the pandemic.

The combined effect of reduced revenue mobilization due to the disruption of activities and increased government spending to respond to the crisis have exacerbated challenges to debt sustainability in Rwanda. Rwanda's public debt has risen steadily since 2013 and amounted to 58.1 percent of GDP at end 2019 (that is, before the pandemic). The pandemic-driven deterioration in output and export growth, accompanied by increased borrowing needs, has resulted in a further deterioration in Rwanda's debt position. The cost of the Economic Recovery Plan initiated to mitigate the economic impacts of COVID-19 is estimated at US\$900 million over the two fiscal years 2019/20 and 2020/21, which is equivalent to about 4.4 percent of GDP on average per year. Public debt is now estimated to have reached nearly 66 percent of GDP in 2020, or about 6 percentage points higher than anticipated in REU-15 end of 2019. Accordingly, the June 2020 Debt Sustainability Analysis revised the risk rating of debt distress from "low" to "moderate".



Monetary policy has strongly supported economic activity and financial sector stability. The National Bank of Rwanda reduced the reserve requirement ratio, introduced an extended lending facility to support banks facing liquidity shortfalls, reduced the waiting period for the treasury bonds rediscounting window, and allowed banks to restructure loans to borrowers facing temporary cash flow challenges. Banks remained in sound condition, based on the share of non-performing loans in their portfolios and capital risk-weighted assets ratio, but newly approved loans were 9.2 percent lower in October 2020 compared to the same period in 2019.

# The pandemic will lower household welfare in both the short and long term

The crisis is dramatically increasing poverty in both rural and urban areas. The headcount poverty rate is likely to rise by 5.1 percentage points (more than 550,000 people) in 2021, compared to the no-COVID scenario<sup>i</sup>. The increase in urban areas is greater than the increase in rural areas, as the agriculture sector is less affected by the pandemic than are services and manufacturing. However, the number of new poor households in the rural area is 3.2 times higher than the number of new poor in the urban area in 2021, because initially more than 90 percent of poor people live in the rural area.

#### The impact of COVID-19 disproportionately affects

women in Rwanda. The employment to population ratio decreased by 5 percentage points from 48.3 to 43 percent through the lockdown period, with larger decreases among female workers (6.2 percentage points versus 4 percentage points among male workers). This is in part because (according to the recent labor market survey) women are more likely to be seasonal workers (44 percent versus 31 percent) and more likely to be taking care of a sick relative (4 percent versus 1 percent).

**Effects of the pandemic may be felt for years.** The legacy of the pandemic and the likely lower post-pandemic growth path means that in the absence of robust interventions, GDP by 2030 would be 22 percent lower in the baseline than in a scenario without COVID.

# Rwanda's social protection system responded quickly and helps mitigate the increase in poverty

Rwanda's social protection system was well prepared to respond to the pandemic. Rwanda

made significant pre-COVID investments in its flagship safety net, Vision 2020 Umurenge program (VUP), including an expansion in the number of beneficiaries through human capital-focused innovations. When the pandemic hit, Rwanda's social protection system responded immediately, by scaling up safety nets, including emergency transfers. Simulations suggest that, expansions in safety nets since 2016, including the scaling up between March and September 2020, will achieve up to a 1.43 percentage point reduction in poverty in 2020. If the government continues further expansion, and fully achieves the targets set out in the Economic Recovery Plan, social safety nets could reduce poverty by up to 1.75 percentage points in 2021.

Poverty mitigation through social safety nets could be further improved by choosing the right set of instruments. Some instruments are more affordable, and others can be deployed more efficiently for a timely response. Simulations show that the social protection instruments deployed to respond to negative effects of the pandemic vary considerably in their coverage, targeting performance, and cost-effectiveness. The nutrition sensitive direct support (NSDS) program reaches poor and vulnerable households with pregnant women or children under the age of 2 and covered 30,000 beneficiary households by March 2020. The number of beneficiaries of NSDS more than doubled between March and September 2020. This NSDS, together with the Direct Support (DS) program, aimed at the extreme poor, reduced poverty by 0.73 percentage points in 2020. The public works programs (including the classic and expanded public works) reduced poverty by 0.51 percentage points. While no significant expansion occurred in the public work programs between March and September 2020, existing beneficiaries continued to be paid even if they could not work due to containment measures of the pandemic. Emergency cash transfers, while mitigating the plight of urban households hit hard by the shock, resulted in little poverty reduction -

some 0.2 percentage points in 2020. The objective of emergency cash transfers includes asset replacement, and they potentially play the role of an unemployment benefit, in ensuring that those who lose their livelihood have some replacement income to bounce back once the pandemic recedes.

### The government's swift and efficient response to the pandemic has largely mitigated the potentially significant negative impact on essential health and nutrition services

The government took decisive actions to control the disease. The government established multisectoral structures and an effective plan for managing the pandemic. The rapid adoption of a six-week national lockdown, closure of borders, and remaining restrictions on mobility, supported by stringent enforcement and an effective communications program to support compliance, have kept rates of infections and deaths much lower than in most other countries. And per capita tests are high given Rwanda's low positivity rate, a key metric of performance in controlling the pandemic.

Rwanda has experienced some disruptions in the delivery of health services, but these appear to be largely transitory. The immunization program and other child services appear to have been disrupted, with children missing key appointments. The number of children vaccinated for Bacillus Calmette–Guérin (BCG), Penta3 and Polio3 was lower than expected, with Penta3 and Polio3 experiencing an initial decline of 10 percent (May 2020) and additional drops of 10 percent (June 2020) and 4 percent (July 2020).

The government's response has limited the disruption to health and nutrition services. However, without continued measures to ensure coverage of nutrition and health services to vulnerable households, increased adverse nutrition outcomes may lead to significant losses in future adult productivity among young children who are impacted today.



Progress is essential in improving preparedness and the response to infectious diseases

The government has taken critical measures to bolster outbreak preparedness and strengthen health security, but more needs to be done. Rwanda was ranked 117 out of 195 countries in an index measuring global health security capabilities. The country received the highest score in East Africa (albeit well below the best-performing countries outside the region) in the 2018 Joint External Evaluation (JEE), which assessed capacity to prevent, detect, and rapidly respond to public health threats. Based on the JEE results, Rwanda prepared a National Action Plan for Health Security (NAPHS), with a prioritized set of interventions. However, the government has not developed a sustainable, longterm financing plan to support preparedness.

# The closure of schools is likely to lead to substantial learning losses, especially among girls and the poor

Enrolment is likely to be lower when schools reopen. The government moved quickly to close schools (seven days after the first recorded COVID case in Rwanda); an estimated 3.5 million students have been out of school since the pandemic began. Studies find that fewer children return to school after experiencing interruptions in education. Data of National Institute of Statistics of Rwanda (NISR) indicate that the share of students in total employment increased from 3.4 percent in February

2020 to 8.8 percent in August. Adolescent girls, particularly those from poor households, may be particularly at risk of exclusion, given the recent increase in teenage pregnancies. Enrolment in private school also may fall with the drop in income, while many schools may close as the fall in revenue forces them to relinquish rented premises and increases their risk of defaulting on loans.

The government quickly instituted a multipronged approach to providing remote lessons, although challenges to access remote learning in Rwanda are significant, particularly for children from poor backgrounds. Lack of access to television, radio, the internet, educational programs or learning materials were important reasons for failure to participate in remote learning. Students from households with greater levels of connectivity, higher levels of parental education, greater availability of parental time for engagement, and inhome availability of books and materials are better able to benefit from distance learning programs. Learning losses in households without radios (26 percent of households) or television (90 percent) are likely to be sizeable.

School closures can reduce learning and productivity in the long run. School closures can lead to an increase in grade repetition and, in the long run, to lower educational attainment. Our estimates based on historical precedents and human capital index (HCI) 2020 data suggest that expected years of schooling may decline between 0.3 to 0.7 years, from a baseline of 6.9 years. Similarly, learning adjusted years of schooling may decline between 0.2 to 0.6 years, from a baseline of 3.9 years. It is likely that children from poor and vulnerable households will experience the largest declines in learning after a break in schooling. And students whose families are less able to support out-of-school learning will face larger learning losses than their more advantaged peers. The present value of the economic losses to Rwanda may reach US\$0.055 trillion.

The protection and improvement of human capital would require decisive actions in i) saving lives; ii) protecting the poor and vulnerable; and iii) strengthening policies, institutions, and investments for building back better

### Saving lives

Accelerating deployment of COVID-19 vaccines is the single most important measure to contain the pandemic. Key steps are to strengthen primary health care facilities to screen for co-morbidities, develop clear criteria for who will be prioritized for the vaccine, elaborate a roll-out plan with different scenarios to reflect differences among candidate vaccines, pilot different strategies and platforms to be used, provide for close coordination between the ministries of health and finance to manage the budgeting process, set up adequate information systems and supervision of the program, provide training and technical assistance, prepare for risk communication and community engagement, and plan for equipment, storage, transport and human resources requirements.

Measures are necessary to improve preparation for and management of health crises. The use of serological surveys, testing blood donations, and leveraging molecular diagnostics (such as the GeneXpert for COVID-19 testing in remote areas) would strengthen monitoring of infections and further optimize testing. Improvements in the physical environment at health facilities to minimize the risk of disease transmission and protect health workers; expanding the use of innovative technologies to disseminate information perform telemedicine consultations: and strengthening community platforms involved in early detection and treatment of childhood illnesses and malnutrition; scaling up income support, food distribution and other social safety net measures for vulnerable households; improving the monitoring of the nutritional status of women and children using digital tools; and increasing the completeness and timeliness of health data reported by public and faith-based health facilities.

The National Action Plan for Health Security urgently requires financing. This plan, based on the 2018 Joint External Evaluation, includes a set of prioritized interventions based on a One Health, whole of government approach. The cost is estimated at US\$61.5 million (US\$12.3 million/ year or roughly US\$1 per person), which is small compared to the costs associated with the loss of lives and livelihoods associated with pandemics. To enhance prospects for sustainability, it is preferable to generate domestic financing, perhaps through efficiency gains in taxation and/or earmarked taxes, engaging private sector firms and incorporating metrics of country readiness to deal with pandemics in national plans to attract foreign investors.

### Protecting the poor and vulnerable

To combat the poverty impact of COVID-19 fully in the short and long term, sustained improvements to the VUP, as well as expanding social insurance to the informal sector, will be critical. First, further expansion in the coverage of the VUP is warranted. There is a large increase in the number of poor households due to the pandemic, in the short as well as medium term. These households will continue to need support. Second, because of fiscal constraints, social protection resources will need to be used more efficiently, by improving the targeting accuracy of programs. The use of a more objective targeting system based on the household welfare scorecard is an important step in this direction. Third, scaling up the use of digital cash transfers could help create a more responsive, safe and efficient delivery of social protection, particularly when physical mobility is restricted. Though its use remains unequally distributed, the use of mobile money has risen steadily in recent years and is used by nearly everyone in urban areas. Fourth, given the size of those employed informally, and the effects of the pandemic on this segment of the population, it would be important to continue to invest in expanding social insurance. Rwanda is already advanced in setting up a long-term savings scheme for those in the informal sector - the Ejo Heza scheme. Continuously monitoring the performance of the Ejo Heza scheme, improving design parameters based on such monitoring, and efforts to expand coverage will also need to continue. Finally, it would be important for the government to set in place adaptive social safety nets that can be systematically scaled up during shocks, whether climactic, pandemic, or of a different nature.

### Return all children to school safely and recover learning losses

Sustained and targeted efforts are necessary to facilitate safe school reopening, reenroll students, and recover learning losses. Priority is to ensure health and safety of students and teachers which needs a careful implementation of the Education Sector Response Plan to the COVID-19 with a clear focus on minimizing transmission for uninterrupted return to school. Tracking and reenrollment of students could be further supported by rigorous back-to-school campaigns or drives, subsidies to cover school feeding and other out-of-pocket costs, and by focused attention on vulnerable groups such as girls, the poor, and children with disability. Focus on teacher retention is important to sustain service delivery and reduce attrition related costs. School reopening after such prolonged closure comes with no guarantee of recovering or improving learning unless focused interventions are adapted to deliver remedial support to at-risk students. Efforts must



also include curricular adaptations and rapid and frequent learning assessments with clear systemlevel guidance to teachers. Building the capacity of teachers and school leaders to effectively adapt to the rapidly changing context of learning needs and methods is critical in achieving results related to learning and market relevant skills. Effective use of technology in remote learning systems, in earlywarning systems to prevent dropout, and in making learning more engaging and retainable could bring in transformational changes in the sector. Strategic inputs for raising parent engagement could promote equity in student participation and achievement.

# Strengthening policies, institutions, and investments for building back better

While expansionary policies are necessary to mitigate the impact of the pandemic, over the medium-term increased revenues and improved expenditure control is necessary to ensure sustainability and to support human capital development. Steps to strengthen revenue mobilization include unwinding tax measures undertaken to mitigate the impact of the crisis and continuing with the development of a medium-term revenue strategy (including a VAT gap analysis), an assessment of tax expenditures, and an overall diagnostic of the policy and legislative framework, as agreed in the IMF's Three-Year Policy Coordination Instrument approved in June 2019. Further efforts to implement transparent and credible financial management practices could involve undertaking more fiscal risk analysis and management, publishing more fiscal reports, and strengthening the oversight and management of SOEs and PPPs.

Strengthening infrastructure will be essential to achieve a sustained improvement in human capital. For example, a reliable supply of electricity and greater access to high speed internet would not only increase the efficiency of remote learning but also help to reduce inequalities in access to better education tools. More broadly, increasing access to, and use of, broadband internet will be critical to accelerate the structural transition to a more productive, modern economy.

Improving education systems with greater capacity, sub-sector coordination, and linkage to outcomes in learning and employability necessary for rebuilding and resource is optimization. Effective coordination and utilization of resources is just as important as leveraging additional support to sustainably finance the emerging sector needs at scale. Stronger alignment of accountability structures to learning outcomes and other key impact indicators, with efficient reporting of data utilized for timely feedback, could trigger transformational changes in helping the sector build back better. Focus on identifying and nurturing skills responsive to market needs and the national economic priorities could minimize the projected productivity losses in the medium and long term.

# PART ONE RECENT ECONOMIC DEVELOPMENTS



### **1.1. Introduction**

The lockdown, social distancing, and increased costs associated with the pandemic have severely depressed economic activity. In April-June 2020, Rwanda's GDP fell by 12.4 percent, unemployment increased sharply, and earnings of employed workers fell. GDP is estimated to have dropped by 0.2 percent in 2020, compared to a forecast of 8 percent growth before the pandemic hit. Rising food prices have boosted inflation, which has been above the central bank's range since February. Exports dropped sharply in volume and value in April-May 2020, particularly services exports which plummeted with the closure of borders and reluctance to travel. However, imports fell by more than exports in dollar terms, so that the current account deficit improved, while increased inflows of foreign assistance led to a rise in reserves. Authorities took strong measures to support households and firms during the crisis through easing monetary policy and increasing expenditures. Higher expenditures and lower tax revenues led to a rise in the overall fiscal deficit from 5.6 percent of GDP in FY2018/19 to 9.4 percent in 2019/20. COVID-19 is expected to reduce GDP over the long-term, compared to a counterfactual scenario where the pandemic never occurs. Depending on policy effectiveness and the length of the crisis, simulations using a computable general equilibrium model indicate that the size of the economy may be between 16 percent and 30 percent lower in 2030 due to the pandemic. The fiscal deficit is likely to increase in absolute terms and in percentage of GDP, and debt to remain high, through 2025.

### 1.2. Global and Regional Context

The COVID-19 pandemic has spread across the world and continues to play out. The COVID-19 pandemic, which emerged in December 2019, is inflicting a substantial toll on economies and societies. The number of confirmed cases climbed to above 62 million by end-November, with more than 1.4 million deaths.<sup>1</sup> Sub-Saharan has so far recorded a smaller number of confirmed cases and deaths than expected. After experiencing a surge in August 2020, the number of confirmed cases in Rwanda has declined sharply. Overall, the daily new cases in Rwanda have been considerably lower than in some of the most affected countries in Africa (e.g. Ghana, Kenya).

The global economy has sunk into deep recession in 2020, with uncertainty about the pace of recovery. COVID-19 hit hard an already weak and fragile world economy, with the slowest growth in 2019 since the global financial crisis of 2008/09. Mobility restrictions needed to slow the spread of the pandemic in the first half of 2020 significantly reduced global demand and supply, and increased vulnerability in financial markets. And the recent resurgence of the virus, leading to renewed lockdowns and reduced mobility in several major economies, has slowed the pace of the recovery. According to the World Bank's Global Economic Prospects (Jan. 2021), the global economy is estimated to have contracted 4.4 percent in 2020, with a 5.4 percent fall in advanced economies and 3.0 percent contraction in emerging markets and developing countries. Global GDP is

 
 Table 1.1: Global and regional economic growth (percent)

|  | 2018 | 2019 | 2020e | 2021f | 2022f |
|--|------|------|-------|-------|-------|
| World                                    | 3.0  | 2.4  | -4.4  | 4.0   | 3.7   |
| Advanced economies                       | 2.1  | 1.6  | -5.4  | 3.2   | 3.4   |
| Emerging market and developing economies | 4.3  | 3.5  | -3.0  | 5.2   | 4.2   |
| Sub-Saharan Africa                       | 2.6  | 2.2  | -3.6  | 2.4   | 3.1   |

Source: World Bank Global Economic Prospects (Jan 2020)

<sup>1</sup> WHO (World Health Organization). 2020.

forecast to expand 4.0 percent in 2021, predicated on effective vaccination limiting the community spread of COVID-19 in many countries, central banks maintaining financial stability, and fiscal policy remaining supportive in major economies.

The economic and social disruptions brought about by COVID-19 have reduced global trade substantially. The fall in demand, as well as severe disruptions to global value chains, reduced world trade by 8 percent in the first eight months of 2020, compared to same period in 2019.<sup>2</sup> Global tourism — an important source of export receipts for many economies — has also plummeted. World Tourism Organization data show that international tourist arrivals (overnight visitors) declined 70 percent in the first eight months of 2020 over the same period of last year, which translates into a loss of US\$730 billion in export revenues from international tourism.

Sub-Saharan African economies are likely to contract in 2020 for the first time in decades. According to the October 2020 Africa's Pulse, economic activity in the region is expected to contract by 3.6 percent in 2020, the region's first recession in a guarter-century. Countries in the region with higher exposure to global trade (that is, commodity exporters and those inserted in global value chains) are suffering the biggest blows from the pandemic. Rwanda is one of the most affected countries in SSA (Figure 1.1) due to more stringent measures imposed to contain the pandemic and the economy's high reliance on travel and hospitality, which has been considered to be a strategic growth sector in recent decades. Yet, intraregional trade is already playing a role in mitigating the economic effects of the pandemic in SSA. Intra-African trade had been gradually rising prior to the COVID-19 pandemic, and most of the intra-African trade flows typically take place within regional economic communities, thanks to lower tariffs among member countries. Economies in SSA have seen their fiscal pressures rise as governments have increased spending (including on health services and cash transfers) amid contracting revenue collections on the back of discretionary tax cuts (to support economies) and weakening economic activity.

The pandemic has intensified vulnerabilities in the SSA region. COVID-19 could push up to 40 million people into extreme poverty, erasing at least five years of progress in fighting poverty. And school closures are affecting nearly 253 million students, potentially causing severe losses in learning.



Figure 1.1: The growth impact of the pandemic ranks among the most severe in Sub-Saharan Africa

Source: WBG staff estimates

CPB Netherlands Bureau for Economic Policy Analysis. https://www.cpb.nl/en/worldtrademonitor

Growth in Sub-Saharan Africa is expected to rebound only moderately to 2.4 percent in 2021, which is only a little more than the 2.2 percent rate achieved in 2019 and below the population growth rate. By the end of 2021, the region's real gross domestic product (GDP) per capita will likely regress to its level in 2007.

The pandemic has reversed previously strong growth in the East African Community (EAC). After reaching 4.8 percent on average in 2019, GDP growth in EAC has declined. Growth is estimated to remain positive in Tanzania, Uganda and Burundi in 2020, while the GDP of Kenya, Rwanda and South Sudan is estimated to have fallen (Figure 1.2). Most countries have also put in place fiscal and monetary policy countermeasures to protect vulnerable households and support firms through the crisis. Growth will likely start recovering across Eastern Africa from 2021 onward as COVID-19 infections are contained, supply chains normalize, and domestic demand picks up.

### **1.3. Rwanda's Recent Economic Developments** *Rwanda's economy has been hit hard by the COVID-19 pandemic*

The Rwandan economy is likely to face its first recession over the last two decades in 2020. The widespread lockdown that ran from March 22 to May 3, as well as subsequent localized ones, paralyzed all forms of economic activity. GDP fell by 12.4





Source: World Bank Global Economic Prospects Note: e = estimate; f= forecast

percent and 3.6 percent y-o-y in the second and third guarters of 2020, respectively (Figure 1.3). This makes a 4.3 percent GDP contraction in the first three guarters of 2020. Even after the lockdown period, social distancing provisions of varying stringency remain in place, while businesses continue to incur fixed and variable costs to adhere to new safety, hygiene, and social distancing norms. Although some early indicators point to recovery in October 2020 (the NBR's annual composite economic index rose by 2.8 percent), the pace of economic activity is still too low to compensate for the loss recorded in the first three quarters of 2020. This weak recovery and the resurgence of the pandemic in major economies led the government to estimate a decline in GDP by 0.2 percent for 2020, the first recession in more than two decades. This compares to an expansion of 8 percent anticipated before the COVID-19 outbreak. The more than eight percentage points difference between the pre-COVID and recent forecast for GDP growth in 2020, the third largest of such difference for any low-income country in Africa and the 8<sup>th</sup> largest on the continent, is one indicator of the severity of the pandemic's impact in Rwanda (Figure 1.1).

**Employment and salaries fell sharply in Rwanda through the lockdown period.** Between February and May 2020, aggregate employment fell by nearly 370,000, or by about 10 percent. The employment

### Figure 1.3: Rwanda's GDP contracted in 2020s (percent)



Source: National Institute of Statistics of Rwanda (NISR)

to population ratio fell from 48.3 to 43 percent, with larger declines among female workers (6.2 percentage points, versus 4 percentage points among male workers) and workers in urban areas (nearly 10 percentage points, versus 4 percentage points in rural areas). Not surprisingly, unemployment soared over this same period, from 13 to 22 percent of the labor force. On average, nearly 60 percent of workers who kept their jobs through the lockdown reported receiving lower salaries during the lockdown. Employment recovered from May to August, and the employment to population rate is back to its pre-lockdown level. However, an increase in labor force participation has meant that unemployment rate remains elevated, albeit lower than the peak in May. Annex I provides further information on these trends.

The services sector was hard hit by the COVID-19 pandemic, due to mobility restrictions and personal avoidance behavior. The services sector contracted by 6.3 percent in the first three guarters of 2020, as a growth slowdown in the first guarter was followed by a sharp contraction in both second and third guarters. Rwanda has had some success in developing its MICE (Meetings, International Conferences, and Events) industry in recent years.<sup>3</sup> However, travel restrictions with the outbreak of COVID-19 reduced visitor arrivals to almost zero in April 2020, and the hotel and restaurant subsector dropped by 39.3 percent in the first three quarters of the year. Half of the government's Rwf100 billion Economic Recovery Fund for the private sector was allocated to the Hotel Refinancing Window. Available data indicate that 82.6 percent of the allocated funds have been disbursed as of September 2020. Other severely affected subsectors included education (with the closure of schools from March to October), retail and wholesale trade, maintenance and repair,

### Figure 1.4: Rwanda's GDP growth, services sector, First three quarters of 2020

(percentage changes, year-on-year)



Source: NISR

and transport, which, in total, account for about 20 percent of GDP (Figure 1.4). In contrast, financial, real estate, and other services, where many activities can be carried out remotely, fell by less than 6 percent in the first three quarters. Information and communication services increased by 35.9 percent, supported by the move to work-from-home arrangements, while demand for human health-related services also rose.

Major industrial sectors have contracted. Total industrial output fell by 6.4 percent y-o-y in the first three quarters of 2020 as a growth slowdown in the first guarter was followed by a sharp contraction of nearly 19 percent in the second and of nearly 2 percent in the third quarter.<sup>4</sup> The construction sector contracted by 7.2 percent in the first three quarters of 2020 (Figure 1.5), as the lockdown slowed work and reduced the availability of supplies (the y-o-y growth rate also was depressed because some largescale public infrastructure projects were realized in the same period of 2019). Output in manufacturing (comprising food, beverage, manufacturing of construction materials) dropped by 0.4 percent in the first three quarters of 2020, reflecting the tight linkage with the performance in agriculture and

<sup>&</sup>lt;sup>3</sup> According to the International Congress and Convention Association, Kigali was ranked Africa's 2<sup>nd</sup> most popular conference destination before the COVID-19 outbreak.

This is be compared to an 18.3 percent expansion in the same period of 2019.

construction, as well as large disruptions in trade and global value chains. The 35 percent collapse in mining output (Figure 1.5) was driven by the continuing drop in tin prices, to a four-year low in mid-March.<sup>5</sup>

Agriculture was constrained by both the COVID-19 pandemic and unfavorable weather conditions. After growing by 5.0 percent in 2019, agricultural output remained constant in the first three quarters of 2020, as heavy rains and floods during the first agricultural Season A<sup>6</sup> destroyed part of the production of some important food crops. Food production shrank by 0.5 percent in the first three quarters of 2020. Output of Rwanda's crop exports contracted by 12.7 percent in the first three quarters of 2020, mainly driven by lower coffee production. By contrast, the livestock subsector benefitted from higher fodder production and government efforts to improve animal health and production.<sup>7</sup>

All major expenditure categories of the national income accounts were impacted by the COVID-19 pandemic (Figure 1.6). Mobility restrictions resulted



Source: NISR

6

<sup>7</sup> The FY2019/20 Budget execution report.

in mounting job losses (885,000 people stopped working in April)<sup>8</sup>, reducing the incomes of firms and workers. This led to a drop in private consumption in Q2-2020, and Q3-2020. The closure of schools and borders, coupled with many civil servants working from home, reduced government consumption of goods and services (e.g. office supplies, water, energy, repairs and maintenance and travel). Investment fell in both second and third guarters, after some increase in the first guarter, with sharp declines in investment in transport equipment and other machinery (due to reduced manufacturing, mining and transport activities) and investment in construction, as well as a fall in government capital expenditure. Exports expanded by 5.9 percent in the third guarter, but this was not enough to offset a substantial decline recorded in the second (-24.4 percent, y-o-y), resulting in a 1.6 percent contraction in the first three quarters of 2020. The adverse effect on GDP growth was eased by an equally pronounced fall in imports. Since imports are considerably larger than exports, net exports made a positive contribution to GDP growth in the second and third quarters.

### Figure 1.6: Rwanda's GDP growth, expenditure side (percent, year-on-year)



Source: NISR

<sup>&</sup>lt;sup>5</sup> World Bank Group, Commodity Markets Outlook, April 2020 https://openknowledge.worldbank.org/bitstream/ handle/10986/33624/CMO-April-2020.pdf?sequence=9&isAllowed=y

<sup>&</sup>lt;sup>6</sup> 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.

<sup>&</sup>lt;sup>3</sup> According to the Labour Forces Survey of Q2-2020 (May 2020): https:// www.statistics.gov.rw/datasource/labourforce-survey-2020

#### Rising food prices have increased inflation in 2020

Inflation has remained high during the pandemic. While the pandemic may have increased prices in some areas due to the disruption in trade and transport, the headline inflation rates (y-o-y) in March (8.5 percent) and April (8.0 percent) were not that different from that of the immediately preceding months. Inflation has exceeded the upper bound of the central bank's target range since February 2020 (Figure 1.7). Headline inflation reached 8.9 percent for the year ending September 2020, driven by rising food prices since late 2019 (10.9 percent y-o-y by

**Figure 1.7: Headline inflation drivers, 2019-20** (percentage points)



Note: (.) indicates the weight in the consumer basket

### Figure 1.8: Food prices increased to a 10-year high in the first half of 2020 (percentage points)



September) and the more recent rise in transport prices (22.4 percent in September).<sup>9</sup> Accounting for about 27 percent of the consumer basket, food prices remain the main driver of headline inflation (Figure 1.8). The 15.6 percent (September, y-o-y) rise in food prices in rural areas, where the majority of the poor live, substantially exceeded the 9.7 percent rise in urban areas (Figure 1.8). Pressures on food prices started easing in the fourth quarter as vegetables prices declined substantially thanks to the good harvest in the agricultural Season B. This also affected headline inflation, which dropped to 4.2 percent in November, its lowest level since October 2019.

**Core inflation also rose in the second quarter** (**Figure 1.7**). Core inflation, which excludes fresh products and energy items, rose to 8.1 percent y-o-y in May 2020, a level not seen since December 2011. This rise was on account of a 45 percent increase in the price of a bus ticket when the lockdown was eased (the number of bus passengers was limited to only 50 percent of the normal capacity). In October, buses were allowed to carry passengers to their full capacity and prices were reduced; thus, the core inflation gradually retreated to 3.7 percent in November 2020.



Source: NISR

<sup>&</sup>lt;sup>9</sup> While mobility restrictions were eased in May 2020, the number of bus passengers was limited to 50 percent of the normal capacity, leading to a 45 percent increase in the price of a ticket.

# Monetary authorities responded to COVID-19, thereby cushioning the financial sector

The National Bank of Rwanda (NBR) eased monetary policy in response to the crisis. The reserve requirement ratio was reduced to 4 percent effective in April 2020 (the ratio had been held at 5 percent since March 2009). The NBR also introduced a Rwf 50 billion (0.5 percent of GDP) extended lending facility for banks (ELFB) to support banks facing liquidity shortfalls due to COVID-19 for the period of April to October 2020. By end-September, two banks had accessed the ELFB for a total amount of Rwf 5 billion. The NBR also reduced the waiting period for the treasury bonds rediscounting window from 30 days to 15 days. Overall, this had the effect of increasing banks' excess reserves with the NBR. Banks were allowed to restructure outstanding loans of borrowers facing temporary cash flow challenges on an exceptional basis (from March 16 to April 10, banks received requests to restructure loans amounting to 25.5 percent of their total loan portfolio). The CBR policy rate was reduced to 4.5 percent at end-April, despite rising inflation, making a 100 basis points

cut since April 2019. This reduction is less than that undertaken by some regional countries (Table 1.2), although interest rates in Rwanda are lower than in these other countries.

The banking sector has been cautious in extending new loans, despite entering the COVID-19 crisis in sound condition. Before COVID-19, nonperforming loans (NPLs) were on a downward trend (Figure 1.9). The capital to risk-weighted assets ratio remained well above the 15 percent minimum. However, the significant deceleration of economic activities exerted some pressure on the financial sector, with rising NPLs and a declining ratio of capital to riskweighted assets since March 2020, affecting the extension of new loans. As of October 2020, newly approved loans were 9.2 percent lower than in the same period in 2019. Nevertheless, credit growth stood at 18.6 percent, year-on-year, by October 2020, reflecting the restructuring of about 39 percent of banks' loan portfolio. The central bank has encouraged the banking sector to restructure loans for cash-strapped borrowers due to the pandemic.

| Table 1.2: Monetary | v measures in res  | ponse to the   | pandemic, sel    | ected countries   |
|---------------------|--------------------|----------------|------------------|-------------------|
| Tuble Harmonetal    | , incusares in res | bollise to the | partacritic, set | cerea countrities |

| Country          | Measures  |
|------------------|---|
| Burundi          | None  |
| Congo, Dem. Rep. | Policy rate reduced by 150 basis points to 7.5%, mandatory reserve requirements eliminated, collateralized long-term facility for commercial banks established  |
| Ethiopia         | Provision of liquidity to commercial banks (0.45% of GDP) and for Commercial Bank of Ethiopia (0.5% of GDP)   |
| Kenya            | Policy rate lowered by 125 basis points to 7.0%   |
| Nigeria          | Interest rate on Central Bank of Nigeria intervention reduced from 9 to 5 percent, liquidity injection to banking system of 2.4% of GDP and additional 0.7% of GDP in liquidity provided for agricultural sector  |
| Rwanda           | Policy rate reduced 50 basis points to 4.5%, extended lending facility (0.5% of GDP), Treasury bond purchases, reserve requirement lowered 100 basis points   |
| South Africa     | Policy rate reduced by 250 basis points to 3.75% in three steps. Repo arrangements increased and interest rate on repos reduced. Size of weekly refinancing operations increased. Bank capitalization requirements eased and guidance on loan forgiveness by banks issued   |
| Tanzania         | Discount rate reduced 200 basis points to 5%, collateral haircut requirements on government securities reduced, and reserve requirement reduced 100 basis points to 6%. Will provide regulatory flexibility for loan restructurings. Limits on daily transactions and balances increased for mobile money operators |
| Uganda           | Central bank rate reduced 200 basis points to 7%, liquidity injections and regulatory forbearance measures  |
|                  |   |

Source: IMF (2020b)





Source: NBR

Some interest rates have been trending downward, in line with the cuts in the central bank rate (CBR). Bank lending rates averaged 16.3 percent during the first three guarters of 2020, 20 basis points lower than in the same period of the previous year, while deposit rates have been stable at around 7.6 percent since 2018 (Figure 1.10). The interest rate on government's domestic borrowing showed a mixed picture. While average interest rates on government borrowing on longer maturities declined, there was an upward trend in rates on shorter maturities.





Source: NBR data

# The current account deficit fell with the onset of the pandemic

**Rwanda's current account deficit (CAD) eased in the second and third quarters, as the drop in imports exceeded that of exports.** The current account deficit fell to 12.7 and 10.4 percent of GDP respectively in the second and third quarters of 2020, from 16.1 percent of GDP in the first quarter of 2020 (Table 1.3). The narrowing of the CAD was largely driven by an improvement in the deficits on goods and services and primary income, combined with a substantial increase in secondary income, reflecting grants from development partners to respond to the COVID-19 crisis. In Q2 and Q3 of 2020, the balance on secondary income reached 6.3 percent of GDP.

Merchandise exports declined in the first three quarters of 2020 with the pandemic-driven disruptions in transportation and the decline in global demand. Merchandise exports in dollar terms fell by 25.4 percent relative to the first three quarters of 2019. All major commodity exports, except for tea, fell significantly in the second guarter. Nontraditional exports, which had emerged as the main source of export earnings over the previous three years, fell to 54 percent of the first three guarters of 2019 level, due to land-border closures. Non-monetary gold exports rose substantially following the establishment of Aldango Ltd, an Emirati gold refinery company in Rwanda in 2019. According to external statistics, non-monetary gold exports amount to US\$522 million in the first nine months of 2020, following about US\$173 million exported in 2019. An easing of trade disruptions and lockdown restrictions increased goods exports in the third quarter by more than a third compared to the previous quarter in dollar terms, but they remained 10 percent below their level of the third quarter of 2019.

#### Table 1.3: Balance of payments

(percent of GDP)

|                             | 2019Q1 | 2019Q2 | 2019Q3 | 2019Q4 | 2020Q1 | 2020Q2 | 2020Q3 |
|-----------------------------|--------|--------|--------|--------|--------|--------|--------|
| Current account             | -11.3  | -13.6  | -13.1  | -10.4  | -16.1  | -12.7  | -10.4  |
| Goods and services          | -13.8  | -14.5  | -15.2  | -14.1  | -18.4  | -16.8  | -16.6  |
| Exports                     | 19.8   | 19.5   | 23.9   | 23.5   | 19.2   | 14.6   | 24.0   |
| Goods                       | 10.5   | 10.9   | 12.7   | 13.3   | 12.2   | 11.3   | 18.7   |
| Services                    | 9.3    | 8.6    | 11.2   | 10.2   | 7.0    | 3.3    | 5.4    |
| Imports                     | 33.6   | 34.0   | 39.1   | 37.6   | 37.6   | 31.4   | 40.6   |
| Goods                       | 23.0   | 25.4   | 27.9   | 28.0   | 29.2   | 27.7   | 35.3   |
| Services                    | 10.6   | 8.7    | 11.2   | 9.5    | 8.4    | 3.8    | 5.3    |
| Primary income              | -3.8   | -3.4   | -3.4   | -2.8   | -3.1   | -2.1   | -0.2   |
| Secondary income            | 6.3    | 4.3    | 5.5    | 6.5    | 5.4    | 6.3    | 6.3    |
| o/w General government, net | 3.0    | 1.5    | 2.7    | 3.3    | 2.4    | 3.4    | 3.0    |
| Remittances, net            | 2.1    | 2.0    | 1.9    | 2.1    | 2.1    | 2.0    | 2.3    |
| Capital account balance     | 2.5    | 2.3    | 2.7    | 2.6    | 2.7    | 3.5    | 2.7    |
| Financial account balance   | 8.2    | 11.6   | 5.2    | 14.3   | 9.8    | 23.7   | 7.9    |
| Direct investment           | 3.6    | 3.8    | 3.6    | 3.7    | 3.7    | 2.7    | -1.1   |
| Portfolio investment        | 0.0    | -0.2   | -0.6   | -0.5   | 1.3    | 0.0    | 0.0    |
| Loans and other investment  | 4.6    | 7.9    | 2.2    | 11.1   | 4.8    | 21.0   | 8.9    |
| o/w General government, net | 3.1    | 5.6    | 3.7    | 11.5   | 3.3    | 18.9   | 10.2   |
| Net errors and omissions    | -2.1   | -0.7   | 2.1    | 3.5    | 1.6    | -2.2   | 6.2    |
| Overall Balance             | -2.7   | -0.4   | -3.1   | 10.0   | -2.0   | 12.3   | 6.4    |

Source: NBR Annual Reports, 2019/20

Services exports plunged in the second quarter with the sudden stop in global travel.<sup>10</sup> Rwanda suspended international passenger flights starting on March 20, 2020 after the first case of COVID-19 was diagnosed on March 14, 2020 in Rwanda. This ban reduced exports of services, especially related to tourism, i.e. travel, and to transport services. Accordingly, travel and transport exports fell by 73.2 percent and 41.7 percent in the first three quarters of 2020, respectively, compared to the same period of 2019. This had a two-fold impact on the services trade deficit. On one hand, the deficit in transportation declined by US\$32.6 million relative to 2019. On the other hand, the travel services balance also declined by US\$83 million, compared to 2019, for the first deficit in travel services since 2018. As travel and transport services represent about 65 percent of total services exports, the overall services deficit widened substantially.

Goods imports contracted sharply in Q2-2020, for the first time in eleven quarters. As investment cooled and global value chains were disrupted, goods imports dropped by 24.7 percent, y-o-y, in Q2-2020, compared to the same period in 2019 (Figure 1.11). The fall in capital goods (42.4 percent) and intermediary goods (24.7 percent) accounted for about 90 percent of the fall in the Q2 imports bill. By contrast, imports of consumer goods were

<sup>&</sup>lt;sup>10</sup> Data on services trade, as well as other balance of payments categories, for the third quarter are not yet available.

Figure 1.11: Imports contracted more than exports in the first half of the year





Source: NBR data

down by only 5.5 percent, reflecting the decline in private consumption. Imports of energy products also fell by 13 percent, due to lower international oil prices as imported quantities increased. An easing of trade disruptions and the lockdown also increased goods imports in the third quarter by 47.7 percent compared to Q3-2019.

The increase in capital and financial inflows, especially central government borrowing, financed the CAD and increased reserves. Capital inflows rose in the first three quarters, despite the decline in direct investment, due to financial assistance in the form of concessional loans. Given the low level of economic activity, a portion of these funds ended up increasing reserves, which reached US\$1780 million in September (Figure 1.12), equivalent to about 6 months of import cover. The comfortable level of reserves, together with the low demand for imports, has helped the nominal exchange rate to remain relatively stable. In the first half of 2020, the franc depreciated by 4.3 percent, y-o-y, in nominal terms against the US dollar, compared to a depreciation of 4.4 percent in the same period of 2019. The reopening of activities led to increased import demand in the second half, resulting in a further nominal exchange rate depreciation (between June 30 and December 1, 2020, the franc depreciated by 3.6 percent, compared to 2.7 percent in the same period in 2019).

### Figure 1.12: Official gross reserves, 2017–20 (million, US\$)



Source: NBR data

# *Fiscal policy came under pressure due to the COVID-19 pandemic*

The pandemic and resulting activities disruptions severely impeded domestic revenue mobilization. The government revised the budget following the COVID-19 outbreak to take into account lowerthan-expected revenues.<sup>11</sup> Provisional data for Q2-2020 show that tax revenues fell by 12.6 percent in real terms compared to the second quarter of 2019 (Figure 1.13). Indirect taxes (on goods, services and







Source: Based on MINECOFIN

Note: Overall urban price index used to calculate values in real terms

<sup>&</sup>lt;sup>11</sup> The COVID 2019/2020 budget revision took place in early April 2020, and was presented to the parliament as part of the budget paper framework. Beside revenue adjustments, Overall expenditures were also raised, by an additional 2.6 percentage points, to 34.2 percent of GDP, as there were mounting pressures for health spending to contain and mitigate the coronavirus spread.

international trade) fell by more than a quarter in real terms from the level in Q2-2019, although direct taxes increased slightly in real terms due to higher profit taxes resulting from the economic performance in 2019. However, grants, which make up a small share of revenues, were double the level of Q2-2019, or a rise of 83 percent in real terms. Provisional data of FY2019/20 (from July 2019 to June 2020) show a strong increase in current spending and net lending in response to the pandemic. Total spending is estimated to have jumped 2.4 percentage points of GDP in FY2019/20 compared to FY2018/19, to 32.4 percent of GDP. The government has increased spending on health and

|                                    |                                     |      |           | Prov. Actuals |         |  |
|------------------------------------|-------------------------------------|------|-----------|---------------|---------|--|
|                                    | FY2017/18 FY2018/19 Pre-COVID Pre-C |      | Pre-COVID | Prov.         |         |  |
|                                    |                                     |      | revision  | revision      | Actuals |  |
| Revenue and grants                 | 22.7                                | 23.7 | 23.5      | 21.9          | 23.3    |  |
| Total revenue                      | 18.2                                | 19.2 | 19.3      | 17.4          | 18.7    |  |
| Tax revenue                        | 15.6                                | 16.3 | 16.5      | 14.8          | 16.2    |  |
| Direct taxes                       | 6.7                                 | 7.1  | 7.3       | 6.5           | 7.3     |  |
| Taxes on goods & services          | 7.7                                 | 7.9  | 8.0       | 7.2           | 7.7     |  |
| Taxes on international trade       | 1.2                                 | 1.3  | 1.3       | 1.1           | 1.3     |  |
| Non-tax revenue                    | 2.6                                 | 2.9  | 2.8       | 2.5           | 2.5     |  |
| Total Grants                       | 4.5                                 | 4.5  | 4.2       | 4.5           | 4.7     |  |
| Budgetary grants                   | 2.4                                 | 1.9  | 1.5       | 1.8           | 1.9     |  |
| Capital grants                     | 2.1                                 | 2.7  | 2.7       | 2.7           | 2.8     |  |
| Total expenditure & net lending    | 27.3                                | 30.0 | 31.7      | 34.2          | 32.4    |  |
| Current expenditure                | 14.7                                | 15.4 | 15.5      | 16.4          | 16.0    |  |
| Wages and salaries                 | 4.0                                 | 4.2  | 4.4       | 4.5           | 4.3     |  |
| Purchases of goods & services      | 2.7                                 | 2.6  | 2.8       | 3.5           | 2.7     |  |
| Interest payments                  | 1.1                                 | 1.2  | 1.6       | 1.6           | 1.5     |  |
| Transfers                          | 4.5                                 | 4.7  | 4.3       | 4.5           | 5.1     |  |
| Exceptional social expenditure     | 2.3                                 | 2.7  | 2.4       | 2.4           | 2.4     |  |
| Capital expenditure                | 10.6                                | 12.3 | 12.8      | 13.6          | 12.7    |  |
| Domestic                           | 5.8                                 | 7.2  | 7.3       | 7.9           | 6.9     |  |
| Foreign                            | 4.8                                 | 5.1  | 5.5       | 5.8           | 5.8     |  |
| Net lending                        | 2.0                                 | 2.2  | 3.4       | 4.2           | 3.7     |  |
| Change in arrears (net reduction-) | -0.3                                | 0.6  | -0.6      | -0.6          | -0.3    |  |
|                                    |                                     |      |           |               |         |  |
| Overall Deficit (cash basis)       | -4.9                                | -5.6 | -8.8      | -12.9         | -9.4    |  |
| Financing                          | 4.9                                 | 5.6  | 8.8       | 12.9          | 9.4     |  |
| Foreign financing (net)            | 4.4                                 | 5.1  | 6.7       | 12.0          | 10.2    |  |
| Domestic financing                 | 0.5                                 | 0.6  | 2.1       | 0.9           | -0.8    |  |

#### Table 1.4: Rwanda's Public Finances, 2015/16 to 2019/20

Source: MINECOFIN & NISR

social safety sectors to contain the pandemic. It also implemented fiscal and monetary measures in the fourth guarter of FY2019/20 (i.e. April-June 2020) to provide immediate relief to affected individuals and businesses as part of its Economic Recovery Plan in FY2019/20 (see Box 3.1 in Chapter III). Current spending rose to 16.0 percent of GDP from 15.4 percent of GDP the FY before. This included about 0.5 percent of GDP increase in outlays for higher transfers for recurrent spending to health-related institutions. Net lending equaled 3.7 percent of GDP in FY2019/20, 1.5 percentage points of GDP higher than in the previous fiscal year, mainly due to additional support to Rwandair following the loss of revenues from transport of passengers. According to the FY2019/20 budget execution report, COVIDrelated expenditures amounted to about Rwf109.1 billion (about 1.2 percent of GDP). Capital expenditure reached 12.7 percent of GDP, which was lower than both the pre-COVID and COVID-19 budget revisions following the lockdown that disrupted all economic and social activities. The GDP share was, however, higher (0.4 percentage points more in FY2019/20 than in FY2018/19).

The combined effects of declining domestic revenue mobilization and increasing expenditures in the second quarter of 2020 widened the fiscal deficit for FY2019/20 as a whole to a level never seen before in Rwanda. The overall fiscal deficit, on



Figure 1.14: Fiscal deficit widened sharply in FY2019/20 (percent of GDP)

Source: MINECOFIN data

cash basis, is estimated to have reached 9.4 percent of GDP in FY2019/20 (from July 2019 to June 2020), up from 5.6 percent of GDP in FY2018/19 (Figure 1.14). The primary deficit—the overall fiscal balance excluding interest expense—widened to 7.6 percent of GDP.

The government continued to rely mainly on foreign resources to finance the fiscal deficit. Foreign financing, much of its concessional financing from development partners to support the ERP,<sup>12</sup> equaled 10.2 percent of GDP in FY 2019/20, higher than the level of fiscal deficit. As a result, net domestic financing was a negative 0.8 percent of GDP (Figure 1.14). These dynamics in deficit financing are expected to have led to at least a 6 percent of GDP increase in public debt.

### **1.4. Medium- to Long-Term Impact of COVID-19** *A world of uncertainty: COVID-19 pandemic scenarios*

There is much uncertainty on the future of economic activity in the post-COVID-19 years. Most of the effects of the pandemic, notably demand shocks, will be temporary and vanish in the long term. However, depending on the severity and the length of the crisis, it is likely to have some lasting impacts on capital accumulation and productivity, due to a deterioration in the health and education systems (as it is difficult to replace health professionals and teachers who become ill or die, or to reverse severe learning loses), in the level of human capital more generally (see Huber,

<sup>&</sup>lt;sup>12</sup> As part of its support to Rwanda's anti-crisis resource mobilization, the World Bank approved a US\$14.25 million COVID-19 Emergency Response Project. The Bank also prepared and delivered a US\$100-million supplemental DPO based on the series of Rwanda Energy DPOs, while the Human Capital for Inclusive Growth DPO (US\$150 million) to be delivered in FY21 also includes specific measures to accelerate recovery from the COVID-19 pandemic. The IMF delivered two Rapid Credit Facilities totaling US\$206.6 million. Other multilateral and bilateral development partners providing additional financial support to Rwanda as of June 2020 include the African Development Bank, UK and France. Rwanda did not request debt service suspension from official bilateral creditors as envisaged under the Debt Service Suspension Initiative (DSSI) endorsed by G20 Finance Ministers and the Paris Club.

Finelli, and Stevens 2018) and in infrastructure. Such effects were observed during similar crises, notably the 2014 Western Africa Ebola crisis.<sup>13</sup>

Α computable general equilibrium model (described in Annex II) is used to assess the medium-to-long-term effects from 2021 to 2030, considering three scenarios for the evolution of the pandemic based on: 1) the effectiveness of policy responses in Rwanda, (2) the anticipated length of the crisis, (3) availability and roll out of vaccines, and (4) the effectiveness of policy responses in developed economies. All three scenarios assume that the disease will be controlled, and lockdowns lifted completely in Rwanda and elsewhere, from 2022 on. Assumptions underlying each scenario are (see Table 1.5):

**Scenario 1: Baseline.** This scenario assumes the status quo in 2021, meaning the continuation of the current situation characterized by an effective response of the government of Rwanda, localized lockdowns, open borders for trade and tourism, the absence of a vaccine, and continued crisis in other countries. The major channels of the crisis (labor, capital, investments, oil price, other commodity prices, trade costs, tourism) in 2021 continue to be affected the same way as in the second half of 2020.

Scenario 2: Prolonged spread. This scenario is a pessimistic case assuming the unavailability of a vaccine and the emergence of a second wave of the pandemic that would lead to a substantial increase in new cases in 2021, forcing another lockdown of the economy in 2021 in both Rwanda and advanced economies. The major channels of the crisis in 2021would be affected the same way as in the second quarter 2020, the worst period of the crisis.

Scenario 3: Early vaccine. This scenario considers a more optimistic case where a vaccine is developed and administered relatively early, so as to prevent new cases in 2021 in both Rwanda and developed nations. This scenario also assumes that the lockdown is completely lifted. The economic effects of the COVID-19 pandemic fade by early to mid-2021, as the daily number of infections stabilizes in the first half of 2021 in most countries. This improvement is driven by a combination of voluntary social distancing, widespread pandemic-control policies, and the availability of vaccines and additional therapeutic treatments, especially in advanced economies where the COVID-19 pandemic continues to play out seriously. Major channels of the crisis in 2021 would be affected as during the first quarter 2020, when the crisis only moderately affected the economy.

| Table 1.5: Scenario Assumptions: COVID-19 heath and o | economic scenarios for 20 | )21 |
|---|---------------------------|-----|
|---|---------------------------|-----|

| •                                 |                         |                                 |                                |
|-----------------------------------|-------------------------|---------------------------------|--------------------------------|
| Key variables                     | Scenario 1:<br>baseline | Scenario 2:<br>prolonged spread | Scenario 3:<br>early vaccine   |
| Health:                           |                         |                                 |                                |
| Number of cases                   | Low                     | Moderate/High                   | No new cases in 2021           |
| Availability vaccines             | Non available           | Non available                   | Vaccine available              |
| Economic:                         |                         |                                 |                                |
| Domestic lockdown                 | Localized lockdown      | Complete lockdown               | No lockdown                    |
| Restriction on visitors           | Restriction on tourists | Border closure for tourists     | No border closure for tourists |
| Restriction on goods and services | No restriction          | No restriction                  | No restriction                 |
| Lockdown of advanced economies    | Localized lockdown      | Complete lockdown               | No lockdown                    |
|                                   |                         |                                 |                                |

Source: Author's construction

<sup>13</sup> World Bank (2019) finds that in Guinea, labor productivity starts recovering after the Ebola crisis; however, in Liberia, labor productivity worsens after the crisis, and in Sierra Leone, it improves but is still significantly below the long-term average.

# The adverse impact of the COVID-19 crisis is expected to last in the long term

The adverse effect of the COVID-19 outbreak on the GDP is expected to remain substantial in the long term. Despite a rebound expected in 2021, in the absence of robust government interventions, the size of the economy would be, under the baseline scenario, 12 percent lower than in the no-COVID scenario in 2021 and 19 percent lower in 2025 (Figure 1.15). This would correspond to a GDP growth rate of 4 percent in 2021, significantly lower than the 7.4 percent pre-COVID projection.<sup>14</sup> In the pessimistic scenario, where it is assumed that the crisis lasts longer with a prolonged lockdown, GDP could be 13.3 percent lower than in the no-COVID scenario in 2021 and 23.2 percent lower in 2025. In the absence of interventions, sectoral output under all three scenarios would be lower than in the no-COVID scenario through 2025: services suffer the largest decline in production, followed by manufacturing and agriculture (Figure 1.16). Services growth is expected to remain far below its historical potential, as consumers and investors will require



-15.4

2021 | 2025 | 2030

Early Vaccine

-15.6

-23.0

2021 2025 2030

Prolonged Spread

-30.2

**Figure 1.15: GDP Effect in the medium-to-long-term** (% deviation from no-COVID scenario)

Source: CGE Simulation results

2021 2025 2030

Baseline

-19.0

-21.9

time to regain confidence in travel and hospitality services. However, these potential adverse effects would be attenuated by effective implementation of government's planned large-scale infrastructure projects, as outlined in the Budget Framework Paper (BFP) for 2020/21–2022/23, together with the ERP.

Regardless of the scenario, the fiscal deficit is likely to increase in absolute terms and in percentage of GDP (Figure 1.17). The extent of the damage already endured, and the scope of interventions planned for recovery mean that the deficit is likely to continue to deteriorate regardless of the pandemic trajectory going forward.<sup>15</sup> Under our baseline scenario, government revenue would be 15.1 percent lower in 2025. That would lead to a 27.0 percent increase in the overall deficit in 2025, compared with the no-COVID-19 scenario (Figure 1.17). The result implies that in the event of a quicker than expected recovery, strong policy measures would be needed to contain the expansion of the fiscal deficit as soon as possible.





Source: CGE Simulation results

<sup>&</sup>lt;sup>14</sup> The government of Rwanda is projecting a 6 percent growth for 2021, taking into account the effect of the crisis but also different policy interventions that are not captured in our simulations in this section. The following chapter on response will incorporate simulations of some of the government interventions.

<sup>&</sup>lt;sup>15</sup> The 2020/21–2022/23 BFP envisions increased expenditures to contain the pandemic and to strengthen the health system, to support vulnerable households (including through ramping up food distribution), to strengthen the education sector, and to support the private sector through the ERF. As a result, the government expects the fiscal deficit to expand to 8.6 percent of GDP in 2020 and remain above 7.0 percent of GDP over the next two years.





Source: CGE Simulation results

The COVID-19 crisis has exacerbated challenges to debt sustainability in Rwanda. Rwanda's rapid growth has relied heavily on public investment, a major driver of the substantial fiscal deficits over the past few years.<sup>16</sup> Rwanda's public debt has risen steadily since 2013 (Figure 1.18) and amounted to 58.1 percent of GDP at end 2019 (that is, before the pandemic). As a result of the pandemicdriven deterioration in output and export growth, accompanied by increased borrowing needs, public debt is now forecast to reach nearly 66 percent of GDP in 2020, or about 6 percentage points higher than anticipated in REU-15. Accordingly, the IMF and World Bank revised the risk rating of debt distress from "low" to "moderate" in the June 2020 Debt Sustainability Analysis.

Figure 1.18: Decomposition of Rwanda's Public Debt, 2007–19 (percent of GDP)



Note: HIPC = Highly Indebted Poor Countries Initiative

Reliance on concessional financing will help keep Rwanda's debt moderately sustainable even as it rises. More than 80 percent of Rwanda's public and publicly guaranteed debt is external, including commercial loans and Eurobonds. Rwanda has also provided guarantees for state-owned enterprises in strategic sectors, amounting to about 6 percent of GDP, as of end-2019. The Government does not intend to use central bank financing directly or indirectly to cover its financing requirements, which reduces the risk to macroeconomic stability arising from the fiscal expansion and the COVID-19 pandemic. Despite its clear strengths in macroeconomic and debt management, Rwanda is now confronted by the difficulty of financing its ambitious public investment objectives, which highlights the limits of the public-sector-led model to deliver sustained growth over the long-term.

<sup>&</sup>lt;sup>16</sup> In the new investment push, through the implementation of the seven-year Government Plan, more than 40 percent of the government budget was expected to be devoted to capital spending and net lending.

# PART TWO SOCIAL AND HUMAN CAPITAL IMPACT OF THE CRISIS



### 2.1. Introduction

The severe impact of the pandemic on economic activity discussed in Chapter 1 has had dire implications for poverty and welfare. Lower earnings and higher prices depressed household incomes in 2020. In the absence of a strong response by government, the crisis would increase the share of the population that is poor by almost 5.1 percentage points in 2021, and the decline in household welfare (relative to a no-COVID scenario) would rise over the next decade<sup>17</sup>. The government's rapid response to the pandemic has succeeded in keeping the population share of new infections and of deaths well below that of most other countries. However, the incidence of the disease is unequally distributed: two-thirds of infections are in Kigali, and both men and working age groups (men and women) account for 65 percent of cases. Lockdown policies and fear of infection have disrupted critical health services, particularly childhood immunization and nutrition services, which runs the risk of exacerbating stunting and may over time impair productivity. Nevertheless, a modeling exercise shows that if services had been disrupted to a comparable extent as in other pandemics, the expected rise in child and maternal mortality next year would have been much worse. The closure of schools affected around 3.5 million children. Estimates based on interruptions in schooling in other countries and HCI 2020 data suggest that expected years of schooling may decline between 0.3 to 0.7 years, from a baseline of 6.9 years, which could result in approximately 3 percent lower incomes over the children's lifetimes. There is a risk that many children, particularly adolescent girls and children from poor households, will not return to school, reducing their earnings potential and growth in productivity over the long term. The closure of schools also increased an already existing problem of early and unwanted pregnancies that negatively affect young girls' lives countrywide.

### 2.2. Impact on Poverty and Inequality

The impact of the COVID-19 crisis on Rwandan households is likely to be as dramatic as for the economy as a whole (Figure 2.1). Household welfare in the baseline scenario in 2020 is 9.3 percent below the level of the no-COVID scenario, as household incomes fall by 6.3 percent (reflecting losses of employment as well as trade opportunities in Rwanda and declines in earnings through the lockdown period) and consumption prices rise by 2.9 percent due to transaction costs generated by the pandemic-related restrictions.<sup>18</sup>

The fall in household welfare affects both rural and urban areas. However, rural households experience lower losses in welfare, as the agriculture sector is less affected than are services and manufacturing. Consumption in 2020 is lower than in the no-COVID scenario by 7.2 percent and 9.4 percent for rural and urban households, respectively (Figure 2.2). This





Source: CGE Simulation results

<sup>&</sup>lt;sup>17</sup> To develop the poverty estimates, the team used the EICV5 data, and consumption aggregates were updated to 2020 (pre-pandemic) based on growth between 2016 and 2020. Then the shocks to household consumption due to the pandemic (as outlined in chapter 2) were applied to various segments of the population to obtain the increase in poverty due to the COVID-19 shock. Annex VI provides further details on how the poverty estimates and social protection responses were simulated.

<sup>&</sup>lt;sup>18</sup> Household welfare is measured by real consumption.





Source: CGE Simulation results

finding is consistent with the larger decline in the employment to population ratio among workers in urban areas (nearly 10 percentage points, vs 4 percentage points in rural areas). Within the rural area, the rural non-farm sector is more affected than the rural farm sector (Figure 2.2), reflecting the stronger linkages between non-farm and the urban area as well as greater vulnerability to the high food price increases in the rural area.

### The effect of the COVID-19 is regressive within the urban area, reflecting the higher resilience of



(percent deviation non no covid scenario)



Source: CGE Simulation results

skilled workers and civil servants. The welfare loss compared to the no-COVID scenario is higher among the poorest urban and rural non-farm households (Figure 2.3).<sup>19</sup> The result for urban workers reflects the better protection during the crisis afforded the jobs of urban skilled workers, workers in the formal private sector, and civil servants. This is consistent with the 25 percent decline in employment from February to May 2020 for workers without formal education, compared to the 10 percent fall for urban workers on average, reported in the household survey. This result also is consistent with the substantial declines in key services, such as transportation, and hospitality, construction, and commerce, that are intensive in unskilled labor.

#### The pandemic is generating long-lasting inequalities

In the absence of any response to the pandemic by government, the decline in household welfare (relative to the no-COVID scenario) would rise over time (Figure 2.4). Under the baseline scenario, the welfare losses would rise from around 11 percent lower than the no-COVID-19 scenario in 2021 to 19 percent lower in 2025. This welfare gap would rise through 2030 even under the assumption of a quick





Source: CGE Simulation results

<sup>&</sup>lt;sup>19</sup> For the rural farm households, our findings suggest higher losses among the richest categories of household groups (Figure 2.3). However, a 6.7 percent reduction of the poorest quintile among the rural farm households would have more dramatic effects that a 7.5 percent consumption loss of the richest households.

recovery (the optimistic scenario), although at a slower pace. This finding reflects not only the legacy of the loss incurred by the direct shock in 2020 but also slower growth than in the no-COVID scenario over the next decade.

Although the welfare losses in the rural area are lower than those in the urban area in the short term, rural households are more likely to remain trapped in poverty over the long term. The longterm adverse effect of the pandemic increases disproportionally more among rural households and the poorest households, accentuating inequality. While the decline in rural household consumption (relative to the no-COVID scenario) is less than that of urban households in 2020, under the baseline scenario the fall in rural consumption in 2025 is higher than in urban households (Figure 2.4). This finding reflects the fact that urban activities (services and industry) are likely to grow faster than agricultural activities in the post-COVID-19 area, mirroring the trend of recent 15 years in Rwanda. It also underlines the vulnerability of affected households in rural areas, which warrants special attention.

The COVID crisis has the potential to threaten Rwanda's food security. Without a strong response by government (the scenario assumes that there is no government response to the crisis), both agricultural production and food imports fall due to the combined impact of supply side shocks and increasing transaction costs for imports.<sup>20</sup>

The impact of the COVID-19 crisis on poverty has been dramatic. Our estimates show that, in the absence of any intervention, the crisis would increase the share of the population that is poor by almost 5.1 percentage points in 2021, in the baseline scenario (Figure 2.5). This represents potentially an additional 550,000 new people falling under the poverty line in 2021. Although the poverty incidence increase in urban areas is greater than the incidence change in rural areas, the number of new poor households in rural areas is 3.2 times higher than the number of new poor households in urban areas. This is because initially there are far more poor people in rural areas (more than 90 percent of total poor) and many more vulnerable non-poor people in rural areas live just over the poverty line.

**Poverty rises by even more under the pessimistic scenario.** Recent developments, including the continued GDP decline in Q3 of 2020, and the increasing COVID-19 spread resulting in a lockdown



#### Figure 2.5: Poverty impact of COVID-19

Source: Microsimulation estimates

<sup>20</sup> Food items considered include agricultural commodities and (semi) processed food. Imports fall for both categories. Output of food crops does not decline, but that of the agro-industry declines. The supply side shock is due to lower imports and semi-processed or processed food production.

in Kigali in January 2021, may indicate that the pessimistic scenario is playing out. Under this scenario, the overall increase in the poverty headcount is 5.7 percentage points, indicating an estimated additional 625,500 people falling into poverty.

#### The impact of COVID-19 disproportionately affects

women in Rwanda. The employment to population ratio decreased by 5 percentage points from 48.3 to 43 percent through the lockdown period, with larger decreases among female workers (6.2 percentage points versus 4 percentage points among male workers). This is in part because (according to the recent labor market survey) women are more likely to be seasonal workers (44 percent versus 31 percent) and more likely to be taking care of a sick relative (4 percent versus 1 percent). Annex I provides further information on women employment trends.

#### 2.3. Impact of the Crisis on Health

### The health impact of COVID-19 has been severe, but less so than in most other countries

Rwanda has done well according to key metrics for assessing the COVID-19 response. New infections have dropped sharply. With an easing of the initial lock down policy, the country saw several small surges in cases in June-July; a major spike in August,



### Figure 2.6. Evolution of daily confirmed coronavirus cases (percent)

Source: Rwanda Biomedical Center

followed by a flattening of the curve in September/ October and small surge in November (Figure 2.6). Rwanda's 458 cases per million is considerably below the average for East and Southern Africa (1826 per million), and below rates in other well performing countries (Japan, South Korea) but not guite as low as rates in some of the best performing countries, such as New Zealand and Thailand (Figure 2.7). The mortality rate (0.6 percent) is much lower than the average for East and Southern Africa (2.5 percent) and considerably below mortality rates in the most affected countries (e.g. Mexico:10 percent; United Kingdom: 6 percent; Peru: 4 percent). The daily positivity rate (i.e. out of all tests conducted how many were positive) rose over the summer, but remains one of the lowest in Africa and considerably below the 5 percent WHO recommendation to ease restrictions. Rwanda has conducted more tests per capita than many countries with considerably higher positivity rates (experts agree that testing should be scaled to the size of the outbreak),<sup>21</sup> but testing per capita remains below levels in the best performing countries (e.g., Thailand, South Korea, Zambia--Figure 2.7). Rwanda's success in managing the pandemic may be explained by a combination of factors including swift, early actions through strict lockdown policies and mandatory mask use;

#### Figure 2.7: Total cases per million population, November 30, 2020



Source: Our World In Data (OWID) by the Global Change Data Lab (https://ourworldindata.org/coronavirustesting, visited on December 2, 2020)

A high rate of positive tests indicates a government is only testing the sickest patients who seek out medical attention and is not casting a wide enough net. Source: Johns Hopkins Coronavirus Resource Center.

### Figure 2.8: Daily positivity rate vs. daily number of tests per 1000 population, December 2, 2020



#### Figure 2.9: Total tests per thousand population, November 25, 2020



Source: JHU Coronavirus Resource Center

an effective national testing strategy; and consistent messaging that was critical to maintaining public confidence.

The disease has been unequally distributed across the population. Kigali has 67 percent of total cases, and together with three districts in the Western Province (Rusizi, Rubavu, Nyamasheke) and one district (Kirehe) in the Eastern Province accounts for 92 percent of total cases (Annex III). Males represent roughly 65 percent of total confirmed cases (Figure 2.10). Working-age adults (20-39 years



Source: Rwanda Biomedical Center

Source: Our World In Data (OWID) by the Global Change Data Lab (https://ourworldindata.org/coronavirustesting, visited on December 2, 2020)

old) also account for 65 percent of confirmed cases (Figure 2.11). This may be explained by the youthful age-structure; the nature of employment (e.g. construction, security, commercial activities) that increases exposure to the virus; and possibly by the prevalence of co-morbidities (e.g. cardiovascular diseases, hypertension, diabetes, obesity) which occur at younger ages in developing countries and are often uncontrolled/undiagnosed, placing individuals at greater risk of acquiring the virus and of higher disease severity.<sup>22</sup> Other adversely affected groups include prisoners and refugees.

Figure 2.11: Infections by age



Source: Rwanda Biomedical Center

<sup>&</sup>lt;sup>22</sup> A global review of the literature found hypertension to be the most prevalent co-morbidity in COVID-19 populations globally. Bajgain et. al. (2020).

#### Box 2.1: Rwanda COVID-19 Updates as of January 17, 2021

Since the completion of the COVID-19 analysis for the Rwanda Economic Update, the trajectory of the pandemic has evolved rapidly with the country currently experiencing a second wave, and a rise in severe cases and total deaths, as seen in other parts of the continent and beyond. As of mid-January, Rwanda has a total of roughly 11,000 cases and about 140 fatalities with a Case Fatality Rate of 1.3 percent. As depicted in the figures below, while the curve had flattened by end November, there is now a resurgence in cases and deaths. The most affected areas/ districts are Kigali (Gasabo, Kicukiro and Nyarugenge districts) with 56 percent of all cases; followed by Musanze (8 percent) and Rubavu (8 percent) districts, and Huye (6 percent) and Muhanga (4 percent) districts. The bulk of cases come from local transmission with imported cases representing 7 percent of the total. The main clusters have occurred at local markets, banks, and schools. Transmission has also occurred among contacts of patients under home-based care and contacts of passengers arriving in Rwanda, as international and regional flights re-opened.







Source: RBC

Source: RBC

While Rwandese authorities are actively containing the most recent surge, efforts are also underway to better understand and address contributing factors. These include the possibility of more lethal and transmittable COVID-19 variants (as found in England and South Africa); insufficient monitoring and enforcement of patients on home-based care; and risks stemming from the gradual re-opening of the economy and public institutions. With testing remaining critical, Rwandese authorities are bolstering diagnostic capacity with 42 private health facilities recently accredited to provide SARS-CoV-2 Antigen Rapid Tests<sup>1</sup>/. Rapid testing has been also deployed at all public hospitals. Furthermore, an RT-PCR testing laboratory was established at the Kigali International Airport to reduce the turnaround time for getting results for incoming travelers. As of mid-January, Rwanda has performed a cumulative total of nearly 800,000 tests (i.e. roughly 62.6 tests per 1,000 population) with about 21% of these tests done during the past six weeks during the recent surge. Regarding COVID-19 case management, a new treatment center with 136 COVID-19 dedicated beds and a good quality oxygen supply was established at the Nyarugenge District Hospital and eight referral hospitals were strengthened to manage COVID-19 cases.

#### Note:

<sup>1</sup>/ Population meeting national criteria for rapid test are, symptomatic cases, contacts of positive cases, healthcare workers, high risk populations in confirmed outbreaks, prisons, religious institutions, ports of entry, and non-COVID-19 in-patients.
### The pandemic has impaired health services, but these disruptions have been largely transitory

Disease outbreaks and pandemics can disrupt delivery of essential health services. This can occur through the supply side, as resources are diverted to cope with the immediate emergency, operating hours are adjusted and/or supply chains are disrupted. And it can occur through the demand side, as lockdown policies hinder mobility, people avoid health facilities, or they may have a reduced ability to pay for care.<sup>23</sup> The COVID-19 pandemic has been no exception with massive disruptions globally in the delivery of critical services, such as childhood vaccination and control of TB and non-communicable diseases (e.g. diabetes, cancers), as well as huge risks of excess deaths from many treatable diseases.<sup>24</sup>

Rwanda has also experienced disruptions in the delivery of essential health services, but these appear to be transitory. Disruptions stem primarily from the stringent initial lockdown policies (March-May 2020) which hindered people's ability to seek care and added to the cost and difficulty of using public transport that was directed to carry fewer passengers; and from the postponement of elective interventions, and possibly other critical care, for fear of infection. Modelling work done by the World Bank controlling for seasonality and facility type finds that Rwanda experienced statistically significant disruptions during March-May 2020 (peak of the lockdown) with persistent effects on vaccination and institutional deliveries, but with many services

recovering in subsequent months (Annex III).<sup>25</sup> Total admissions dropped by up to 15 percent (April-May 2020) and referrals plummeted by 36 percent (April 2020), although admissions and referrals recovered to expected levels by August 2020. Institutional deliveries were lower than expected by 8-10 percent (March-May 2020); declines since June 2020 are no longer statistically significant but services remain lower than expected. There were declines in the number of road traffic incidents; simple malaria cases; and diarrhea cases.<sup>26</sup> There were no statistically significant declines in new registrants for antenatal or postnatal care but there were slight declines in postnatal care during the pandemic. Analyses carried out by the Ministry of Health finds similar patterns with outpatient visits and newly initiated patients on antiretroviral therapy lagging behind levels in the previous year during the peak months but with rates bouncing back by August 2020 (Figure 2.12 - Figure 2.13).

The immunization program and other child services appear to have been disrupted, with children missing key appointments. The number of children vaccinated for BCG, Penta3 and Polio3 was lower than expected, with Penta3 and Polio3 experiencing an initial decline of 10 percent (May 2020) and additional drops of 10 percent (June 2020) and 4 percent (July 2020). The BCG vaccine, given at birth, followed a similar pattern as institutional deliveries with declines during March-May 2020 (highest in May at 15 percent) and lower than expected rates

<sup>&</sup>lt;sup>23</sup> For example, during the 2014-15 Ebola outbreak average health care utilization dropped by 18 percent with sharper drops in maternal and child services such as deliveries (28 percent decline). During the 2003 SARS outbreak there was a 24 percent decline in outpatient services which was largely attributable to people's fears about contagiousness.

<sup>&</sup>lt;sup>24</sup> The Potential Impact of the COVID-19 Response on Tuberculosis in High-Burden Countries: A Modelling Analysis finds that globally, a 3-month lockdown and a protracted 10-month restoration could lead to an additional 6.3 million cases of TB between 2020 and 2025, and an additional 1.4 million TB deaths. Childhood vaccination was the most disrupted service among the countries studied in Global Financing Facility. 2020a.

<sup>&</sup>lt;sup>25</sup> The analytical approach used a three-pronged approach using data from the health management information system: (i) analysis of all health facilities with full panel data; (ii) direct comparison of April-June 2019-2020 service delivery levels on facilities with complete reporting; and (iii) regression analysis to predict utilization rates for March-June 2020 using observed data from January 2018-February 2020.

<sup>&</sup>lt;sup>26</sup> Road traffic incidents fell by about 40 percent in April (though not statistically significant); and diarrhea cases dropped by 44 percent in April but reached previous levels in August, however the model did not accurately predict changes in these indicators.

Figure 2.12: Outpatient health facility visits







Source: Ministry of Health, Rwanda

given previous trends. Kigali City, which has the bulk of COVID-19 cases, has seen significant and persistent disruptions in the vaccination of children, most likely a result of both supply and demand side impediments. The Ministry of Health analysis finds similar disruptions in service delivery for malaria and the treatment of diarrhea and pneumonia in children under five. By contrast, while all provinces experienced severe disruptions in the delivery of Integrated Management of Childhood Illnesses (IMCI) services, by August 2020 services bounced back to expected levels.

Disruptions in service delivery were consistently higher in the Northern and Western provinces. As seen in Annex III, institutional deliveries and maternal postnatal care visits had recovered only partially by August 2020. Trends in immunization coverage (Polio, DTP, BCG) between March and August 2020 also show persistently high levels of disruption. Several factors may explain the higher levels of disruption, including intermittent selective lockdowns in the Western province and restricted movements on public transportation (Rusizi, Rubavu).<sup>27</sup> Curfews and restrictions on movements between Kigali and other provinces may have impeded the ability of health personnel to travel to the Northern province, where a substantial number are deployed.

Rwanda has been able to leverage its strong primary health system and avert much larger disruptions and loss of lives. Modeling estimates done by the Global Financing Facility using the Lives Saved Tool (LiST) model show that COVID-19-related disruptions could have left many more women and children without access to essential services and resulted in higher maternal and child morbidity and mortality (Global Financing Facility, 2020b). If declines in service utilization similar to those observed in other global epidemics would have occurred in Rwanda, as many as 264,900 fewer children would have received oral antibiotics for pneumonia and 459,900 fewer would have received DPT vaccinations. There would also have been 93,300 fewer facility-based deliveries, and 390,600 fewer women would have had access to family planning services. If the coverage of all essential maternal and child health interventions in Rwanda would have declined in a similar way, the result would have been a 29 percent increase in child mortality and a 23 percent increase in maternal mortality over the next year. Table 2.1 illustrates the persistent risks associated with service delivery disruptions during disease outbreaks and pandemics.

<sup>&</sup>lt;sup>27</sup> Government decisions to manage various surges in COVID-19 in the Western province, that has some of the highest number of cumulative cases (Rusizi: 594; Rubavu: 165; Nyamasheke: 151) are noteworthy, including protracted restrictive movements to and from Rusizi and Rubavu.

Source: Ministry of Health, Rwanda

|  | -                   |                                   |                                    |
|--|---------------------|-----------------------------------|------------------------------------|
|  | Current<br>coverage | Coverage if<br>services disrupted | Fewer people<br>receiving services |
| Oral antibiotics for pneumonia in children | 54 %                | 27 %                              | 264,900                            |
| DPT vaccine* for children                  | 89 %                | 43 %                              | 459,900                            |
| Facility-based delivery                    | 91 %                | 46 %                              | 93,300                             |
| Contraceptive prevalence rate (CPR**)      | 57 %                | 35 %                              | 390,600                            |

#### Table 2.1: Examples of the impact of disruptions on coverage of essential services

\* Diphtheria, pertussis (whooping cough), and tetanus vaccinations

PR includes both modern and traditional methods and is calculated for married women only

### Disruptions in child nutrition services can affect future productivity

To understand the potential impact of service disruptions on stunting outcomes, changes in the coverage of 7 key nutrition interventions for 3 scenarios during 2020 and 2021 are modeled (Table 2.2): (i) In a baseline scenario, coverage of nutrition services falls by 8.8 percent<sup>28</sup> in 2020 and recovers in 2021; (ii) In an optimistic scenario, service coverage in 2020 doesn't change and increases by 10 percent in 2021; and (iii) In a pessimistic scenario, service coverage declines by 16.4 percent<sup>29</sup> in 2020 and by 10 percent in 2021. In all scenarios, coverage returns to levels in the no-COVID scenario in 2022. Table 2.2 presents assumptions for differences in GDP per capita growth and nutrition interventions between COVID and no-COVID scenarios in each year.

Due to the government's success in minimizing disruptions to health and nutrition services, the impact of the reduction in nutrition services on stunting outcomes and future productivity loss has been minimal. The economic and health service disruptions result in 103 additional wasting related deaths in 2020 and 2021 under a baseline scenario of limited disruptions and could be as great as 310 additional deaths in a pessimistic scenario or 42 fewer deaths in an optimistic scenario (Table 2.3). If there were limited disruptions to nutrition services under a baseline scenario, we estimate that an additional 1,373 children will be stunted in 2020 and 2021. A pessimistic scenario of greater disruptions would result in an additional 4,695 stunted children in 2020 and 2021. If these disruptions were successfully mitigated and

Table 2.2: Modeled changes in intervention service coverage and GDP per capita change

| Year  | 2020        |                 |            | 2021        |            |              |
|---|-------------|-----------------|------------|-------------|------------|--------------|
| Scenario  | Pessimistic | Status Quo      | Optimistic | Pessimistic | Status Quo | Optimistic   |
| Change in GDP per capita <sup>1</sup>                             | ▼10.0%      | ▼10.0%          | ▼10.0%     | ₹7.7%       | ▼6.1%      | ▼4.8%        |
|   | Nutritio    | n interventions |            |             |            |              |
| Breastfeeding promotion   | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | ▲ 10.0%      |
| Complementary feeding SBCC<br>(food secure populations)           | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | ▲ 10.0%      |
| Complementary food supplementation<br>(food insecure populations) | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | ▲10.0%       |
| Vitamin A supplementation   | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | ▲10.0%       |
| Iron and folic acid in pregnancy                                  | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | <b>10.0%</b> |
| ORS for diarrhea treatment  | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | ▲10.0%       |
| Zinc for diarrhea treatment                                       | ▼16.4%      | ₹8.8%           | 0.0%       | ▼10.0%      | 0.0%       | <b>10.0%</b> |

Source: WBG Staff estimates

Note: 1/ Compared with no COVID scenario in same year

<sup>28</sup> This is the reported decline in facility-based delivery at sampled health facilities during June 2020.

<sup>29</sup> This is the reported decline in IMCI services at selected health facilities during June 2020.

| Scenario               | Pessi               | mistic               | Statu               | s Quo                | Optimistic          |                      |
|------------------------|---------------------|----------------------|---------------------|----------------------|---------------------|----------------------|
| Outcome                | Additional<br>cases | Productivity<br>loss | Additional<br>cases | Productivity<br>loss | Additional<br>cases | Productivity<br>loss |
| Stunting               | 4,695               | US\$12 million       | 1,373               | US\$3.5 million      | -739ª               | -US\$1.9 million     |
| Wasting-related deaths | 310                 | US\$4.25 million     | 103                 | US\$1.1 million      | -42 <sup>b</sup>    | -US\$0.5 million     |

Table 2.3: Modelled future productivity losses due to additional cases of stunting and nutrition-related child deaths due to the secondary effects of COVID-19, 2020-2021

Source: WBG staff estimates

Notes: <sup>a</sup>/Fewer cases, <sup>b</sup>/Fewer deaths

there were no changes in coverage of nutrition services in 2020 and an increase in 2021, 739 fewer children would be stunted in 2020 and 2021 in an optimistic scenario. The present value of future productivity losses from excess stunting and wasting related mortality would be US\$4.6 million under the baseline scenario and as high as US\$16.3 million under the pessimistic scenario. Under an optimistic scenario in which there are no service disruptions in 2020 and a modest increase in coverage in 2021, there will be a gain of US\$2.4 million in economic productivity.

### 2.4. Impact of the Crisis on Education

The education sector swiftly put into place decisive measures to contain the spread of the disease. By March 21<sup>st</sup>, a full lockdown had been implemented and all schools were closed. An estimated 3.5 million students have been out of school since the pandemic began, and for many children and adolescents, no lessons have been held in schools for most of the year. Rwanda isn't alone in this regard: by mid-April 2020, 95 percent of countries had at least partially closed their schools (UNESCO 2020).

### School closings will increase dropouts and disrupt private educational institutions

The disruption of education is likely to reduce enrolment when schools reopen. Studies have repeatedly found that interruptions in education lead to fewer children returning to school, as they may have begun earning an income or they may feel that they are too old to return to school.<sup>30</sup> A phone survey indicated that 63 percent of teachers think some students are likely to not return to school. According to NISR, the share of employed students in total employment increased from 3.4 percent in February 2020 to 8.8 percent in August 2020.

Adolescent girls, particularly those from poor households, may be particularly at risk of exclusion. There is concern about an increase in teenage pregnancies, which rose from 5.7 percent of teenage girls in 2007/2008 to 7.2 percent in 2014/2015 (NISR, 2009; 2012; 2015). Approximately 45 percent of head teachers pointed out that over-age students, adolescent girls and children whose households have suffered economic shocks are particularly vulnerable.

Education markets are likely to be disrupted, putting a further strain on the public sector. In a June 2020 report, the UN estimated that about 21,640 or 21.5 percent of educational staff (teachers and non-teachers) were employed in private schools and may be vulnerable if private schools are not able to stay afloat (Ndiaye, 2020). Private schools have experienced a sharp drop in fee revenues during the closure period, and many may have relinquished their rented premises or be at risk of defaulting on their loan payments. Reduced incomes as a result of the pandemic are likely to lower enrolment once private schools reopen.

<sup>&</sup>lt;sup>10</sup> See Carvalho et al. (2020) and Rohwerder (2020), UNDP (2015) and Smith (2020) on Ebola, Meyers and Thomasson(2017) on a polio epidemic.

### School closures can have a long-term impact on learning

Studies find that the impact of school closures can be seen throughout life. School closures lead to an increase in grade repetition and, in the long run, to lower educational attainment, including lower completion of degrees at higher education levels. Pupils who experienced school closures in primary school later suffer salary losses of 2 - 3 percent on the labor market (Jaume and Willén, 2019). They are also more often exposed to periods of unemployment and work in occupations with lower skill requirements. In the poorer three quartiles of South African schools where participation in a strike was widespread in 2007, student performance in a subject taught by a striking teacher was estimated at about 10 percent of a standard deviation lower than performance in a subject taught by a nonstriking teacher (Willis, 2015). The magnitude of the effect is roughly equivalent to a quarter of a year's lost learning, despite the average strike duration in these schools representing only seven per cent of official school days in a year. Finally, German students affected by two short school years in 1966/1967,<sup>31</sup> who received a total of three quarters of a year less instruction, achieved lower levels of skills in the long term: math skills in these students in their 50s to late 60s were still about a guarter of a standard deviation lower because of the two years of short schooling (Hampf, 2019). And students affected by the short school years achieved an average of about 5 percent lower earned income during their working lives (Cygan-Rehm, 2018).

Estimates based on such historical precedents and HCI 2020 data suggest that expected years of schooling may decline between 0.3 to 0.7 years, from a baseline of 6.9 years (Table 2.4). Similarly, learning adjusted years of schooling may decline between 0.2 to 0.6 years, from a baseline of 3.9 years.

Literature on 'summer learning losses' indicates that strong differences in learning losses between children from different socio-economic backgrounds are likely due to the pandemic. On average, over the summer months, students suffer skill losses of approximately 10 percent of a standard deviation (Hanushek and Woessmann, 2020). In Malawi, Slade et al. (2017) report a 0.38 standard deviation decrease in reading scores during the three-month transition from grade one to grade two. During a similar transition in Ghana, foundational numeracy test differences showed a 66 percent loss in learning gains, with a near complete elimination of learning gains for those without books or reading materials at home (Sabates and Carter, 2020). In reading, students from disadvantaged backgrounds also suffered a pronounced loss of skills. In contrast, the reading skills of pupils from socio-economically better-off backgrounds tend to increase slightly over the summer holidays. These differences in skill loss during the summer holidays may be responsible for a considerable proportion of the socio-economic differences in performance that arise during school life.

| 5   |                        |            |              |             |
|---|------------------------|------------|--------------|-------------|
| Post-Covid (Scenarios)                      | Post-Covid (Scenarios) |            |              |             |
|   | Baseline               | Optimistic | Intermediate | Pessimistic |
| Expected Years of Schooling (EYRS)          | 6.9                    | 6.6        | 6.4          | 6.2         |
| Harmonized Test Scores (HLO)                | 358                    | 349        | 341          | 332         |
| Learning-Adjusted Years of Schooling (LAYS) | 3.9                    | 3.7        | 3.5          | 3.3         |

#### Table 2.4: Estimated learning losses in Rwanda

Source: WBG staff estimates

<sup>31</sup> This was done in a few German states to standardize the nationwide starting date of the school year to the Fall. The first lasted from April to November 1966, the second from December 1966 to July 1967.

### Learning loss is very likely to impede long-term productivity

Research from OECD countries suggests that the students in grades 1-12 affected by the closures might expect approximately 3 percent lower incomes over their lifetimes due to lower education attainment and lower acquisition of skills. The lower long-term growth related to such losses might yield an average of 1.5 percent lower annual GDP for the remainder of the century (Hanushek and Woessmann, 2020). These economic losses would grow if schools need to close again. The economic losses will be more deeply felt by disadvantaged students. All indications are that students whose families are less able to support out-of-school learning will face larger learning losses than their

more advantaged peers, which in turn will translate into deeper losses of lifetime earnings. The present value of the economic losses to Rwanda may reach US\$55 billion (Table 2.5).

Just returning schools to where they were in 2019 will not avoid learning losses. As prior disruptions are likely to increase the variations in learning levels within individual classrooms, pivoting to more individualized instruction could leave all students better off as schools resume. It is natural to focus considerable attention on the mechanics and logistics of safe re-opening. However, the long-term economic impacts also require serious attention, because the losses already suffered demand careful re-opening approaches.

Table 2.5: Estimate of income losses corresponding to a decline in learning-adjusted years of schooling

| Part COVID (Conversion)  | Post-COVID (Scenarios) |            |              |             |  |
|--|------------------------|------------|--------------|-------------|--|
| Post-COVID (Scenarios)   | Baseline               | Optimistic | Intermediate | Pessimistic |  |
| Learning-Adjusted Years of Schooling (LAYS)                              | 3.9                    | 3.7        | 3.5          | 3.3         |  |
| Average annual earning per student (2017 PPP US\$)                       | 2,460                  | 2,416      | 2,375        | 2,334       |  |
| PV of lifetime earnings for all students (US\$ trillions) <sup>1</sup> / | 0.058                  | 0.057      | 0.056        | 0.055       |  |

Source: WBG staff estimates

Note: // Present value calculations have the additional following assumptions: Years of working life = 45 years; Discount rate = 3%; The total enrollment number is adjusted with adult survival rate from Human Capital Index, 2020 database; It takes 20 years for all the currently enrolled student cohorts to enter the labor market; and average human capital utilization as per Pennings (2019)

### PART THREE

## COVID-19 PANDEMIC – RESPONSE TO PROTECT AND PROMOTE HUMAN CAPITAL



### **3.1. Introduction**

Supporting Rwanda's investment in human capital and reversing the setbacks due to the pandemic are important priorities in the short and mediumterm. The World Bank's analysis of cross-country data on human capital indicates that Rwanda is underinvesting in the future productivity of its citizens. Rwanda's HCI score is guite low at 0.38; a child born in Rwanda today will only be 38 percent as productive when she grows up as she could be if she enjoyed complete education and full health<sup>32</sup>. Rwanda has an HCI index that is close to the global low-income average (0.375) but lower than the Sub-Saharan Africa average (0.40) (see Figure 3.1). The low HCl is mainly driven by poor results in education (both in terms of average length of school attendance as well as learning outcomes), and by high rates of stunting. The country's stunting rate is slightly higher than the average for low-income countries, and the share of the relevant age group that has completed primary and lower secondary education is below the average of low-income countries.<sup>33</sup> As discussed in Chapter 2, the pandemic

#### Figure 3.1: Human capital index (Rwanda in the Africa perspective)

has further impaired human capital development in Rwanda through reducing access to education and disrupting the delivery of essential health care services, with potentially dire implications for productivity and long-term development.

The Economic Recovery Plan (ERP) provides the framework for the government's response to the pandemic (see Box 3.1), although a series of emergency measures also have been taken in the health and education sectors. The ERP includes measures to strengthen social protection and assist firms affected by the pandemic, along with the adoption of fiscal policies to support growth. The Social Protection Relief and Recovery component provides: (i) relief to vulnerable households by easing requirements for ongoing assistance programs, using Rwanda's extensive, decentralized administrative structure to provide in-kind assistance, and improving access to health and primary education services; and (ii) financial assistance to households and micro-enterprises, and jobs through labor-intensive investment projects. Support for firms includes



Source: Human Capital Index, World Bank

<sup>&</sup>lt;sup>32</sup> Human Capital Index, World Bank, https://www.worldbank.org/en/ publication/human-capital. The HCI measures the amount of human capital that a child born today can expect to attain by age 18 and is an indicator of the effectiveness of social investments. It looks across health, education, nutrition and skills and is calculated based on five indicators: probability of survival to age 5; children's expected years of schooling; quality of learning; adult survival rate, and the proportion of children who are stunted.

<sup>&</sup>lt;sup>33</sup> World Bank and Government of Rwanda. 2020. Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition. Washington, DC: World Bank.

#### Box 3.1: Rwanda Economic Recovery Plan

The Economic Recovery Plan (ERP) for the period from May 2020 to December 2021 will support vulnerable households and boost employment in the wake of the COVID-19 pandemic. The ERP includes measures related to fiscal policy, monetary policy, social assistance and support for firms. Expenditures envisioned under the program is estimated at 4.4 percent of GDP<sup>1</sup>/ by the government.

**Fiscal policy.** The government plans to mobilize US\$900 million to cover all expenditures tied to the pandemic, over the two fiscal years 2019/20 and 2020/21 (Government of Rwanda 2020). This amount is significantly larger, in percentage of GDP, than any plan announced by an East African Community (EAC) country or that of the largest African economies (except South Africa) as recorded by the IMF (Box Table 3.1). The government is relying mainly on support from development partners to finance the ERP. Multilateral and bilateral development partners providing additional financial support to Rwanda as of June 2020 include the World Bank,<sup>2</sup>/ the IMF,<sup>3</sup>/ the African Development Bank, UK and France. However, the amount of funding for the program that the government will be able to secure from donors is uncertain.

|                  | A set of the set of |
|------------------|---|
| Country          | Fiscal expenditure announcements  |
| Burundi          | National contingency plan of 0.9% of GDP over 6 months. Increased oil and food reserves.  |
| Congo, Dem. Rep. | Preparedness response plan of 0.3% of GDP plus tax forbearance measures   |
| Ethiopia         | Multisectoral preparedness and response plan of 1.6% of GDP   |
| Kenya            | Additional health expenditures of 0.4% of GDP and economic stimulus in 20/21 budget of 0.5% of GDP  |
| Nigeria          | 0.3% of GDP fund for health care, tax relief and to support employment by firms   |
| Rwanda           | Economic Recovery Plan estimated at 4.4 % of GDP  |
| South Africa     | Stimulus plan estimated at more than 10 percent of GDP. Other measures include accelerating tax reimbursements and credits, deferring tax liabilities, providing VAT rebates for selected products, and providing tax holiday for skills development.   |
| Tanzania         | Expedited payment of arrears with priority to affected SMEs. VAT and customs duties exemptions for imported medical equipment and supplies.   |
| Uganda           | Supplementary budget for health, security and vulnerable populations, and subsequent expenditures to mitigate impact of crisis, totaling 1.3% of GDP  |

#### Box Table 3.1: Government announcements of COVID-19 fiscal response, selected countries

Source: https://www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#N as of June 12 Note: For Nigeria and Uganda, the IMF reports amounts in US dollars, and the ratio to GDP was calculated based on 2019 GDP data

**Social assistance.** The ERP includes a Social Protection Relief and Recovery component, with a total budget of Rwf130 billion (around 1.4 percent of GDP). The relief component consists of using the administrative machinery available and easing requirements for ongoing programs, notably the government flagship social protection program, Vision 2020 Umurenge. In addition, Rwanda's extensive, decentralized administrative structure meant the country could rapidly ramp-up effectively targeted, in-kind distributions to vulnerable households. The government also has removed the onemonth waiting period usually required before accessing medical services under the Community Based Health Insurance program, which provides health insurance to 80 percent of the population (Government of Rwanda 2020). The recovery component is intended to strengthen the resilience of households through transferring assets, providing access to financial services for micro-enterprises (including informal ones), providing selected households with toolkits to start new businesses, and providing jobs through labor intensive investment projects, mostly rural roads and terrace upgrading. The social protection response to COVID-19 also includes a series of accompanying measures to improve access to health care for vulnerable individuals without basic health insurance and to improve access to primary education.

#### Box 3.1: Rwanda Economic Recovery Plan (cont.)

**Support for firms.** Support for private sector firms under the ERP aims to protect jobs (when possible) and stabilize living conditions and consumption levels, while positioning enterprises for long-term growth. A US\$200 million "Economic Recovery Fund" has been established to provide subsidized loans to businesses in sectors affected by restrictions to prevent the spread of the virus (e.g. tourism), sectors particularly exposed to consumer discretionary spending, and those participating in global supply chains that have been disrupted. A special window supports micro and small enterprises in the informal sector via microfinance institutions, and provides credit guarantees through business development funds (BDFs). Firms also have been assisted through steps to ease the burden of tax administration (suspension of tax audits, extension of filing and payment deadlines, expanded use of online services in tax administration), to soften enforcement of tax arrears collection, and to fast-track VAT refunds and procurement procedures.<sup>4</sup>/ The ERP also includes support for sensitive and strategic sectors, and for infrastructure. A special strategy will be implemented for e-commerce, mining, tourism (promoting consumption by locals and citizens from the African Union), and agriculture. Infrastructure investments include for energy, transport, water and sanitation, ICT and urbanization.

#### Note:

- 1/ This is the estimate in Government of Rwanda, 2020. The IMF estimated the program at about 3.3 percent of GDP (IMF 2020).
- 2/ The World Bank approved a U\$\$14.25 million COVID-19 Emergency Response Project (P173855) and a U\$\$100-million supplemental development policy operation (DPO), while the Human Capital for Inclusive Growth DPO (U\$\$150 million) to be delivered in FY 21 also includes specific measures to accelerate recovery from the COVID-19 pandemic.
- <sup>3</sup>/ The IMF's Executive Board approved the disbursement of US\$109.4 million under the Rapid Credit Facility (RCF) on April 2, 2020 and is considering a government request for a second RCF disbursement of a similar amount.
- <sup>4</sup>/ The government estimates a loss in tax revenues of 2.8 percent of GDP per year in FY20 and FY21. Source: Government of Rwanda (2020) and IMF (2020)

establishment of the Economic Recovery Fund to provide subsidized loans and credit guarantees to businesses in sectors affected by the pandemic (including for micro-enterprises), and steps to ease the burden of tax administration and delay some required payments. Finally, strategies are being implemented to strengthen e-commerce, mining, tourism and agriculture, along with infrastructure improvements.

About 2/3 of the COVID19-related spending under the ERP adopted in May and budgeted for FY 19/20 has been spent.<sup>34</sup> There do not appear to be any significant spending bottlenecks due to absorptive capacity. The main driver of delays in budget execution has been in disbursements of funds to vulnerable businesses under the Economic Recovery Fund. While disbursements to hotels and restaurants increased sharply following the initial influx of money to the ERF, overall lending to enterprises has been slow, due to the initial strict eligibility criteria (subsequently relaxed) and slow take up by banks. The latter may be due to banks' low risk appetite and low interest margins under the ERF (6 to 8 percent compared to more than 11 percent on other lending). For microbusinesses, channeling of funds through Savings and Credit Cooperative Organizations (SACCOs) has been more successful, so that a greater focus on this window could help to speed disbursements.

This chapter reviews how the government has responded to this challenge in protecting health and supporting education, and thus helping to preserve and to promote human capital. In general, Rwanda has responded rapidly and effectively to the health challenges posed by COVID-19, although the impact nevertheless has been severe. The government also quickly set up remote learning to compensate for the necessary closure of schools, although lack of access to computers and television has limited the most effective forms of remote learning, in particular for the poor and vulnerable.

<sup>&</sup>lt;sup>34</sup> This paragraph is based on the IMF report Rwanda -- Third Review Under the Policy Coordination Instrument, December 2, 2020.

### 3.2. Health Response

## *Rwanda has managed the COVID-19 pandemic relatively well in comparison to other countries*

Rwanda quickly adopted a central government led, multi-sectoral approach at the onset of the pandemic. The government's response constitutes emerging good practice with the potential to become a COVID-19 success story. Highlights of the response and areas that require further improvement are as follows:

- Putting in place COVID-19 multi-sectoral structures to manage the pandemic under the leadership of the Office of the Prime Minister. Even before the first cases were confirmed in Rwanda, the government rapidly set up a COVID-19 National Steering Committee, a highlevel multi-ministerial coordinating body that oversees the work of the COVID-19 Joint Task Force which is responsible for managing the national response.<sup>35</sup>
- **Developing a National COVID-19 Preparedness** and Response Plan and mobilizing domestic and international funding to prevent, detect and effectively respond to the pandemic. The government's initial 6-month, US\$25 million plan was well designed, comprehensive, and consistent with global good practices (Annex III). It provided a good framework for development partners to align their support. The plan was subsequently revised to US\$73.5 million, as needs evolved over time. To date, the government has successfully mobilized roughly US\$39 million from a wide range of development partners (e.g. WB, USG, UN, Germany, Belgium, Global Fund, GAVI, Red Cross) and the private sector (e.g. MTN Rwanda, AIRTEL Rwanda, Rotary Club).

- Rolling out a comprehensive set of nonpharmaceutical interventions, including an initial six-week national lockdown policy; closures of schools and businesses; restrictions on public gatherings and movements; and imposition of stringent enforcement measures to ensure high rates of compliance (Annex III). In line with international good practices, the government subsequently adopted a selective lifting of measures with targeted lockdowns and mobility restrictions in hot spot areas most affected by the pandemic, to minimize economic hardships. Studies conducted in other countries that have used non-pharmaceutical interventions suggest that these measures, and lockdowns in particular, have had a large effect in reducing transmission (see Flaxman, et. Al, 2020). While a similar analysis has not been conducted in Rwanda, it appears likely that these interventions had a similar, positive effect in reducing transmission.
- Spearheading clear and consistent public health messaging to maintain public trust in government authorities and ensure a high level of compliance. The government used its strong chain of command structures from the national level down to the sector/village/ cell level to effectively transmit public health messages about the importance of regular mask wearing and hand washing, and avoiding close contacts and large gatherings, while enforcing regulations stringently. Authorities disseminated daily information on new cases and deaths, most affected districts, whether cases are imported or transmitted locally, virus transmission modes, and essential prevention measures the public needs to observe.
- Adopting a targeted approach to testing that focused on high-risk groups (e.g. contacts of confirmed cases and travelers from hot spot areas, healthcare staff, frontline rapid response workers, market vendors, and other essential

<sup>&</sup>lt;sup>35</sup> The taskforce is assisted by several structures. An Expert Advisory Team provides scientific advice for coordinated and informed decisionmaking process. The COVID-19 Command Post consists of a multidisciplinary team from the Ministry of Health/Rwanda Biomedical Center responsible for the operationalization of the COVID-19 Plan and has four cells (i.e. Epidemiology Operations; Administration and Logistics; Communications, and Plans).

staff, such as hotel, bank and tax revenue collectors) to ensure early detection and containment.<sup>36</sup> The Government also adopted a pooled testing strategy for efficient use of resources, testing large number of asymptomatic people and making optimal use of equipment and costly tests kits, and ensured that routine testing was not displaced by COVID-19. The total number of laboratories capable of conducting testing and providing rapid responses rose from 1 in March to 12 by September, and the number of tests performed increased nine-fold through August 2020. With a total of over half million tests performed to date and a low positivity rate; Rwanda's testing strategy appears to be working but will need to be sustained.

Introducing an effective contact tracing and quarantine policy. The Ministry of Health rapidly initiated screening of all travelers at points of entry with all contacts of positive cases (even asymptomatic ones) expected to guarantine at designated isolation facilities with the full cost covered by government. Rwanda used its strong network of public health officials, health care workers, and security personnel to conduct contact tracing and catch and guarantine contacts during the three-day window before they became infectious and transmit the disease. The government set up a network of isolation facilities, which by September reached 68 with a bed capacity of about 380 beds.<sup>37</sup> As of end September 2020, with the outbreak generally contained, all isolation facilities (except Kigali)

had an occupancy rate of less than 60 percent, with contacts of positive cases who do not show symptoms expected to self-isolate.

- Establishing a designated national network of COVID-19 treatment sites. COVID-19 bed capacity rose from about 125 (March) to roughly 3,300 at the peak in cases (August 2020) and subsequently dropped as the number of cases declined sharply. While the recovery rate had hovered around 60 percent for many months, it has progressively increased since August (Figure 3.1) and have now reached 96 percent (mid-October 2020). This reflects the prevalence of few severe cases and the ability of the health system to manage current workloads, an encouraging trend. Preventing transmission to healthcare workers has been a major government priority, and none have been infected to date.
- Setting up a complementary home-based care strategy in August 2020 for mild and asymptomatic cases that exhibit lower risks, to alleviate pressures on health workers and the health care system. Community-health workers and household members have been trained to follow-up patients at home and report progress to health facilities, seeking care as needed. Patients in home-based care have seen a steady rise in recoveries (Figure 3.2).

## *Progress is essential in improving preparedness and the response to infectious diseases*

There is broad based recognition of the importance of investing early in strong and resilient public health systems to promote health security. The COVID-19 pandemic has plunged countries into the single largest public health and economic crises of our lifetime. Countries in Africa are likely to see decades of progress dissipate, with projected losses between US\$37 and US\$79 billion in output in 2020. Rwanda is no exception, with declines in GDP that have not been seen for decades. While the estimated annual cost (US\$2-3.5 billion) of epidemic preparedness in

<sup>&</sup>lt;sup>36</sup> Authorities developed an effective 2-phase testing strategy: (i) using manual/automated molecular diagnostics (Real Time Reverse Transcriptase Polymerase Chain Reaction, RT-PCR), the gold standard for COVID-19 testing; and (ii) adding antigen testing to ramp up testing in containment zones for point of care diagnosis and cartridge based tests (GeneXpert), which are better equipped for remote areas with fewer cases.

<sup>&</sup>lt;sup>37</sup> The number of isolation facilities has been changing over time depending on the number of suspected cases with the government also using boarding schools and hotels, as needed, during surges. In addition, each public hospital has prepared and reserved at least one room to isolate suspected cases, ensuring widespread availability of quarantine capacity.



#### Figure 3.2: Cumulative number of recovered cases and recovery rate

Source: RBC

Africa is steep, it is lower than the cost of inaction. Investing early is critical to quickly control disease outbreaks that are occurring across the region and the globe. Moreover, more resilient health systems are better able to minimize the adverse impact of disease outbreaks on essential services (see Chapter 2), while many of the capabilities and infrastructure required for preparedness can be leveraged for other public health goals (e.g., combatting antimicrobial resistance, dealing with the rising burden of noncommunicable diseases).

The government has taken critical measures to bolster outbreak preparedness and strengthen health security, but more needs to be done. Rwanda scored 34.2 on the Global Health Security Index, which measures global health security capabilities, and ranked 117 out of 195 countries. In 2018, Rwanda conducted a Joint External Evaluation (JEE) which assessed the country's capacity to prevent, detect, and rapidly respond to public health threats. Rwanda scored 58 percent, one of the highest in the region (Burundi: 33 percent; Tanzania: 48 percent; Kenya: 50 percent; Uganda: 56 percent) but lower than some of the best performing countries (Thailand: 76 percent, New Zealand: 89 percent; Japan: 92 percent), suggesting persistent gaps that need to be addressed (Annex III).

Based on the JEE results, Rwanda in 2019 published a National Action Plan for Health Security (NAPHS). The NAPHS, which enjoys high-level political support, emphasizes the importance of maintaining essential health services during public health emergencies, promotes strong community mobilization and engagement, and aims to mobilize multiple stakeholders, all features of the government's management of the COVID-19 response. The cost of the NAPHS (2020-2024) is estimated at US\$61.5 million (US\$12.3 million/year) or roughly US\$1 per person per year, not a huge amount compared to the costs associated with the loss of lives and livelihoods, and much lower than the estimated cost of the COVID-19 health response.

**Rwanda has yet to devise a sustainable long-term financing plan for the NAPHS.** As seen globally, it is not easy to prioritize investments in outbreak preparedness, particularly prevention, as the benefits are not immediately visible. Preparedness rarely ranks high on the list of government priorities, with weak domestic resource mobilization leading to chronic and sustained underinvestment.<sup>38</sup> Yet the optimal source of financing for preparedness is the domestic budget, which is the one governments

<sup>&</sup>lt;sup>38</sup> From Panic and Neglect to Investing in Health Security: Financing Pandemic Preparedness at a National Level, International Working Group on Financing Preparedness, December 2017.

#### Box 3.2: Early Lessons from Rwanda's Response to COVID-19

- **Speed of response**: taking swift, early actions to contain the pandemic through strict lockdown policies, restricted public gatherings and movements; and mandatory mask use has paid off.
- **Synchronized approach**: using a strong central government led strategy with involvement of multiple stakeholders and consistent messaging was critical to maintaining public confidence.
- Science informed decisions: relying on a multi-disciplinary national task force to guide decisions on social distancing; formulating and implementing clear national testing, tracing, and treatment strategies; and using data triangulation to identify hot spot areas and target localized responses.
- Systems optimization: promoting a health systems approach by leveraging community platforms for contact tracing, using pooled sampling to make best use of resources, and adopting home-based care models to minimize burden on hospitals.
- System to identify new cases: it is critical to have a system in place to promptly identify new infections, as there are still many unknowns about COVID-19 and persistent risks of new surges are being seen regionally and globally.
- Strategy to protect essential health services: ensuring that appropriate measures are put in place to mitigate the risk of setbacks to decades of progress made on health and nutrition.

Source: WBG staff compilation

control and hence can ensure predictability and sustainability. Rwanda is not alone in favoring donor financing for investing in health security, given the positive spillover effects for other countries. Given the importance of ensuring public safety, it is prudent to prioritize domestic financing and then leverage private sector and donor support.

#### 3.3. The Education Response

The Ministry of Education was quick to make use of technology to provide distance learning through multiple channels. The first teaching radio programs were introduced just two weeks after the schools closed, followed quickly by TV programs. A YouTube channel and an e-learning platform were also ramped up, and free access provided to available e-learning portals. The government also used a variety of channels (radio, TV, newspapers, various websites, WhatsApp, Twitter and SMS messages) to inform parents and students about distance learning arrangements.

The coverage of remote learning varies by grade level and location. Data from UNICEF Rwanda suggests that television and radio programs reached 70 percent of primary school students but only 11 percent of secondary school students. A survey by Innovations for Poverty Action in Rwanda in August 2020 estimates that 80 percent of children in primary and secondary school spent time on some form of remote education at home after schools closed, although there was considerable regional variation.

Many Rwandan students face difficulties in accessing remote learning, particularly those from poor backgrounds or rural areas. Lack of access to television, radio, the internet, educational programs or learning materials were important reasons for failure to participate in remote learning (Figure 3.3). Students from households with greater levels of connectivity, higher levels of parental education, greater availability of parental time for engagement, and in-home availability of books and materials are better able to benefit from distance learning programs. Children from poorer primary schools reported using radio learning programs, while wealthier primary school children reported using TV learning programs, WhatsApp groups created by the school, and educational content on the internet (Figure 3.4). This difference in modality is likely to lead to a further divergence in learning outcomes. Learning losses in households without radios (26 percent of households) or television (90 percent) are likely to be sizeable. Access to remote learning is further constrained because only 27 percent of households have continuous electricity (85 percent of them in urban areas), only 3 percent of households own a computer, and only 17 percent (also usually in urban areas) have internet access.

Children with disabilities face special difficulties in accessing remote learning. The Ministry tested different ways to continue supporting learners with disabilities (approximately 1 percent of the school going population) during the crisis. For instance, lessons broadcast on TV and via e-learning platforms have sign language interpretation, while learners with visual impairments are expected to access lessons delivered via radio programs. However, these approaches reach only a small number of learners with disabilities. For example, learners with visual disabilities complain about the lack of brailletranslated materials.

The Government has started reopening the schools. Higher learning institutions started

reopening in mid-October 2020 on a case by case basis, upon inspection and fulfilment of health guidelines. Senior students in all Rwandan primary and secondary schools resumed their studies on November 2<sup>nd</sup>, 2020. Primary 4 pupils and students in early secondary were instructed to resume second term studies on November 23<sup>rd</sup>. Students of primary one to primary three and nursery will have to wait for at least January next year while continuing studying online, especially since public schools will run classes in shifts (morning/afternoon) to ensure social distancing.

The government has taken steps to improve education and ensure safety with reopening. An additional 22,505 classrooms are being constructed across the country to improve access by reducing the distance many children face in walking to school, and to improve educational quality by reducing average class size to 45 from over 75 and by eliminating double shifting once the pandemic is over. Measures to ensure the safe reopening schools include requiring everyone to wear masks, enforcing social distancing, providing for hand washing, and cleaning facilities. The government also plans to implement remedial programs designed for both immediate response on school reopening and medium to long term response to recover learning losses.



### 3.4. The Social Protection Response

### Enhancing social protection to better support investment in human capital and to protect against shocks

Given the sharp economic slowdown and increase in poverty, social protection programs are now more important than ever. Besides supporting the poor, they can help protect Rwanda's most vulnerable citizens from falling deeper into poverty. They can also play a central role in preventing households from resorting to detrimental coping strategies, such as selling productive assets or reducing food consumption drastically. In addition, social protection programs can slow down some of the reversals in human capital investments through expansion of gender/child/nutrition-sensitive social protection programs and helping reach those most affected over the short and medium term, as well as reinforce investments in agriculture.

### *Rwanda entered the COVID-19 pandemic relatively well prepared*

Significant investments have been made to build an integrated social protection system in Rwanda over the last decade. The Vision 2020 Umurenge Program (VUP) includes Direct Support (DS) cash transfers to the poorest families (Ubudehe category 1) without labor capacity and a public works scheme (cPW) that offers short-term work opportunities to households with labor capacity. Recent innovations under the VUP include: i) the expanded Public Works (ePW) program, which offers year-round, flexible, part-time work opportunities to moderately laborconstrained households with caring responsibilities; and ii) the Nutrition Sensitive Direct Support (NSDS), a new co-responsibility cash transfer (CCT) scheme launched in 2018 to provide incentives to poor households with pregnant women and/or children under age two to take up essential health and nutrition services during the early years. Simulations indicate that the expansion in social safety nets between 2016 and March 2020 (Table 3.1) accounted for a reduction in the national poverty headcount ratio of 1.23 percentage points.

The expansion in social protection programs helped reduce poverty before the pandemic. Simulations indicate that both economic growth and expansion of social safety nets between 2016 and March 2020 helped reduce the poverty headcount from 38.2 to 35.6 just prior to the lockdown due to the pandemic. Over this period, economic growth accounted for poverty reduction of some 1.3 percentage points, and expansions in social safety nets accounted for a further 1.23 percentage point reduction. The main expansions in social safety nets included the growth in DS from 95,906 households in 2016 to 116,240 in March 2020 and the growth in cPW from 128,656 households to 157,852 over the same period (see Table 3.1). The expansion in social safety nets also included the newly introduced ePW program and NSDS programs, with their intrinsic sensitivity to gender and childcare. The ePW reached 40,454 households as recipients by March 2020, while the NSDS reached 30,000 households (see Table 3.1).

Table 3.1: Expansion of the Vision 2020 Umurenge Program (VUP), 2016 to March 2020

| Programs                                  | Beneficia | Beneficiary households |  |  |
|---|-----------|------------------------|--|--|
|   | 2016      | March 2020             |  |  |
| Classic Public Works (cPW)                | 128,656   | 157,852                |  |  |
| Expanded Public Works (ePW)               | 0         | 40,454                 |  |  |
| Direct Support (DS) cash transfer         | 95,906    | 116,240                |  |  |
| Nutrition Sensitive Direct Support (NSDS) | 0         | 30,000                 |  |  |

Source: Government of Rwanda

Households in rural areas entered the crisis at greater risk of poverty and with higher vulnerability to shocks. As outlined is section 2.2, poverty in Rwanda is largely a rural phenomenon. Moreover, rural households are also more vulnerable to shocks. Analysis using EICV5 finds that, in 2016/17, some 43.1 percent of households in rural areas were poor, and a further 12 percent were vulnerable to shocks<sup>39</sup> (see Figure 3.5). The corresponding urban figures are just 15.8 and 5.6.

Rwanda introduced innovations to increase social insurance coverage to the "missing middle" prior to the pandemic. Social insurance programs cover those in the formal sector - some 13.5 percent of all households in Rwanda have at least one adult working in the formal sector. These households reside predominantly in urban areas (36.4 percent of households in urban areas have someone working in the formal sector and are not poor, compared to just 8.6 percent in rural areas). The VUP program, although expanding prior to the pandemic, covered only some 12 percent of the population, a fraction of the poor in Rwanda. This leaves a large "missing middle" segment of informal households (some poor, many non-poor). Recognizing the need for all Rwandans to have some form of social protection coverage, the Government of Rwanda (GoR) launched a Long-Term Savings Scheme (LTSS), locally known as Ejo Heza (translating as "bright future"), in December 2018. The design of the Ejo-Heza scheme takes into consideration the distinct characteristics of the informal sector, such as irregular and relatively low earnings, although the scheme is open to the participation of formal sector workers as well. Ejo-Heza is a voluntary defined contribution scheme, which is open to all Rwandans and foreigners residing in the country. The scheme allows for flexibility in level and frequency of contributions, and leverages the digital infrastructure that Rwanda has in place. Ejo-Heza is designed to provide a special, meanstested fiscal incentives package for the first three years to encourage mass-scale enrolments. With these incentives, the Government aims to inspire a sustained savings discipline for all Rwandans, and especially those who are not insured as part of the **RSSB** pension scheme.

Some 11 percent of the working age population are already registered in Ejo Heza. Following the launch in 2018, about 36,000 participants were registered in the first six months. With constant communication and outreach efforts, the scheme has now reached over 800,000 participants or 11 percent





Notes: Analysis based on EICV5; and based on resilience of households to shocks faced in the previous 12 months. This graph does not show resilience against pandemic effects

<sup>39</sup> Vulnerability to shocks is measured by whether the household had to resort to negative coping strategies in the face of the shock – i.e. reduce food consumption, sell productive assets, and so on. Note that the shocks included are from 2016, and do not include the COVID-19 pandemic shock. of the working age population. What is particularly encouraging is that 48 percent of all registered individuals are females. The total savings in the Ejo Heza scheme has grown by 99 times since the first six months of the launch and stands at 6 billion Rwf as of October 2020 (approx. 0.07% of GDP). These savings are important for economic growth particularly if channeled to productive investments. When Ejo Heza reaches an even larger scale then (i) informal sector workers will have savings to fall back on; and (ii) the scheme can provide a platform for the government to deploy emergency cash benefits in response to a shock if needed, particularly for the vulnerable informal sector.

### Rwanda responded robustly, by expanding social protection programs, when the pandemic hit

As in the education and health sectors, the government acted immediately to cushion households in response to the pandemic. This involved the distribution of food and other essential items to identified or self-reported affected households. The intervention started in Kigali City and has continued, including in other secondary cities. The goal has been to increase coverage from 55,272 households in April 2020 to 112,882 households by December 2020 and gradually replace food distribution with COVID-19 Emergency Cash Transfers, which have already started, in partnership with non-government organizations (NGOs). Further, the government approved a COVID-19 Economic Recovery Plan<sup>40</sup> and started its implementation in May 2020, which includes the scaling up of social protection (see Box 3.1 for more details).

The government introduced emergency cash transfers. In Kigali, the NGOG ive Directly has partnered with the government to enroll vulnerable recipients, each of whom receives two transfers that total 153.2 thousands Rwf (~US\$150). By September 2020, 19,486

households in Kigali had received this emergency cash transfer, with a further 8,400 expected to receive the transfer in October 2020. A second NGO, Plan International, identified and delivered emergency cash transfers to 7,653 vulnerable households in Nyaruguru, Bugesera, Gatsibo, Nyagatare, Musanze, Rubavu and Rusizi Districts. These households were engaged in cross-border trade (especially in Rusizi and Rubavu districts) and other small businesses that were severely affected by the pandemic. A third NGO, World Vision International, has identified 27,945 vulnerable agricultural households (in the countryside) that received cash transfers to enable them to purchase seeds and fertilizers for the current agriculture season. In all, some 55,000 families had received the emergency cash transfers by end November 2020 (see Table 3.2).

The government also expanded the coverage of the VUP program (see Table 3.2). In response to COVID-19, the government expanded the eligibility criteria for the NSDS cash transfer. While only vulnerable households in Ubudehe 1<sup>41</sup> with pregnant women or children under two were eligible before the pandemic, the eligibility criteria have been expanded to also include vulnerable households in Ubudehe 2. This has resulted in the rapid expansion of NSDS from 31,000 beneficiaries in March 2020 to 84,599 beneficiaries by end September 2020. Currently 64 percent of eligible households in Ubudehe 1 and 2 with pregnant women or children less than 2 years in 17 districts are receiving NSDS benefits. While the government also wanted to expand the ePW program, this has been delayed due to COVID-19 restrictions, with only some 3,509 additional households covered by ePW since the pandemic began. Finally, the expansion in cPW as well as DS

<sup>&</sup>lt;sup>41</sup> Ubudehe is a community-based targeting system, under which households were classified into 4 Ubudehe categories. Recent legislation introduced reforms to the Ubudehe classification, increasing the number and changing the definitions of Ubudehe categories. The legislation also supported the introduction of a more objective targeting system, using household characteristics more correlated with poverty, to improve targeting accuracy.

<sup>&</sup>lt;sup>40</sup> Government of Rwanda, Economic Recovery Program, April 2020.

has also been modest. The existing cPW beneficiaries – some 158,554 beneficiaries – have benefited from the decision to waive work requirements in response to the lockdown and were paid without a condition of working. The DS beneficiaries have expanded from 116,276 to 119,025. Except in the case of NSDS, expansion of VUP elements has fallen short of the targets that the government set in the Economic Recovery Program (see Table 3.2).

## *Rwanda took steps to improve social safety nets delivery through mobile payments*

Rwanda has put in place critical building blocks to scale up the use of digital cash transfers. A technical review from earlier this year found that Rwanda is on-track to achieve industry interoperability, allowing consumers to use their preferred networks for their electronic transactions (World Bank, 2020b). The review also found that the government has an operational e-payment module in the VUP Monitoring and Evaluation Information System (MEIS) that can disburse cash to SACCOs with a capability of linking with other payment service providers, has established full interoperability with the national ID system that covers about 99 percent of the population, and has an enabling regulatory framework for G2P.

The use of mobile money has increased substantially over the last few years. According to FinScope Financial Inclusion reports, the proportion of adults making use of mobile money increased from about 40 percent to 60 percent between 2016 and 2020 (Access to Finance Rwanda, 2016, 2020). The increase in mobile money use was broad-based, increasing in urban and rural areas alike and across Ubudehe household categories.

However, the proportion of mobile money users is unequally distributed. Although 90 percent of adults use mobile money in urban areas, only about half of all adults do so in rural areas (see figure A5.1 in Annex V). Only about a third of adults in Ubudehe Category 1 and half of adults in Category 2 use digital finance (see figure A5.2 in Annex V). The 2020 report also finds disparities between gender: 68 percent of adult men use mobile money compared to only 56 percent among adult women. Lack of knowledge of digital finance (48 percent of non-users) is what keeps people from opening a mobile money account, according the report.

In response to the pandemic, the Government of Rwanda took important steps to promote the more widespread use of digital transactions, reduce cash transactions and limit the spread of COVID-19. Together with banks and telecom companies, the government temporarily waived mobile money transaction fees—including peer to peer transaction fees, merchant payment fees, and fees for transfers between mobile wallets and accounts—beginning mid-March for an initial period of 90 days. In addition, mobile money transaction limits were increased. Though not particularly targeted towards the poor, these measures were expected to benefit informal sector workers and vulnerable households.

Table 3.2: Scaling up of social safety nets, including emergency cash transfers, in response to the pandemic

|   | Beneficiary households |                |  |  |
|---|------------------------|----------------|--|--|
| Programs                                  | March 2020             | September 2020 | Target in Economic<br>Recovery program |  |
| Classic Public Works (cPW)                | 157,852                | 158,554        | 191,339                                |  |
| Expanded Public Works (ePW)               | 40,454                 | 43,963         | 75,000                                 |  |
| Direct Support (DS) cash transfer         | 116,240                | 119,025        | 150,000                                |  |
| Nutrition Sensitive Direct Support (NSDS) | 30,000                 | 84,599         | 74,021                                 |  |
| COVID-19 Emergency Cash Transfers         | 0                      | 35,000         | 100,000                                |  |
|   |                        |                |  |  |

Source: Government of Rwanda

Early indications suggest that mobile transactions soared immediately. For example, between mid-March and late May, peer to peer transfers increased from US\$11 million to US\$73 million (IMF, 2020a; Carboni and Bester, 2020).

### Social protection programs play an important role in reducing poverty in Rwanda

Social protection programs are playing an important role in reducing poverty during the pandemic. Poverty rates are projected to rise by 2.2 percentage points in 2020 and 5.1 percentage points in 2021 (Figure 3.6)<sup>42</sup>. However, the rise in poverty could have been much worse: simulations suggest that the expansion of social protection since 2016, and the further expansion from March to September 2020, reduced the incidence of poverty by about 1.43 percentage points in 2020 (Figure 3.7). If the government were to make no further expansions but maintain social safety net (SSN) levels at Sept. 2020 levels, there would still be mitigation of poverty in 2021, of about 1.29 percentage points<sup>43</sup>. If the government continued to expand SSNs, and reach the targets set in the Economic Recovery Plan (ERP, see Table 3.2, last column) it has the potential to



Source: World Bank staff estimates

Figure 3.6: Poverty headcount ratio

(percent of population)

The poverty-reducing impact of social protection varies by gender of the head of household and the location of the household. Female-headed households have higher poverty rates than maleheaded households (Figure 3.6) and, according to simulation results, benefit slightly more from social protection as currently designed. Given the expansion of social safety nets through September 2020, it is estimated that poverty rates among maleheaded households declined by 1.4 percentage points, compared to 1.5 percentage points among female-headed households (Figure 3.7).44 Also, poverty rates are higher in rural areas compared to urban areas (Figure 3.7), and social protection programs are able to reduce poverty more in rural areas than in urban areas.

The performance of specific social protection instruments varies substantially. As mentioned above, the VUP programs, and emergency cash transfers, if expanded to reach ERP targets, have the potential of reducing poverty by nearly



**Figure 3.7: Poverty reduction due to social protections** (percentage points)

reduce poverty by nearly 1.80 percentage points in 2021 (Figure 3.7).

Source: World Bank staff estimates

<sup>&</sup>lt;sup>42</sup> The simulations here reflect the baseline scenario, along with mitigation through social protection programs.

<sup>&</sup>lt;sup>43</sup> The welfare of households is slightly lower in 2021 compared to 2020 so the same social safety net coverage will lead to slightly lower reductions in poverty levels.

<sup>&</sup>lt;sup>44</sup> This differentiated gender impact is consistent with the gender disparities observed in the labor market. Women have higher unemployment rates, lower employment rates, and earn lower wages on average.

1.8 percentage points in 2021. However, they vary considerably in their coverage, targeting performance, and cost-effectiveness. Emergency cash transfers, in particular, reduce poverty by a smaller amount, performing worse than public works (both classic and expanded public works) and direct support (both the regular direct support, as well as NSDS – see Figure 3.8). Emergency cash transfers also have the objective of replacing the assets of people who have lost their livelihoods in the informal sector; poverty reduction is not necessarily their primary objective.

The distribution of beneficiaries is progressive for public works programs and direct support, but not for emergency cash transfers. Only 35 percent of recipients of the emergency cash transfers are in the lowest two quintiles (Figure 3.9). In contrast, 63 percent of beneficiaries from public works (cPW and ePW) and 55 percent of the beneficiaries from direct support (DS and NSDS) are in the lowest two quintiles. While the direct support (DS and NSDS) and public works (cPW and ePW) are both reasonably well-targeted, the direct support leads to greater poverty reduction. One reason for this could be that,



### **Figure 3.8: Poverty reduction by type of program** (*percentage points*)

Source: World Bank staff estimates

with the poverty rate hovering around 40 percent, DS and NSDS accrue to many just below the poverty line and can therefore lift them above it. A second reason could be that the benefit amount for public works is given to the individual; so larger households with many people get the same transfer amount as smaller households, given that each has one person performing public works. The benefit amount for DS expands with household size, and this may pull larger households, which typically tend to be poorer, out of poverty.

Various programs play various roles in mitigating the impacts of the crisis. The direct support program is cost effective in terms of reducing poverty. The cPW and ePW also reach poor households – even if they do not pull the households fully out of poverty, they are able to provide mitigation. Finally, while the emergency cash transfer may not reduce the poverty headcount, it potentially plays the role of an unemployment benefit,<sup>45</sup> in the sense that it prevents those in the informal sector who are affected by the crisis by smoothing their consumption and from losing assets and falling into poverty.





Source: World Bank staff estimates

 $^{\rm 45}\,$  In the absence of such a benefit for those who work in the informal sector.

# PART FOUR POLICY RECOMMENDATIONS



### 4.1. Introduction

The previous chapters have analyzed the impact of the COVID-19 pandemic on recent economic developments and long-term growth; the impact on welfare, poverty, health and education; and the government's response to the pandemic in terms of health, education and social protection policies. This chapter provides tentative policy recommendations for the government based on this analysis, covering fiscal, health, social protection and education policies. These recommendations are adapted to World Bank COVID-19 Crisis Response Framework that emphasizes (a) saving lives; (b) protecting the poor and vulnerable; and (c) strengthening policies, institutions, and investments for building back better (see Figure 4.1).

### 4.2. Save Lives: Controlling the Pandemic and Boosting Health System Capacity

Rwanda was reasonably well prepared and managed the response to the COVID-19 pandemic much better than many other countries with greater capacities, while minimizing the adverse impact on essential health services. But Rwanda can be even better prepared for the next outbreak, take steps to strengthen the health care system, and advance critical reforms in the national community health insurance scheme and in human resources. The main policy recommendations are:

Strengthen health security to further enhance pandemic preparedness. Rwanda needs to 'stay on course,' continuing to promptly identify new infections and contain localized surges without disrupting essential health services and impeding livelihoods. In addition to continuing with mass testing and tracing, Rwanda may consider a number of additional strategies used by other well performing countries, such as: (i) undertaking serological surveys to study infection rates in different population/occupation groups; (ii) introducing blood observatories to routinely track evolving infections by testing blood donations; (iii) leveraging molecular diagnostics such as the

|   | Relief   | Restructuring   | Resilient Recovery  |
|---|--|---|---|
| Save Lives  | <ul> <li>Mitigate disruptions in essential<br/>health and nutrition services</li> <li>Accelerate deployment of COVID-19<br/>vaccine</li> </ul>   | <ul> <li>Further enhance pandemic preparedness</li> <li>Strengthen health services, including improved monitoring</li> </ul>  | <ul> <li>Prepare health systems for future public health crises</li> <li>Fully fund and implement National Action Plan for Health Security</li> <li>Ensure budget reserves are set aside to enable rapid response</li> </ul>  |
| Protect the Poor<br>and Most<br>Vulnerable  | <ul> <li>Increase coverage of VUP to protect<br/>the poorest</li> <li>Improve effectiveness of Emergency<br/>Cash Transfers in reducing poverty</li> <li>Recover learning losses: tracking<br/>at-risk students for reenrollment and<br/>remedial support</li> <li>Make schools safer with WASH</li> </ul> | <ul> <li>Increase targeting accuracy of VUP<br/>to remain effective at less cost</li> <li>Improve design and coverage of Ejo<br/>Heza scheme</li> <li>Train teachers to teach at the right<br/>level with system level guidance</li> <li>Assess learning more frequently and<br/>on global benchmarks</li> </ul>                        | <ul> <li>Improve cashless modes of payment</li> <li>Link teacher management systems<br/>with student learning outcomes</li> <li>Invest in relevant skills for greater<br/>response to labor markets</li> <li>Reduce the digital divide, and train<br/>students and teachers in effective<br/>use of technology</li> </ul> |
| Strengthen<br>Policies,<br>Institutions, and<br>Investments for<br>Rebuilding<br>Better | Create fiscal space to invest in<br>public health and social safety nets<br>to protect poor and vulnerable   | <ul> <li>Strengthen revenue mobilization</li> <li>Improve public financial management</li> <li>Strengthen infrastructure</li> <li>Timelier data and feedback to link<br/>learning with instruction and inputs</li> <li>Coordinate better between<br/>sub-sectors to facilitate uninterrupted<br/>student flow and completion</li> </ul> | <ul> <li>Increase investments in human<br/>capital, ensuring inclusion of youth</li> <li>Deliver rapid training of health care<br/>professionals</li> <li>Adopt blended learning approaches<br/>combining remote technology and<br/>classroom instruction</li> </ul>  |

Figure 4.1: Relief, restructuring, and resilient recovery

Source: World Bank (2020c)

GeneXpert for COVID19 testing in remote areas; and (iv) modifying the COVID-19 Preparedness and Response Plan to include explicit measures to protect essential health and nutrition services and target the most vulnerable groups.

- Mitigate disruptions in essential health and nutrition services. Rwanda has managed to avoid dramatic disruptions; at the same time, the country has experienced some supply- and demand-related disruptions in key services, such as immunizations and institutional deliveries. It is critical to ensure primary health services are able to both tackle outbreaks and deliver essential services during outbreaks.
- Strengthen health services, income support and monitoring. Key recommendations for health services include steps to minimize the risk of infection in health facilities, increased access to health appointments and medications, an expansion of the use of mobile phone messaging and telemedicine consultations, and improvements to community health care platforms. Support to vulnerable households should be increased by scaling up the VUP, reducing the risk of food insecurity through targeted food distribution and ensuring the safe operation of the food supply chain and food markets, and expanding access to emergency cash transfers. Efforts to improve the monitoring of health and nutrition services should focus on the use of digital tools, collection of data on the nutritional status of children and women, and increasing the completeness and timeliness of health data reporting at public and faith-based health facilities (see Annex III for details).
- Accelerate deployment of COVID-19 vaccine. The availability and equitable deployment of a safe and effective vaccine is the single most important measure for saving lives and for fully re-opening the economy. A strong public health response will be critical to achieving the

national vaccination targets. Primary health care facilities need to be strengthened to ensure they are able to screen the broader population for co-morbidities (e.g., cardiovascular, diabetes, cancers) that place individuals at greater risk of COVID-19. Once diagnosed, these individuals will be prioritized for the COVID-19 vaccination program. The main priorities are to: (i) develop clear criteria and a prioritized list of individuals for the COVID-19 vaccine; (ii) elaborate a roll out plan with different scenarios, as different vaccine(s) will have different cold chain requirements; and (iii) identify and pilot different strategies, such as couples testing at health facilities during antenatal care visits, and testing at NCD clinics or during national campaigns. In addition, there is need to strengthen COVID-19 vaccine financing, including budgeting and expenditure tracking.

Ensure optimal allocation for pandemic preparedness. Rwanda's JEE score highlighted gaps in the prevention, detection and rapid response to public health threats. The government recognizes the importance of improving health systems for future adverse events and has prepared a costed National Action Plan for Health Security, estimated at US\$61.5 million. The main priority at this stage is to ensure that the plan is fully funded and effectively implemented. To enhance prospects for sustainability, it is preferable to prioritize domestic financing. To this end, the government needs to consider several options: (i) explore feasibility of expanding the fiscal space (i.e. through efficiency gains in taxation and/or earmarked taxes); (ii) engage private sector firms through their corporate social responsibility spending on pandemic preparedness; and (iii) incorporate metrics of country readiness to deal with pandemics in national plans to attract foreign investors, making Rwanda an even more attractive destination for investors.

### 4.3. Protect the poor and most vulnerable

The two key goals are to strengthen social protection programs and to recover the learning losses experienced by disadvantaged children.

#### 4.3.1. Strengthen social protection

Key priorities for social protection programs include:

- Continue to invest in improving the design of social safety nets and social insurance to make them more adaptive. Countries that enter a crisis with good social protection programs and systems are better prepared to mount a quick and effective response to the crisis. For instance, Abay et al (2020) find that, in Ethiopia, recipients of the Productive Safety Net Program (PSNP) were protected from virtually all the increase in food insecurity due to COVID-19<sup>46</sup>. Moreover, being prepared ex ante reduces the cost of emergency response. Finally, it would be important for Rwanda to set up an emergency fund so that it has the fiscal resources to respond when a crisis hits (see more on adaptive safety nets below).
- Invest in building an evidence base and improve monitoring and evaluation of the effects of social protection programs. In order to improve the design of the social protection system, it would be important to understand which social protection programs are more effective in achieving stated objectives whether poverty reduction or graduation. For instance, the simulations in this report suggest that the human capital focused programs, such as NSDS and ePW, were effective in decreasing poverty both pre-pandemic as well as in the 6 months following imposition of the lockdown. It would be important to measure such effects through well designed surveys, as well as through in-depth understanding of the impacts of these programs on the beneficiary family.

- Increase the coverage of the VUP program to continue to combat the negative effects of COVID-19, both in the short and long term. There has been a large increase in the number of poor households due to the pandemic. These households will continue to need support in the short and medium term. While the emergency response to COVID-19 already expands VUP coverage, it is clear that further expansion would be important, given the predicted long-term impacts on human capital.
- Improve overall targeting accuracy, so that the poor are more effectively reached, within the limited fiscal envelope. The government is working to improve the targeting of the VUP. The program currently uses community-based targeting (called Ubudehe). The government is building a more objective targeting system, which will be based on a household welfare scorecard (HWS). Of the households in Ubudehe category 1, who theoretically are eligible to receive benefits under the VUP and other social programs, only 46 percent are poor (Figure 4.2). By contrast, the share of poor identified by the HWS is 73 percent. A social registry is being setup to support this improvement in dynamic targeting of the poor and vulnerable.



### Figure 4.2: Share of poor identified—Ubudehe vs. household welfare scorecard

Source: World Bank Staff analysis based on EICV 5 data

PSNP households were also less likely to reduce expenditures on health and education compared to non-PSNP households.

- Monitor the performance of the Ejo Heza scheme, improve design and increase efforts to expand coverage. Given the size of those employed informally, and the effects of the pandemic on this segment of the population, it would be important to continue to invest in expanding social insurance.
- Adaptive social protection systems can reduce the cost of responding to shocks. The largest shocks affecting rural households (notwithstanding the pandemic) are climate related. Understanding the nature, frequency and geographical location of floods, droughts, and other climate events, can help the government build scalable safety nets. The objectives of scalable safety nets are to (i) be prepared before occurrence of the shock; (ii) respond immediately, so that detrimental effects are minimized; (iii) scale-up social safety net payments to households affected by the shock, on a temporary basis; and (iv) mitigate where possible. In addition to the social registry, which contains information to enable quick response to shocks, the government will also need to choose the right financing mechanism to support the scaling up.
- Promote the use of cashless modes of payment and support the poorest to realize the benefits.
   While the use of mobile money has increased substantially in Rwanda over the last few years, access lags behind in rural areas and among the poorest households. As the government improves digital services, it would be important to ensure that extra efforts are made to include rural areas and those in the poorer segments of the population.

### 4.3.2. Return all children to school safely and recover learning losses

### Key priorities for education programs could aim to:

• Protect student and teacher health and safety as they return to school. This includes adoption and stringent application of infection preventive protocols and ensuring that all schools are equipped with adequate hygiene and sanitation facilities. For effective operationalization of the National School Reopening Plan and the Sector COVID19 Response Strategy, sustained efforts must be made to train school personnel to ensure compliance to necessary standards. Effective communication and social messaging strategies could mobilize students and teachers to influence health-seeking practices in households and communities thereby strengthening possibilities of reduced transmission and uninterrupted return to school.

- Track and support reenrollment to ensure **nobody is left behind.** This is also an opportunity to target those vulnerable school-age children who were already out of school before the pandemic. The ongoing staggered reopening of schools has proven to be a complex process and will continue to face risks of possible cycles of reclosing during flareups. Active investments back-to-school toward campaigns or reenrollment drives currently supported under the Quality Basic Project must be sustained to minimize student dropout and out-ofschool population. Targeted interventions for girls, children with disability, and low-income families, in the form of scholarships, additional subsidies for school feeding, and support with scholastic materials, would be critical to offset the opportunity cost to education for this vulnerable group of students. A stronger focus on teacher retention would now be more critical than ever to preserve and improve student to qualified teacher ratio.
- Recover learning losses to prevent permanent impacts on the opportunities of children and youth. This will require a combination of measures targeted at reversing learning losses such as – improved classroom assessment, focused remedial instruction and curriculum, and blended use of in-class teaching and

technology for remote learning. Given the recent policy and institutional reforms (Presidential Order No. 064/01 of March 16, 2020) in teacher management system that prioritizes performance and capacity development, the sector is well equipped to institute relevant changes to the role and qualifications of teachers, principals, and local education officers to respond to the emerging needs of Rwandan students. These efforts will need clear system-level guidance and materials such as practical trainings for teachers and other school personnel, scripted lesson plans to enable teaching at the right level, and formative classroom assessments with stronger linkage to global competency standards. All these efforts must be aimed towards targeted learning outcomes in reading, writing, numeracy at foundational levels, and towards market relevant skills and positive social outcomes at higher levels of education.

Build back education systems more equitable and resilient than before. Effective use of technology in remote learning systems, in earlywarning systems to prevent dropout, and in making learning more engaging and retainable could bring in transformational changes in the sector. Equity gaps are now more evident and provide better understanding of the impact of digital divide. Targeted efforts being led by the Government with partner support to bridge differences in digital skills of teachers and access to hardware, connectivity, relevant content, and learning management platforms are critical to a forward-looking system strengthening strategy. However, all these require additional resources, especially at a time when families will be less able to support education at home and demands on public provision might increase. Finally, during this crisis, home learning environment of students has proven to be a key driving factor in ensuring continuity of learning. Strategic and systemic investments towards parent education and community engagement for both medium- and long-term sector development and performance could be emphasized with renewed focus on the Adult Literacy Policy and the in the ongoing revisions to the National Education Policy.

### 4.4. Strengthen Policies, Institutions, and Investments for Rebuilding Better

While the short-term priority should be on fiscal expansion to contain the pandemic and mitigate its economic-socio impacts, the country should maintain the focus on achieving fiscal consolidation over the medium-term. The government needs greater fiscal flexibility in the short term to protect the most vulnerable and preserve hard earned gains of the last decades on social priorities and human capital development. In the medium term, the country should aim at achieving fiscal consolidation to create fiscal space needed for greater investment in human capital to transition from the public investment-led growth model to a new TFP/human capital-led growth strategy that puts the country on a higher and more inclusive growth path. The expansionary public investments policy of recent years has been made possible in part thanks to consolidation of recurrent spending. Therefore, the key reform priority should be on prudent design of the public investment program, in terms of both total size and optimal sector allocation of projects, while improving control of expenditures to increase efficiency. The Government ambition to adopt a medium-term public investment program based on review and optimization of the existing pipeline for improved project mix, agreed in the World Bank Human Capital DPO, should provide an appropriate platform. The ongoing Public Expenditures Review with special focus on human capital (education, health, social protection) in collaboration with the World Bank and the upcoming Public Investment Management

Assessment (PIMA) in collaboration with the IMF would be critical to operationalize the medium-term planning program.

Strengthening revenue mobilization reforms is critical for fiscal sustainability. Tax measures undertaken to mitigate the economic impact of the crisis should be walked back to normal requirements as conditions allow. The government should continue with the development of a medium-term revenue strategy (including a VAT gap analysis), an assessment of tax expenditures, and an overall diagnostic of the policy and legislative framework, as agreed in the IMF's three-year Policy Coordination Instrument approved in June 2019.

Improving public financial management is key to improve the use of limited public resources. Although Rwanda's public financial management is generally considered strong, there are areas for improvement. The government's efforts to implement transparent and credible financial management practices will be needed, notably in undertaking more fiscal risk analysis and management and publishing more fiscal reports, as well as strengthening the oversight and management of SOEs and PPPs.

Strengthening infrastructure will be essential to achieve a sustained improvement in human capital. For example, a reliable supply of electricity and greater access to high speed internet would not only increase the efficiency of remote learning but also reduce inequalities in access to better education tools. More broadly, increasing access to, and use of, broadband internet will be critical to accelerate the structural transition to a more productive, modern economy.

Improving education systems with greater capacity, sub-sector coordination, and linkage to outcomes in learning and employability is necessary for rebuilding and resource optimization. The crisis sheds light on key areas of reforms in sector policy and institutions that could help build back better. Firstly, efforts will be needed to link clear mandates and accountability structures with learning outcomes and other key impact indicators. For this timelier data with effective feedback loop that links learning to instructional practice and material resources is necessary. Secondly, greater alignment across subsectors is paramount to efficiency and effectiveness in resource coordination and deployment. For example, by strengthening curricular alignment across grades, and ensuring that the guality of teaching remains consistently good across preprimary, primary, secondary, and tertiary, the sector could achieve greater completion rates and maximize returns to investment at any sub-sector level. The planned institutional reforms agreed in the World Bank Human Capital DPO (including the approval of the revised Education Law in December 2020) should relieve the sector of some longstanding issues constraining and delaying student flow in basic education. Thirdly, government capacity could benefit from greater investments in building future cadre of education leaders through quality higher education, meritocratic selection and promotion, and incentives to attract and retain talented human resource. Finally, better linkage to economic priorities and private sector needs, as being prioritized under the Priority Skills for Growth Project, will be critical in reducing anticipated productivity losses in the medium and long term.

### REFERENCES

- Abay, K., Berhane, G., Hoddinott, J., and Tafere, K. 2020. COVID-19 and Food Security in Ethiopia: Do Social Protection Programs Protect? Available at SSRN: http://dx.doi.org/10.2139/ssrn.3728836
- Access to Finance Rwanda. 2016. FinScope Financial Inclusion Rwanda. Kigali: Access to Finance Rwanda.

- Bajgain, K.T., et. al. 2020, Prevalence of co-morbidities among individuals with COVID-19: A rapid review of current literature, American Journal of Infection Control.
- Carboni, I.; Bester, H. 2020. "When digital payment goes viral: lessons from COVID-19's impact on mobile money in Rwanda," cenfri, May 19.
- Carvalho, S., & Hares, S. (2020. Six Ways COVID-19 Will Shape the Future of Education. Retrieved from https://www.cgdev.org/blog/sixways-covid-19-will-shape-future-education
- Cygan-Rehm, K. 2018. Is Additional Schooling Worthless? Revising the Zero Returns to Compulsory Schooling in Germany. CESifo, Munich.
- Dieppe, A., 2020. Global Productivity : Trends, Drivers, and Policies. Washington, DC: World Bank. https://openknowledge.worldbank. org/handle/10986/34015 License: CC BY 3.0 IGO.
- Flaxman, S., et. al. 2020. Estimating the effects of non-; pharmaceutical interventions on COVID-19 in Europe, Nature.
- Global Financing Facility. 2020a. New findings confirm global disruptions in essential health services for women and children from COVID-19, Global Financing Facility, September 18, 2020
- ———. 2020b. Preserving Essential health Services During the COVID-19 Pandemic: Rwanda.
- Government of Rwanda. 2020. Economic Recovery Plan May 2020 December 2021. A coordinated response to mitigate the economic impact of COVID-19. Kigali
- Hampf, F. 2019. The Effect of Compulsory Schooling on Skills: Evidence from a Reform in Germany. Institute for Economic Research, Munich.
- Hanushek, E. A., & Woessmann, L. 2020. The Economic Impacts of Learning Losses. OECD. Retrieved from http://www.oecd.org/ education/The-economic-impacts-of-coronavirus-covid-19-learning-losses.pdf
- Headey, D. and M. Ruel. 2020. Economic Shocks and Child Wasting (June).
- Hoddinott J, Alderman H, Behrman JR, Haddad L, Horton S. *The Economic Rationale for Investing in Stunting Reduction*. Matern Child Nutr. 2013;9(suppl 2):69–82.
- Huber, C., Finelli, L. & Stevens, W. 2018. The Economic and Social Burden of the 2014 Ebola Outbreak in West Africa. The Journal of Infectious Diseases 2018;0000:S1–7. https://academic.oup.com/jid/advance-article/doi/10.1093/infdis/jiy213/5129071
- IMF. 2020a. "Rwanda Harnesses Technology to Fight COVID-19, Drive Recovery," IMF Country Focus, August.
- ------. 2020b. Policy Tracker (Last updated on November 20, 2020). IMF: Washington, DC.
- ———. 2020c. Rwanda: Request for Disbursement Under the Rapid Credit Facility-Press Release; Staff Report; and Statement by the Executive Director for Rwanda. IMF Country Report No. 20/207. Washington: IMF. https://www.imf.org/en/Publications/ CR/Issues/2020/06/18/Rwanda-Request-for-Disbursement-Under-the-Rapid-Credit-Facility-Press-Release-Staff-Report-49523
- International Labor Organization (2020). ILO Monitor: COVID-19 and the world of work. Second edition Updated estimates and analysis. 7 April 2020.
- International Working Group on Financing Preparedness. 2017. From Panic and Neglect to Investing in Health Security: Financing Pandemic Preparedness at a National Level. World Bank, Washington, DC.
- Jaume, D., & Wilén, A. 2019. The Long-Run Effects of Teacher Strikes: Evidence from Argentina. *Journal of Labour Economics*, 37(4), 1097–1139.
- Meyers, K., & Thomasson, M. A. 2017. Paralyzed by panic: measuring the effect of school closures during the 1916 polio pandemic on educational attainment. *National Bureau of Economic Research*. https://www.nber.org/system/files/working\_papers/ w23890/w23890.pdf
- MINECOFIN (Ministry of Finance and Economic Planning). 2020a. Economic Recovery Plan (May 2020 December 2021): A coordinated response to mitigate the economic impact of COVID-19. Kigali: Government of Rwanda.
- ———. 2020b. FY2019/20 Budget Execution Report. Kigali: Government of Rwanda.

<sup>------. 2020.</sup> FinScope Financial Inclusion Rwanda. Kigali: Access to Finance Rwanda.

- Ndiaye, F. 2020. *The socio-economic impact of COVID-19 in Rwanda*. Retrieved from https://www.undp.org/content/dam/rba/docs/ COVID-19-CO-Response/UNDP-rba-COVID-assessment-Rwanda.pdf
- NISR (National Institute of Statistics of Rwanda) and Ministry of Health (MOH). 2012. Rwanda demographic and health survey 2010 final report. https://dhsprogram.com/pubs/pdf/FR259/FR259.pdf
- ------. 2015. Rwanda Demographic and Health Survey 2014-15. https://www.dhsprogram.com/pubs/pdf/SR229/SR229.pdf
- ———. 2009. Rwanda interim demographic and health survey 2007-08. https://dhsprogram.com/pubs/pdf/fr215/fr215.pdf
- NISR (National Institute of Statistics of Rwanda). 2020a. Labour Force Survey Trends-May 2020(Q2). Kigali: Government of Rwanda.
- ———. 2020b. Labour Force Survey Trends-February 2020(Q1). Kigali: Government of Rwanda.
- ------. 2020c. Labour Force Survey Trends-August 2020(Q3). Kigali: Government of Rwanda.
- Pennings, Steven. 2020. The Utilization-Adjusted Human Capital Index. Policy Research Working Paper; No. 9375. World Bank, Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/34487 License: CC BY 3.0 IGO.
- Rohwerder, B. 2020. Secondary impacts of major disease outbreaks in low- and middle-income countries. K4D Helpdesk Report 756. Brighton, UK: Institute of Development Studies.
- Sabates, R., & Carter, E. 2020. Estimating learning loss by looking at time away from school during grade transition in Ghana. UKFIET: The Education and Development Forum. https://www.uket.org/2020/estimating-learning-loss-by-looking-at-timeaway-from-school-during-gradetransition-in-ghana/
- Slade, T.S., Piper, B., Kaunda, Z., King, S. & Ibrahim, H. 2017. Is 'summer' reading loss universal? Using ongoing literacy assessment in Malawi to estimate the loss from grade-transition breaks. Research in Comparative and International Education, 12(4), 461-485
- Smith, W. C. 2020. Potential long-term consequences of school closures: Lessons from the 2013-2016 Ebola pandemic. *Research Square*. https://doi.org/10.21203/rs.3.rs-51400/v1
- Thomas, M. R., Smith, G., Ferreira, F. H. G.; Evans, D., Maliszewska, M., Cruz, M., Himelein, K., Over, M., 2015. The economic impact of Ebola on sub-Saharan Africa : updated estimates for 2015 (English). Washington, DC: World Bank Group. http:// documents.worldbank.org/curated/en/541991468001792719/The-economic-impact-of-Ebola-on-sub-Saharan-Africaupdated-estimates-for-2015
- UNDP. 2015. Socio-economic impact of Ebola Virus Disease in West African Countries. United Nations Development Group: Western and Central Africa.
- UNESCO. 2020. Global monitoring of school closures caused by COVID-19. UNESCO. https://en.unesco.org/covid19/ educationresponse.
- Van der Mensbrugghe, D. (2017). Mitigation, Adaptation and New Technologies Applied General Equilibrium (MANAGE) Model Version 2.0f, Center for Global Trade Analysis, Purdue University.
- WHO (World Health Organization). 2020. Weekly Operational Update on COVID-19 (November 30). https://www.who.int/ publications/m/item/weekly-epidemiological-update---30-november-2020
- Willis, G. 2015. The Effects of Teacher Strike Activity on Student Learning in South African Primary Schools. Economic Research Southern Africa. https://econrsa.org/system/files/publications/working\_papers/working\_paper\_402.pdf
- World Bank and Government of Rwanda. 2020. Future Drivers of Growth in Rwanda: Innovation, Integration, Agglomeration, and Competition. Washington, DC: World Bank
- World Bank Group. 2020. Commodity Markets Outlook, April. World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO.
- World Bank. 2020a. The Human Capital Index 2020 Update: Human Capital in the Time of COVID-19. World Bank, Washington, DC. World Bank. https://openknowledge.worldbank.org/handle/10986/34432 License: CC BY 3.0 IGO."
- ———. 2020b. Covid-10 Emergency Response: Cash Transfers in Rwanda, Technical Note, April 23.
- ———. 2020c. Uganda Economic Update, 14<sup>th</sup> Edition, February 2020: Strengthening Social Protection to Reduce Vulnerability and Promote Inclusive Growth. World Bank, Washington, DC. World Bank. https://openknowledge.worldbank.org/ handle/10986/33323 License: CC BY 3.0 IGO
- ———. 2020d. Assessing the impact and policy responses in support of private-sector firms in the context of the COVID-19 pandemic. COVID-19 Notes Finance Series. March 26.
- ———. 2021. Global Economic Prospects, January 2021. Washington, DC: World Bank. World Bank. https://openknowledge.worldbank. org/handle/10986/34710 License: CC BY 3.0 IGO.
- Zeufack, AG., Calderon, C; Kambou, G; Kubota, M; Cantu Canales, C; Korman, V. 2020. Africa's Pulse, No. 22, October 2020: An Analysis of Issues Shaping Africa's Economic Future. World Bank, Washington, DC. World Bank. https://openknowledge. worldbank.org/handle/10986/34587 License: CC BY 3.0 IGO.

# ANNEXES

### **ANNEX I: LABOR MARKETS**

### Recent labor market trends

**Employment fell sharply in Rwanda through the lockdown period.** Between February and May 2020, aggregate employment fell by nearly 370,000, equivalent to a 10 percent fall in employment. The employment to population ratio decreased from 48.3 to 43 percent (Figure A1.1), with larger decreases among female workers (6.2 percentage points, vs 4 percentage points among male workers) and workers in urban areas (nearly 10 percentage points, vs 4 percentage points in rural areas). Not surprisingly, unemployment soared over this same period from 13 to 22 percent.

The loss of employment between February and May 2020 was distributed unequally across sectors (Figure A1.2). Among the largest sectors of the economy, employment fell in the agriculture, manufacturing, transport and storage, and accommodation and food service activities, but increased in construction and wholesale and retail trade sectors following the resumption of activities and movement. In relative terms, employment decreased the most in the mining, accommodation and food services, professional, scientific and technical activities, and arts and entertainment sectors, declining by 30 to 70 percent. Those without formal education and those with university education experienced large decreases in employment (-25 percent and -17 percent respectively), while employment rates remained more or less steady or increased for all other workers.





Source: Rwanda Labor Force Survey, various issues.









Source: Rwanda Labor Force Survey, various issues.

#### Figure A1.3: Employment by Educational Attainment: Rwanda 2020





Figure A1.4: Change in Salary: Before and After the Lockdown (In percent of total)



The majority of those who kept their jobs through the lockdown reported lower earnings (Figure A1.4). On average, nearly 60 percent of workers reported receiving lower salaries during the lockdown. Among the largest sectors in Rwanda, such as the agriculture, manufacturing and education sectors, the overwhelming majority reported lower salaries. Even where employment increased – such as in the construction, wholesale and retail trade sectors—60 to 80 percent of workers reported receiving lower salaries.

Employment recovered between May and August 2020, though unemployment rate remains above pre-lockdown levels. On average, employment rates are back to their pre-lockdown levels, in both rural and urban areas (Figure A1.1). Employment rates in manufacturing, transport, accommodation have also recovered or have exceeded their pre-lockdown rates, while employment rates in construction, wholesale and retail trade have continued to rise (Figure A1.2). However, the employment rate in the agriculture sector-which employs a third of workers in Rwanda—continues to drop. In addition, the female employment rate and the employment rate among those with no formal education are still below prelockdown levels. And while unemployment rates have fallen from their May 2020 high, they are Source: Rwanda Labor Force Survey, May 2020

still above pre-lockdown levels. This is in part due to labor force participation rising from 55 to 58 percent– i.e., more people have entered the labor force to look for jobs.

#### The impact of the crisis on female employment

Women have been hit hard by the labor market impact of the pandemic. As reported above, female employment and unemployment rates are not yet back to their pre-lockdown levels. In addition, while the male labor force participation rate increased between February and May, the female labor force participation rate fell by a percentage point, suggesting that the rate of joblessness among women is higher, considering both the rise in unemployment and the movement out of the labor force.

Gender differences in the labor market impact of the pandemic reflect, in part, gender differences in the structure of employment and the gender division of household responsibilities. Two things might help explain why the labor market impact has been larger among women. First, just before the lockdown (February 2020), 52 percent of female workers but only 37 percent of male workers were employed in the agriculture sector, which has not seen a recovery of employment levels (Figure A1.5).

Source: Rwanda Labor Force Survey, various issues.





Source: Rwanda Labor Force Survey, May 2020

Figure A1.6. Reasons for Unemployment by Gender: Rwanda May 2020 (In percent)



Source: Rwanda Labor Force Survey, May 2020

In addition, men were more likely to be employed in construction (12 percent versus 4 percent), a sector where employment has continued to grow through the lockdown, though women were more likely to be employed in wholesale and retail trade, where employment also has expanded through the lockdown. Second, when asked for reasons for their unemployment in May of this year, women were more likely to report that they were seasonal workers (44 percent versus 31 percent) and were more likely to be taking care of a sick relative (4 percent versus 1 percent). Even when employed, women earn less than men on average. On average, women's monthly earnings are about 68 percent of men's monthly earnings. These are raw averages and do not control for years of experience, occupation, sectors of employment, and other characteristics typically controlled for when comparing conditional averages. The gender wage gap rises with age (Figure A1.7, left panel) and rises and then falls with educational attainment (Figure A1.7, right panel). The gender wage gap is narrower in urban areas. In fact, among urban workers with upper secondary education, the women earn more than men, on average.





Source: Rwanda Labor Force Survey, May 2020

### **ANNEX II: CGE ANALYSIS**

#### The CGE model of Rwanda- methodology and data

The Rwanda CGE model is a single country recursive dynamic model. It is an adapted version of the World Bank Mitigation, Adaptation and New Technologies Applied General Equilibrium (MANAGE) model. In addition to the standard features of a single country CGE model, the MANAGE model includes a detailed energy specification that allows for capital/labor/ energy substitution in production, intra-fuel energy substitution across all demand agents, and a multioutput, multi-input production structure. The specificities of the MANAGE model are described in detail in Van der Mensbrugghe (2017).

The MANAGE model for Rwanda was extended for the analysis of the economic effects of the CIVID-19 crisis. The model is calibrated to the social accounting matrix (SAM) for the year 2017 (IFPRI, 2020). The SAM includes transaction flows for 47 sectors, 78 commodities, and 3 types of factors of production: labor, land, and capital. There are 8 labor categories distinguished by education level and rural-urban divide: the uneducated, and those with primary, secondary or tertiary education allowing the distinction between the unskilled and semiskilled/skilled labor. Production is modelled using a nested CES structure. Labor supply is a function of real wages for each category of labor, and we assume partially flexible wages and labor supply. There are 15 household categories distinguished by income/consumption decile for the urban, rural farm and rural non-farm. Other institutions include enterprises, the government, and the rest of the world. There are several tax/subsidy accounts, including import tariffs, indirect taxes as well as direct income taxes. Investment is distinguished between public and private. The model is run for 14 periods, from 2017 to 2030.

Macro fiscal closures are such that the government budget balance closure determines government savings. We adapt an endogenous budget balance and fixed tax rates. Government consumption and investment are fixed in real terms and calibrated in the baseline to reflect past performance. Any surplus is used to pay off debt, and any deficit is funded by debt. The level of investment in the economy is determined through a savings-driven closure with exogenous propensity to save for households and firms. Regarding the external sector, we assume exogenous foreign savings in foreign currency calibrated to match historical data and projections. The nominal exchange rate is fixed. The real exchange rate adjusts to maintain the current account balance.

### Key assumptions

# A. International Channels. The following assumptions are made:

*Trade*. The global pandemic has affected trade flows of goods and services affecting Rwandan exports and imports. Imports and exports decline according to Formal External Trade in Goods Statistics report (Quarter 2, 2020). The changes are corrected for the change in trade between Quarter 2 of 2019 and 2018.

*Foreign direct investment.* FDI declines because of increased uncertainty about the future and interruptions to international travel and communication. Further, many foreign investments rely on expatriates from advanced countries, and these people are likely to be less willing to travel at all, or to travel to areas with weaker health systems. A 6.1 percent reduction is implemented based on Rwanda Quarterly International Investment Position – IIP.
*Remittances*. The slowdown of economic activity in the host countries where Rwandan migrants work affects remittance flows. A decline of 10 percent has been observed between the first and second quarter of 2020. Estimation using the Bank macro model MFMOD indicate a 22 percent reduction in 2020.

## B. Domestic Channels

In addition to the international transmission mechanisms, the scenario reflects domestic responses by governments to prevent infection from spreading and to cushion the impact of the outbreak on the economy. It also captures "avoidance behavior," as fear of the disease causes behavioral changes in the main economic actors. Following the World Bank reports on the Ebola outbreak in Western Africa (World Bank, 2015) and the Democratic Republic of Congo (World Bank, 2019), this study assumes that these behavioral changes impair the efficiency of markets, which slows economic activities and has medium- and long-term effects. The main implications of avoidance in economic interactions are limitations on access to markets and increased risk and uncertainty. The domestic channels through which economies would be affected by avoidance behavior are as follows:

Labor market participation effect. Fear, controls, and restrictions on the movements of workers are likely to reduce household labor supply, at least for the households that can afford to stop working. Ultimately, labor force participation would decline. The size of the shock for Rwanda corresponds to the level of change estimated by the International Labor Organization (ILO 2020), which corresponds to a loss of 4.9 percent working days.

*Capital utilization.* Avoidance of workplaces by workers will inevitably cause capital, such as machinery and so forth, to be left idle for longer periods of time, which will result in lower capital utilization. Further, increased uncertainty would cause some investments to be postponed or canceled. This effect is captured by decreasing the productivity of capital based on the Africa Pulse report World Bank (2020). A 2.77 percent reduction is implemented.

*Labor productivity effect.* This effect captures the loss in labor productivity due to the restrictions on the mobility of people. Estimates are based on Dieppe (2020) and assume a 1.9 percent reduction.

*Trade*. It is assumed that trade transaction costs increase for goods and services because of border closures, delays due to slowdown in logistics, quarantines, movement restrictions, and supply chain disruptions. Transaction costs are modeled as the traditional "iceberg effect," where transport is treated as an exogenous friction that is fixed and proportional to the value shipped, with the value added by transportation services treated as pure waste. A 5 percent increase is implemented.

### SAM accounts

# ACTIVITIES (A) & COMMODITIES (C)

- Maize
- Sorghum and millet
- Rice
- Wheat and barley
- Other cereals
- Pulses
- Groundnuts
- Other oilseeds
- Cassava
- Irish potatoes
- Sweet potatoes
- Other roots
- Leafy vegetables
- Other vegetables
- Sugarcane
- •Tobacco
- Cotton and fibres
- Nuts
- Bananas and plantains
- Other fruits
- Leaf tea
- Coffee
- Cocoa
- Cut flowers
- Rubber
- Other crops
- Cattle
- Raw milk
- Poultry
- Eggs
- Small ruminants
- Other livestock
- Forestry
- Aquaculture
- Capture fisheries
- Coal and lignite
- Crude oil
- Natural gas
- Other mining
- Meat processing
- Fish and seafood processing
- Dairy

- Fruit and vegetable processing
- Fats and oils
- Maize milling
- Sorghum and millet milling
- Rice milling
- Wheat and barley milling
- Other grain milling
- Sugar refining
- Coffee processing
- Tea processing
- Other foods
- Animal feed
- Beverages
- Tobacco processing
- Cotton yarn
- Textiles
- Clothing
- Leather and footwear
- Wood products
- Paper products and publishing
- Petroleum products
- Fertilizers and herbicides
- Other chemicals
- Non-metal minerals
- Metals and metal products
- Machinery and other equipment
- Electrical equipment
- Vehicles and transport equipment
- Other manufacturing
- Electricity, gas and steam
- Water supply and sewage
- Construction
- Wholesale and retail trade
- Transportation and storage
- Accommodation
- Restaurants and food services
- Information and communication
- Finance and insurance
- Real estate activities
- Business services
- Public administration
- Education
- Health and social work
- Other services

#### FACTORS

- Labor rural uneducated
- Labor rural primary
- Labor rural secondary
- Labor rural tertiary
- Labor urban uneducated
- Labor urban primary
- Labor urban secondary
- Labor urban tertiary
- Land agricultural crops
- Capital crops

Capital - livestock

• Capital - mining

• Capital - other

HOUSEHOLDS

Rural farm - guintile 1

• Rural farm - guintile 2

• Rural farm - guintile 3

• Rural farm - quintile 4

• Rural farm - guintile 5

• Rural nonfarm - quintile 1

• Rural nonfarm - quintile 2

• Rural nonfarm - quintile 3

• Rural nonfarm - guintile 4

• Rural nonfarm - quintile 5

• Urban - guintile 1

• Urban - quintile 2

• Urban - quintile 3

• Urban - guintile 4

• Urban - guintile 5

Transaction costs

Other accounts

Enterprises

Government

Taxes - activity

Taxes - direct

Taxes - export

Taxes - factor

Taxes - import

Savings-investment

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Change in stocks

Taxes - sales

Rest of world

#### The impact of COVID-19 on domestic trade costs

### Abstract

We estimate the changes in domestic trade costs associated with the COVID-19 shock in Rwanda. We do so leveraging consumer price surveys collected by MINAGRI and by World Bank's DIME in partnership with RTDA and RFRDP (P126498). Our results suggest domestic trade costs for food were not meaningfully affected, but domestic trade costs for livestock may have risen, suggesting policies to reduce the impact of lockdowns on domestic agricultural trade were effective.

#### Data

This analysis relies on two data sources: the eSoko commodity price survey (eSoko) and the Rural Feeder Roads Development Project Market Survey (RFRDP MS). Each of these surveys collects prices on a series of commodities across markets nationally at high frequency, and we leverage data from both surveys from July 2017 to May 2020.<sup>49</sup> A detailed comparison of these two data sources is made in the attached document "Market Price Data: Comparison to eSoko", but some basic details are listed below.

The eSoko data is collected on a bi-weekly basis from 62 markets across all 30 districts of Rwanda, with a focus on large and strategic markets. eSoko collects price data on 48 agricultural products, 6 livestock products, and charcoal.

The RFRDP MS data is collected on a monthly basis from 130 markets across 21 rural districts of Rwanda, with a focus on rural markets at the base of rural feeder roads targeted for rehabilitation. RFRDP MS collects price data on 21 agricultural products, 8 livestock products, and 35 other products.

#### Outcomes

log prices are observed at the product-by-month-bymarket level. In addition, we construct log price gaps at the product-by-month level. We construct log price gaps between markets in Kigali and markets in rural districts, and between border markets and non-border markets outside Kigali.<sup>50</sup> These are constructed as the absolute deviation between the average log price in Kigali (border markets) and the average log price outside Kigali (non-border markets outside Kigali) for border price gaps and Kigali price gaps, respectively.

#### Results

First, we present estimates of Equation 1 in Table 1. Livestock prices are 6% lower in RFRDP MS post-COVID, but we do not find significant changes in prices in eSoko. We note that this difference may reflect either lack of robustness of the result or differences in the set of products covered by each survey.

Second, we present estimates of Equation 2 in Table 2. We find relative food prices in border markets were 4% lower in eSoko post-COVID, but we do not find significant changes in relative prices in RFRDP MS. We note that this difference may reflect either lack of robustness of the result or differences in the set of products covered by each survey. We also note that this result could be consistent with increased trade costs associated with moving agricultural production from border markets to Kigali, increase trade costs associated with cross-border trade, or decreased demand for agricultural production from border markets.

Third, we present estimates of Equation 3 in Table 3. We find price gaps for livestock between border markets and non-border markets in rural districts were 5-6% higher in both eSoko and RFRDP MS post-COVID. However, we find no change in price gaps for food or for the full set of commodities. We propose two potential explanations of this result. First, it is possible that domestic trade costs were

<sup>&</sup>lt;sup>49</sup> There was a pause in eSoko data collection from July 2018 through April 2019.

<sup>&</sup>lt;sup>50</sup> We define border markets as markets located in a Cell within 10km of the Rwanda border.

unaffected for food post-COVID (an explicit objective of post-COVID policy), increased for livestock, and were not meaningfully affected for higher value per ton products. Second, it is possible that domestic trade costs were unaffected post-COVID, but the contraction in demand for livestock products post-COVID driven by the closure of restaurants had particularly large effects on prices in border markets.

#### Interpretation

Overall, we find limited evidence of large changes in domestic trade costs post-COVID. Our results are consistent with an increase in domestic trade costs for livestock (a 6pp increase in trade costs as a share of traded value is one plausible interpretation of this result) and no changes in domestic trade costs for food. However, they are also potentially consistent with no changes in domestic trade costs, but strong domestic demand and/or supply shocks.

|                              | log price |           |         |         |           |         |
|------------------------------|-----------|-----------|---------|---------|-----------|---------|
|                              | (1)       | (2)       | (3)     | (4)     | (5)       | (6)     |
| post-COVID                   | 0.020     | 0.013     | 0.015   | -0.062  | -0.075    | -0.002  |
|                              | (0.011)   | (0.021)   | (0.011) | (0.038) | (0.026)   | (0.051) |
|                              | [0.084]   | [0.585]   | [0.157] | [0.118] | [0.022]   | [0.965] |
| Product-by-year FE           | Х         | Х         | Х       | Х       | Х         | Х       |
| Product-by-calendar month FE | Х         | Х         | Х       | Х       | Х         | Х       |
| Dataset                      | eSoko     | eSoko     | eSoko   | RFRDP   | RFRDP     | RFRDP   |
| Product                      | Food      | Livestock | All     | Food    | Livestock | All     |
| Number of markets            | 55        | 55        | 55      | 128     | 128       | 128     |
| # of observations            | 46,578    | 5,164     | 52,724  | 76,494  | 21,906    | 220,809 |
| # of clusters                | 48        | 6         | 55      | 21      | 8         | 64      |

#### Table A2.1: COVID Trade

Notes: Regression analysis is presented in this table. log price is observed at the product-month-market level. Each row presents coefficients, with robust standard errors clustered at the product level in parentheses, and p-values in brackets. "post-COVID" is an indicator for March 2020 or later, and data used for this analysis runs through May 2020.

| Table A2.2: COVID Trade      |         |           |         |         |           |         |
|------------------------------|---------|-----------|---------|---------|-----------|---------|
|                              |         |           | log p   | orice   |           |         |
|                              | (1)     | (2)       | (3)     | (4)     | (5)       | (6)     |
| post-COVID                   | 0.030   | 0.012     | 0.026   | -0.062  | -0.083    | -0.003  |
|                              | (0.013) | (0.030)   | (0.012) | (0.039) | (0.030)   | (0.051) |
|                              | [0.027] | [0.694]   | [0.033] | [0.125] | [0.028]   | [0.947] |
| Border                       | 0.034   | 0.039     | 0.037   | 0.006   | 0.036     | 0.006   |
|                              | (0.010) | (0.042)   | (0.010) | (0.009) | (0.016)   | (0.007) |
|                              | [0.001] | [0.405]   | [0.000] | [0.559] | [0.057]   | [0.333] |
| Kigali                       | 0.265   | 0.170     | 0.257   |         |           |         |
|                              | (0.023) | (0.041)   | (0.021) |         |           |         |
|                              | [0.000] | [0.009]   | [0.000] |         |           |         |
| Border * post-COVID          | -0.039  | 0.003     | -0.044  | 0.000   | 0.025     | 0.003   |
|                              | (0.013) | (0.039)   | (0.015) | (0.015) | (0.020)   | (0.008) |
|                              | [0.004] | [0.936]   | [0.005] | [0.980] | [0.247]   | [0.694] |
| Kigali * post-COVID          | -0.024  | -0.032    | -0.021  |         |           |         |
|                              | (0.020) | (0.043)   | (0.018) |         |           |         |
|                              | [0.222] | [0.498]   | [0.260] |         |           |         |
| Product-by-year FE           | Х       | Х         | Х       | Х       | Х         | Х       |
| Product-by-calendar month FE | Х       | Х         | Х       | Х       | Х         | Х       |
| Dataset                      | eSoko   | eSoko     | eSoko   | RFRDP   | RFRDP     | RFRDP   |
| Product                      | Food    | Livestock | All     | Food    | Livestock | All     |
| # of markets                 | 55      | 55        | 55      | 128     | 128       | 128     |
| # of observations            | 46,578  | 5,164     | 52,724  | 76,494  | 21,906    | 220,809 |
| # of clusters                | 48      | 6         | 55      | 21      | 8         | 64      |

Notes: Regression analysis is presented in this table. log price is observed at the product-month-market level. Each row presents coefficients, with robust standard errors clustered at the product level in parentheses, and p-values in brackets. "post-COVID" is an indicator for March 2020 or later, and data used for this analysis runs through May 2020.

#### Table A2.3: COVID Trade

|                              | log price gap (Border) |           |         |         | log price gap (Kigali) |         |         |           |         |
|------------------------------|------------------------|-----------|---------|---------|------------------------|---------|---------|-----------|---------|
|                              | (1)                    | (2)       | (3)     | (4)     | (5)                    | (6)     | (7)     | (8)       | (9)     |
| post-COVID                   | 0.009                  | 0.052     | 0.014   | -0.012  | 0.062                  | 0.015   | 0.006   | -0.003    | 0.005   |
|                              | (0.021)                | (0.042)   | (0.018) | (0.016) | (0.022)                | (0.010) | (0.017) | (0.049)   | (0.016) |
|                              | [0.658]                | [0.268]   | [0.445] | [0.489] | [0.024]                | [0.137] | [0.733] | [0.955]   | [0.751] |
| Product-by-year FE           | Х                      | Х         | Х       | Х       | Х                      | Х       | Х       | Х         | Х       |
| Product-by-calendar month FE | Х                      | Х         | Х       | Х       | Х                      | Х       | Х       | Х         | Х       |
| Dataset                      | eSoko                  | eSoko     | eSoko   | RFRDP   | RFRDP                  | RFRDP   | eSoko   | eSoko     | eSoko   |
| Product                      | Food                   | Livestock | All     | Food    | Livestock              | All     | Food    | Livestock | All     |
| # of markets                 |                        |           |         |         |                        |         |         |           |         |
| # of observations            | 1,104                  | 138       | 1,265   | 693     | 263                    | 2,105   | 1,098   | 138       | 1,259   |
| # of clusters                | 48                     | 6         | 55      | 21      | 8                      | 64      | 48      | 6         | 55      |

Notes: Regression analysis is presented in this table. Log price gaps are calculated at the product-month level.

# **ANNEX III: HEALTH SECTOR ANALYSIS**

## Data on cases

#### i. Reported cases by district, June 21 to October 18, 2020

|    | District    | Province | Total | Share |
|----|-------------|----------|-------|-------|
| 1  | Kigali City | Kigali   | 3,130 | 59.8% |
| 2  | Rusizi      | West     | 611   | 11.7% |
| 3  | Kirehe      | East     | 263   | 5.0%  |
| 4  | Rubavu      | West     | 250   | 4.8%  |
| 5  | Nyamasheke  | West     | 156   | 3.0%  |
| 6  | Nyamagabe   | South    | 116   | 2.2%  |
| 7  | Muhanga     | South    | 106   | 2.0%  |
| 8  | Ngoma       | East     | 99    | 1.9%  |
| 9  | Nyagatare   | East     | 91    | 1.7%  |
| 10 | Rwamagana   | East     | 83    | 1.6%  |
| 11 | Musanze     | North    | 59    | 1.1%  |
| 12 | Nyabihu     | West     | 48    | 0.9%  |
| 13 | Bugesera    | East     | 43    | 0.8%  |
| 14 | Karongi     | West     | 30    | 0.6%  |
| 15 | Nyanza      | South    | 28    | 0.5%  |
| 16 | Gisagara    | South    | 27    | 0.5%  |
| 17 | Burera      | North    | 20    | 0.4%  |
| 18 | Gatsibo     | East     | 19    | 0.4%  |
| 19 | Huye        | South    | 16    | 0.3%  |
| 20 | Rulindo     | North    | 8     | 0.2%  |
| 21 | Kayonza     | East     | 8     | 0.2%  |
| 22 | Gicumbi     | North    | 8     | 0.2%  |
| 23 | Kamonyi     | South    | 5     | 0.1%  |
| 24 | Rutsiro     | West     | 2     | 0.0%  |
| 25 | Nyaruguru   | South    | 2     | 0.0%  |
| 26 | Ruhango     | South    | -     | 0.0%  |
| 27 | Gakenke     | North    | -     | 0.0%  |
| 28 | Ngororero   | West     | -     | 0.0%  |
| 29 | Unknown     |          | 4     | 0.1%  |
|    | GRAND TOTAL |          | 5,232 | 100%  |

#### Figures on cases by district



Daily cases in Kigali, June 21 to November 30, 2020

Daily Cases in Rusizi district, June 21 to November 30, 2020



#### Daily Cases in Rubavu district, June 21 to November 30, 2020



Daily Cases in Nyamasheke district, June 21 to November 2020



COVID-19 Cases in Kirehe District, June 21 to November 30, 2020



## National COVID-19 plan

# The National COVID-19 Preparedness and Response Plan has six key objectives:

- Facilitate coordination of preparedness and response efforts and strengthen inter and intrasectoral coordination, engagement and partner participation.
- Mobilize internal and external resources for an effective implementation of national preparedness for COVID-19 prevention and control based on potential identified risks.
- Enhance national capacities for prevention, promptly detection, and timely response to potential COVID-19 cases.

- Create and raise public awareness for engagement on COVID-19 preparedness and response activities.
- Improve logistics management for operational support.
- Ensure enforcement of safety and security measures to facilitate implementation.

# Development of the Rwanda COVID-19 plan was guided by five principles:

 The prevention and control of COVID-19 is an international public good and requires strong political and financial commitments at national, regional and international levels.

- In-country actions should build on existing institutions and their mandates wherever possible and draw on scientific evidence to refine the national plan and interventions.
- A multi-disciplinary approach is needed to integrate technical, social, political, policy and regulatory issues to address COVID-19.
- Prevention and control interventions should be supported to ensure that the health and security of Rwandan citizens and foreigners living in Rwanda are protected.
- Because the risk of COVID-19 will persist, there is a need to strengthen national disease prevention and emergency response capabilities.

In line with the World Health Organization (WHO) guideline the budget includes six key pillars.

|   | Pillar   | Budget US\$ | Share |
|---|--|-------------|-------|
| 1 | Coordination and Leadership                                      | 451,293     | 1%    |
| 2 | Epidemiological Surveillance                                     | 3,116,863   | 4%    |
| 3 | Laboratory   | 4,683,160   | 6%    |
| 4 | Infection prevention and<br>control (IPC) and Case<br>Management | 60,692,136  | 83%   |
| 5 | Risk Communication and<br>Community Engagement                   | 1,146,420   | 2%    |
| 6 | Operational Support and Logistics                                | 3,381,889   | 5%    |
|   | TOTAL  | 73,471,761  | 100%  |

Enhanced COVID-19 prevention measures imposed by the government on March 21 2020

 Unnecessary movements and visits outside the home are not permitted, except for essential services such as healthcare, food shopping, or banking, and for the personnel performing such services.

- Electronic payments and online banking services should be used whenever possible rather than visiting banks or ATMs.
- All employees (public and private) shall work from home, except for those providing essential services.
- Borders are closed, except for goods and cargo, as well as returning Rwandan citizens and legal residents, who will be subject to mandatory 14day quarantine at designated locations.
- Travel between different cities and districts of the country is not permitted, except for medical reasons or essential services. Transport of food and essential goods will continue to function.
- Shops and markets are closed, except those selling food, medicine (pharmacies), hygiene and cleaning products, fuel, and other essential items.
- Motos are not permitted to carry passengers but may offer delivery services. Other public transport within cities will only operate for essential movements, as above, and with at least one (1) meter distance between passengers.
- All bars are closed.
- Restaurants and cafes may only provide takeaway service.

#### Descriptive trends and expected changes in selective non-COVID-19 services

















# Calculating the impact of lower coverage of nutrition services

The Lives Saved Tool (LiST) was used to model how the intervention coverage changes affect stunting outcomes in 2020 and 2021. The effect of economic disruptions on increased wasting was estimated based on Heady and Ruel (2020). Country-specific regression coefficients are applied to projected changes in GDP growth, population projections, and baseline undernutrition estimates from LiST.

A human capital approach is used to estimate the future productivity losses due to additional cases of stunting and wasting-related child deaths. These estimates are based on the methodology employed in the Investment Framework for Nutrition (2018). Separate estimates are produced for the additional cases of stunting and additional mortality due to wasting. Excess burdens of child mortality and child stunting were estimated for each scenario using LiST for each year from 2020 to 2022. For mortality, annual estimates were aggregated to derive the total expected impact over the three years. In order to avoid overestimating the impact on stunting, only 20 percent<sup>1</sup> of the estimated number of additional stunting cases in 2020 were added to the total number of additional stunting cases in 2021.

Mortality outcomes were converted into lost productivity by estimating the expected earnings over adult working lives between 18 and 65 years of age. Excess cases of stunting were converted to expected earnings lost due to decreased cognitive development proposed by Hoddinott et al (2013), in which stunting was attributed with a 21 percent reduction in future earnings.

Projections of lost productivity accounted for GDP growth rate, the labor share of GDP, probability of death between age 5 and 19, and the percent of lifetime earnings that can be realized (Hoddinott 2013). A 3 percent discount rate and 3 percent annual GDP per capita growth rate was applied to all estimates of future earnings.

<sup>\*</sup> This represents approximate proportion of the 0-59-month-old cohort who would graduate from the model after 2020 and therefore not included in the total cases in 2021.

## Results from Rwanda Joint External Evaluation (JEE)

| Metric (JEE Assessment Tool indicators)  | Score (1-5) |  |  |
|--|-------------|--|--|
| P.1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR.                 |             |  |  |
| P.1.2 The state can demonstrate that it has adjusted and aligned its domestic legislation, policies, and administrative arrangements to enable compliance with the IHR (2005). |             |  |  |
| P.2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR  |             |  |  |
| P.3.1 Antimicrobial resistance (AMR) detection   | 1           |  |  |
| P.3.2 Surveillance of infections caused by AMR pathogens   | 1           |  |  |
| P.3.3 Healthcare associated infection (HCAI) prevention control programs   | 1           |  |  |
| P.3.4 Antimicrobial stewardship activities   | 1           |  |  |
| P.4.1 Surveillance systems in place for priority zoonotic diseases/pathogens   | 3           |  |  |
| P.4.2 Veterinary or Animal Health Workforce  | 3           |  |  |
| P.4.3 Mechanisms for responding to infectious zoonoses and potential zoonoses are established and functional   | 3           |  |  |
| P.5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination.   | 3           |  |  |
| P.6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal, and agriculture facilities   | 3           |  |  |
| P.6.2 Biosafety and biosecurity training practices   |             |  |  |
| P.7.1 Vaccine coverage (measles) as part of national program   |             |  |  |
| P.7.2 National vaccine access and delivery   |             |  |  |
| D.1.1 Laboratory testing for detection of priority diseases  | 4           |  |  |
| D.1.2 Specimen referral and transport system   | 3           |  |  |
| D.1.3 Effective modern point of care and laboratory-based diagnostics  |             |  |  |
| D.1.4 Laboratory Quality System  |             |  |  |
| D.2.1 Indicator and event-based surveillance systems   | 4           |  |  |
| D.2.2 Interoperable, interconnected, electronic real-time reporting system   | 2           |  |  |
| D.2.3 Integration and analysis of surveillance data  | 4           |  |  |
| D.2.4 Syndromic surveillance systems   | 4           |  |  |
| D.3.1 System for efficient reporting to WHO, FAO and OIE   | 3           |  |  |
| D.3.2 Reporting network and protocols in country   |             |  |  |
| D.4.1 Human resources are available to implement IHR core capacity requirements  |             |  |  |
| D.4.2 Applied epidemiology training program in place such as FETP  |             |  |  |
| D.4.3 Workforce strategy   |             |  |  |
| R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented  |             |  |  |
| R.1.2 Priority public health risks and resources are mapped and utilized   | 2           |  |  |
| R.2.1 Capacity to Activate Emergency Operations  |             |  |  |

| Metric (JEE Assessment Tool indicators)   | Score (1-5) |  |  |
|---|-------------|--|--|
| R.2.2 Emergency Operations Centre Operating Procedures and Plan   | 3           |  |  |
| R.2.3 Emergency Operations Program  |             |  |  |
| R.2.4 Case management procedures are implemented for IHR relevant hazards   | 2           |  |  |
| R.3.1 Public Health and Security Authorities, (e.g. Law Enforcement, Border Control, Customs) are linked during a suspect or confirmed biological event | 5           |  |  |
| R.4.1 System is in place for sending and receiving medical countermeasures during a public health emergency   | 2           |  |  |
| R.4.2 System is in place for sending and receiving health personnel during a public health emergency  | 1           |  |  |
| R.5.1 Risk Communication Systems (plans, mechanisms, etc.)  | 1           |  |  |
| R.5.2 Internal and Partner Communication and Coordination   |             |  |  |
| R.5.3 Public Communication  | 5           |  |  |
| R.5.4 Communication Engagement with Affected Communities  |             |  |  |
| R.5.5 Dynamic Listening and Rumour Management   |             |  |  |
| PoE.1 Routine capacities are established at PoE   | 2           |  |  |
| PoE.2 Effective Public Health Response at Points of Entry   | 1           |  |  |
| CE.1 Mechanisms are established and functioning for detecting and responding to chemical events or emergencies  | 3           |  |  |
| CE.2 Enabling environment is in place for management of chemical event  | 3           |  |  |
| RE.1 Mechanisms are established and functioning for detecting and responding to radiological and nuclear emergencies                                    | 3           |  |  |
| RE.2 Enabling environment is in place for management of Radiation Emergencies   | 3           |  |  |
| Average score   |             |  |  |
| Overall Performance (%)   | 58.0        |  |  |

## Key Health Services Recommendations

| Key Area                 |   | Main Recommendation   | Timing       |
|--------------------------|---|---|--------------|
| SUPPLY SIDE              | • | Improve physical environment at health facilities to minimize risk of disease transmission, ensuring improved infection prevention and control measures, wide access to handwashing stations, and widespread availability of personal protection equipment for staff & community health workers.  | Medium- Term |
|                          | • | Revamp the way services are organized and delivered by reducing the time<br>for follow up visits, providing multiple months of medications to patients with<br>chronic (hypertension, diabetes) and/or communicable diseases (HIV/AIDS, TB),<br>increasing physical space between patients in waiting areas, and promoting<br>better screening and triaging of patients.  |              |
|                          | • | Expand use of innovative technologies to minimize the need to visit facilities, such as mobile phone messaging, and telemedicine consultations. Notable examples include dissemination of information to protect essential infant and young child feeding practices (breastfeeding, complementary feeding); tele-triage patients to screen them for danger signs and risks; and mobile phone consultations to ensure patients remain adherent to treatment (e.g. hypertension, diabetes). |              |
|                          | • | Strengthen community platforms for early detection and management of childhood illnesses and malnutrition while maintaining/expanding critical services (e.g., vitamin A supplementation for children, micronutrient and nutritional support for pregnant and lactating women), strengthening the supply chain for nutrition commodities to health facilities, and train/ protect community health workers during the pandemic.   |              |
| DEMAND SIDE              | • | Leverage the national social protection program (VUP) to scale up income<br>support and other social safety net measures for newly vulnerable households<br>with young children and pregnant and lactating women, ensuring they have<br>continued access to essential health services and nutritious diets, and lowering<br>susceptibility to infections.   | Short-term   |
|                          | • | Address rising levels of food insecurity through targeted distribution of fortified blended food for the most vulnerable households, adopt appropriate policies that protect those involved in the food supply chain, and ensure markets continue to operate in a safe environment.   |              |
|                          | • | Expand access to the recently introduced emergency cash transfers targeted to<br>newly vulnerable households affected by the containment measures, ensuring<br>they have basic necessities in the short run and can bounce back from the<br>shock in the medium to long run.  |              |
| MONITORING &<br>TRACKING | • | Enhance monitoring of essential health and nutrition services using digital tools. This would include providing key stakeholders with information on the status of essential health services across the country using real-time facility trackers.  | Medium-term  |
|                          | • | Ensure robust and regular monitoring of the nutritional status of children and<br>women through innovative tools to help identify quickly any vulnerability and<br>provide appropriate services. Existing community structures such as the DPEM<br>committees could play a role in ongoing community surveillance.  |              |
|                          | • | Improve health data reporting completeness and timeliness at public and faith-<br>based health facilities. This will be key for monitoring the delivery of essential<br>health and nutrition services, not only during COVID-19 pandemic, but also<br>during normal periods. Without complete data, there is no way to estimate<br>excess mortality or to identify geographic areas or beneficiary groups that are<br>most affected.  |              |

## ANNEX IV: METHODOLOGY FOR CALCULATING IMPACT OF COVID-19 ON LEARNING

Simulating the effect of COVID-19-related school closures on learning poverty requires simulating the effects on both learning and schooling deprivations. These simulations add three main contributions: the focus on learning at the end of primary, the inclusion of school enrollment effects due to the household income shock, and the inclusion of a remediation effectiveness component.

A parameterized Lorenz specification and incomeschool enrollment elasticities are used to simulate the short-term effects of school closures, mitigation, remediation responses, and economic contraction on the learning poverty headcount ratio, learning poverty gap (population normalized and among the poor), and learning poverty severity (population normalized and among the poor). This procedure relies on simple summary statistics at the country level (15 equally spaced bins with the average test score in reading), computed using sample weights, replication weights, and the assessment's plausible values. These data are then used to estimate the Lorenz parameters. The Lorenz curve captures the pattern of relative learning inequalities in the student population. It is independent of any considerations of the absolute learning level. The share of students below a proficiency level captures an absolute standard of the student population.

Two functional forms—the Beta Lorenz curve and the General Quadratic (GQ) Lorenz curve—were tested for calculating the Lorenz curve parameters. For this exercise, the General Quadratic (GQ) Lorenz curve was preferred, since it provided better results in terms of both internal and external validation. This exercise computes learners' share below the endof-primary minimum proficiency level (MPL), the average learning gap with respect to the MPL, and the average learning gap severity for the same MPL. Some of the main assumptions of this work are:

- A focus on first-order effects of COVID-19-related school closures in the crisis's first 12 months. Given the definition of the indicator in terms of children at the end of primary, the work does not look at cumulative effects at other grades.
- The expected learning gains, based on the literature and empirical work, are 0.3 of a standard deviation.
- Dropout estimates used are based on October 2020 growth projections and consider only children in primary (ages 4–11). The expected dropout rate of primary school age children is substantially smaller than that of secondary school age children (35% of the total Primary and Secondary drop out), given the greater income generating opportunities of secondary school age children and far greater supply constraints. The dropout estimates are only affected by income shock and ignore the potential effects of concerns about school safety concerns and of school disengagement, which are likely to be relevant but are extremely hard to measure at this stage. If anything, these further effects have a clear upward bias, so the out-of-school numbers presented in the model can be seen as lowerbound estimates.

#### Scenarios

All scenarios assume that, as of today, remote learning cannot fully match face-to-face delivery. In all scenarios, schools are closed for 70 percent of the school year. This set of simulations makes a conservative assumption that learning distribution does change. If those occur, the simulated learning losses are likely to increase.

In this specific simulation, three scenarios assume different levels of mitigation and remediation effectiveness. Mitigation is the level of effectiveness of government responses while schools are closed, considering two main parameters—what the government is offering and the ability of households to take up what is on offer. The simulations use the UNESCO-UNICEF-World Bank government supply information and complementary household-level data on the availability of connectivity assets such as radio, television, mobile phones, computers, and the internet. Remediation reflects policies that might be implemented when schools reopen.

Three scenarios are considered:

 Optimistic. Remediation: approximately 60 percent of the school loss will be fully remediated. Mitigation: approximately 30 percent of the school loss while schools are closed will be fully mitigated.

- Intermediate. Remediation: approximately 30 percentage of the 70 percent school loss will be fully remediated. Mitigation: approximately 15 percent of the school loss while schools are closed will be fully mitigated.
- 3. Pessimistic. Remediation: no remediation. Mitigation: approximately 7 percent of the school loss while schools are closed will be fully mitigated.

## Data

The simulations use the same underlying data used to construct the original learning poverty measures. Rwanda had at least one learning assessment at the end of primary, carried out in the past eight years, that is of sufficient quality to be used for SDG monitoring.

#### **ANNEX V: USE OF MOBILE MONEY**

According to FinScope Financial Inclusion reports, the proportion of adults making use of mobile money increased from about 40 percent to 60 percent between 2016 and 2020.<sup>54</sup> The increase in mobile money use was broad-based, increasing in urban and rural areas alike and across Ubudehe household categories. However, the proportion of mobile money users is unequally distributed. Although 90 percent of adults use mobile money in urban areas, only about half of all adults do so in rural areas (Figure 1). Only about a third of adults in Ubudehe Category 1 and half of adults in Category 2 use digital finance (Figure 2). The 2020 report also finds disparities between gender: 68 percent of adult men use mobile money compared to only 56 percent among adult women. Lack of knowledge of digital finance (48 percent of non-users) is what keeps people from opening a mobile money account, according the report.





Source: FinScope Financial Inclusion Rwanda 2020 (Kigali: Access to Finance Rwanda). Estimates using FinScope 2020 data were kindly provided by Ephrem Rutagarama (Access to Finance Rwanda).



Figure A5.2: Mobile Money Use by Ubudehe Category: Rwanda 2020

Source: FinScope Financial Inclusion Rwanda 2020 (Kigali: Access to Finance Rwanda). Estimates using FinScope 2020 data were kindly provided by Ephrem Rutagarama (Access to Finance Rwanda).

# ANNEX VI: METHODOLOGY FOR POVERTY ESTIMATIONS AND SOCIAL PROTECTION SIMULATIONS

#### Summary

The simulations are based on household survey data adjusted for (a) growth pre-COVID-19; and (b) the impact of COVID-19. The team used the latest available representative household survey of Rwanda and updated the consumption aggregates in this survey using the results of the CGE model. These consumption aggregates are used to develop the poverty impact of COVID-19 under various scenarios.

The team conducted microsimulations of the government's social protection response. From the updated consumption aggregates, the team used microsimulation methodology to recreate the main emergency social protection measure in the household survey. These results were then used to estimate the poverty mitigation impact of the social protection measures.

## Data

The simulations use data from the 2016/2017 Integrated Household Living Conditions Survey (EICV). The data is nationally representative and includes 14,580 households (63,439 individuals) selected through two-stage stratified random sampling.

The dataset has information on:

- Household members' demographic characteristics (gender, age, health, education, labor market status)
- Income of all household members from work and other sources
- · Access to services and responses to shocks
- Housing situation and dwelling characteristics
- Possession and sale of durable goods, land, livestock, and farm assets
- Household-related businesses
- · Daily recording of consumption expenditures

To reflect current economic conditions and the economic effects of the COVID-19 pandemic, the dataset has been updated with the result from the **CGE modelling.** In the absence of representative survey data that captures the effects of the COVID-19 pandemic on Rwanda's economy and living standards, the team relied instead on using results of the CGE modelling to update the 2016 household data to reflect the living conditions in 2020. This process developed a "business as usual" consumption aggregate for 2020 and 2021, reflecting the no-COVID-19 scenario. Then the model develops consumption aggregates for 2020 and 2021 for each of the three scenarios modelled in the CGE: (a) baseline; (b) pessimistic; and (c) optimistic. Specifically, the CGE modelling resulted in a consumption shock for households that differed by guintile, household location (urban/ rural) and sector (agricultural / not agriculture). For example, the baseline scenario resulted in an 8% reduction of consumption in the third quintile of rural agricultural households. The updated results are therefore a best guess of the current situation in Rwanda and the changes in poverty and income/ consumption distribution.

The survey was also updated to reflect the social protection system expansion between 2016 and 2020. Between 2016 and early 2020, coverage of social protection programs in Rwanda has increased significantly. Notably, coverage of the flagship VUP program's public works and direct support components has increased by 70,000 and 50,000 households, respectively. The expansion of these benefits was simulated in the survey to accurately reflect the state of social protection before the pandemic.

## Methodology

The main objective of the simulations is to gauge the impact of the GoR's social protection COVID response measures as outlined in the Economic Recovery Plan and subsequent government documents. Based on the updated household consumption and income distribution resulting from the CGE simulations, the government's economic response measures are assessed using microsimulation on the updated EICV 2016/2017 dataset. The simulations measure the effectiveness of the government's measures in mitigating the COVID shock and preventing households from falling into poverty.

The following measures are simulated:

 Emergency cash transfers: The government has announced providing three different types of emergency cash transfers to households: (i) a transfer targeted at informal sector households in Kigali who live in overcrowded housing, (ii) a transfer for cross-border traders in the districts bordering the DRC, and (iii) a transfer for agricultural households. The transfers have reached a combined 35,000 households as of September 2020.

- Expansion of ePW and cPW coverage: The government has expanded coverage of the existing public works programs. While the recovery plan foresaw an expansion of ePW from 40,454 to 75,000 and of cPW from 157,852 to 191,39 households, administrative data indicates that only a much smaller expansion of about 4,000 additional households took place between March and September 2020. Existing beneficiary households also continue to be paid.
- Expansion of VUP direct support: The government expanded coverage of the direct support and nutrition sensitive direct-support cash benefits. The expansion of direct support has reached about 119,025 households as of September 2020; and the expansion of NSDS reached 84,599.

| Pillar   | Budget US\$  | Share  |
|--|--|--|
| Emergency cash<br>transfers                      | Beneficiary numbers<br>according to government<br>databases and data from<br>GiveDirectly. | <ul> <li>Three sets of transfers:</li> <li>(i) Cash transfer to informal sector. This benefit is allocated using randomization among households in Kigali in Ubudehe 1 and 2 categories who live in overcrowded housing. Overcrowded housing is proxied through the number of rooms per capita in the household dwelling.</li> </ul>   |
|  |  | (ii) Cash transfer to traders in cross-border districts. The benefit is allocated through randomization among informal sector households in cross-border districts in Ubudehe 1 and 2 categories.  |
|  |  | (iii) Cash benefit to agricultural households. This benefit is allocated using randomization among households in rural areas whose head works in agriculture. The benefit is restricted to households in Ubudehe categories 1 and 2.   |
| Expansion of public<br>works (cPW, ePW,<br>IMHO) | Numbers as per<br>economic recovery<br>document and<br>government databases.               | The benefit is allocated by randomizing among Ubudehe 1,2,&3 households using propensity score matching to identify households that have similar characteristics to existing beneficiaries (of VUP cPW, as identified in the survey) and increase their probability of receiving the benefit. The variables used for the propensity score matching are the variables used for the welfare scoring card, as well as household consumption and income. |
| Expansion of VUP<br>direct support and<br>NSDS   | Numbers as per<br>economic recovery<br>document and<br>government databases.               | The benefit is allocated by randomizing among households using propensity score matching to identify households that have similar characteristics to existing beneficiaries (of DC, as identified in the survey) and increase their probability of receiving the benefit. The variables used for the propensity score matching are the variables used for the welfare scoring card, as well as household consumption and income.                     |
|  |  | Direct support is allocated only to Ubudehe category 1 households whereas nutrition-sensitive direct support is allocated to Ubudehe 1 & 2 households with children under the age of 2.  |

The World Bank, Rwanda Blvd. de la Revolution SORAS Building P.O. Box 609 Kigali, Rwanda Telephone: +250 252 591 300 Fax: +250 252 576385 www.worldbank.org/rw



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