

Document of the World Bank

Report No. 138100-RW

Rwanda
Systematic Country Diagnostic

June 25, 2019

International Development Association
Country Department AFCE2
Africa Region

International Finance Corporation
Sub-Saharan Africa Department

Multilateral Investment Guarantee Agency



WORLD BANK GROUP

Rwanda - Government Fiscal Year

July 1 to June 30

Currency Equivalents

(Exchange rate as of June 18, 2018)

Currency unit = Rwanda Franc (RWF)

US\$ 1.00 = RWF 905.4

Acronyms

ABTs	Alternative building technologies
AGI	Adolescent Girls Initiative
BNR	National Bank of Rwanda
CIAT	International Centre for Tropical Agriculture).
CPF	Country Partnership Framework
CPSD	Country Private Sector Diagnostic
DHS	Demographic Health Survey
DIME	Development Impact Evaluation
DRC	Democratic Republic of Congo
DS	Direct Support
DSA	Debt Sustainability Analysis
EAC	East Africa Community
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	Integrated Living Conditions Survey
ELA	Empowerment and Livelihood for Adolescents
FDI	Foreign Direct Investment
GBE	Government Business Enterprise
GBV	Gender Based Violence
GDP	Gross Domestic Product
GGCRS	Green Growth and Climate Resilience Strategy
GNI	Gross national income
GNU	Government National Unity
GoR	Government of Rwanda
HAP	Household air pollution
HCI	Human Capital Index
HCP	Human Capital Project
HIV/AIDS	Human immunodeficiency virus infection and acquired immune deficiency syndrome
ICT	information and communication technology
IDA	International Development Assistance
IFC	International Financial Corporation
IFMIS	Integrated Financial Management Information and System
IFRS	International Financial Reporting Standards
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification

KCC	Kigali Convention Centre
LFS	Labor Force Survey
MDG	Millennium Development Goal
MICE	Meetings, International Conferences and Events
MIDIMAR	Ministry of Disaster Management and Refugee Affairs
MIGEPROF	Ministry of Gender and Family Promotion
MINAGRI	Ministry of Agriculture
MINECOFIN	Ministry of Finance and Economic Planning
MINICOM	Ministry of Trade and Industry
MTEF	Medium-term Expenditure Framework
NAIS	National Agriculture Insurance Scheme
NAPA	National Adaptation Programmes of Action for Climate Change
NCDs	Noncommunicable diseases
NDC	Nationally Determined Contributions
NDVI	Normalized Difference Vegetation Index
NISR	National Institute of Statistics of Rwanda
NTBs	Non-tariff barriers
ODA	Official development Assistance
OECD	Organization for Economic Co-operation and Development
PFM	Public Financial Management
PIM	Public Investment Management
PSTA	Strategic Plan for the Transformation of Agriculture
PW	Public Work
RAB	Rwanda Agricultural Board
REMA	Rwanda Environment Management Authority
RICA	Rwanda Inspectorate and Competition Authority
RMF	Road Maintenance Fund
RPA	Rwandese Patriotic Army
RPF	Rwandese Patriotic Front
RSSB	Rwanda Social Security Board
Rwf	Rwandan Franc
SCD	Systematic Country Development
SDGs	Sustainable Development Goals
SEZ	Special Economic Zone
SOCEs	State-owned or state-connected companies
SOEs	State-owned enterprises
SPCR	Strategic Program for Climate Resilience
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
US\$	United States dollar
USAID	U. S. Agency for International Development
WBG	World Bank Group
WDA	Workforce Development Authority
WDI	World Development Indicators
WEF	World Economic Forum
WGI	World Governance Indicators
WRM	Water resource management

	IDA	IFC	MIGA
Vice President	Hafez M. H. Ghanem	Sérgio Pimenta	Keiko Honda
Country/Regional Director	Carlos Felipe Jaramillo	Jumoke Jagun-Dokunmu	Merli Margaret Baroudi
Country Manager	Yasser El-Gammal	Manuel Moses	
Task Team Leaders	Aghassi Mkrtchyan Aparajita Goyal	Dan Kasirye Sudha Bala Krishnan Hamidou Songo	Jessica Charles Wade

ACKNOWLEDGEMENTS

The Systematic Country Diagnostic (SCD) was prepared by a core team consisting of Aghassi Mkrtchyan (Senior Country Economist, GMTA3), Aparajita Goyal (Senior Poverty Economist, GPV01), Dan Kasirye (Resident Representative, CAFRW), Sudha Bala Krishnan (Operations Officer, CCECE), Hamidou Songo (Senior Private Sector Specialist, GFCA1), Jessica Charles Wade (Senior Risk Management Officer, MIGEC), and Marc Stephens (Consultant). The team gratefully acknowledges the overall guidance of Carlos Felipe Jaramillo (Country Director, AFCE2), Albert Zeufack (Chief Economist, AFRCE), Jumoke Jagun-Dokunmu (Director, CAFEO), Hoda Atia Moustafa (Head, MIGAF), Yasser El-Gammal (Country Manager, AFMRW), Manuel Moses (Country Manager, CAFE1), Abebe Adugna Dadi (Practice Manager, GMTA3), Pierella Paci (Practice Manager, GPV01), Vinaya Swaroop (Economic Adviser, AFRDE), Trichur Balakrishnan (Country Program Coordinator), Johan Mistiaen (Program Leader, EFI), Helene Rex (Program Leader, SD), Paolo Belli (Program Leader, HD), Allen Dennis (Program Leader, EFI), and Philip Schuler (Lead Economist, GMTA3). The list below identifies GP focal points and team members that have provided inputs to the SCD. The peer reviewers were Emmanuel Skoufias (Lead Economist, GPV01), Errol George Graham (Program Leader, AFCW1) and Nicole Klingen (Country Program Coordinator, AFCET). Team assistance of Agnes Yvonne Masaka (Team Assistant, AFCE2), Nancy Umwiza (Office Assistant, AFMRW), and Karima Laouali Ladjo (Program Assistant, GMTA3) is highly acknowledged.

	Position	Unit
Alex Kamurase	Senior Social Protection Specialist	GSP01
Baba Ali Mwango	Consultant	GPV01
Brice Gakombe	Financial Sector Specialist	GFCAE
Daniel John Kirkwood	Gender Specialist	AFRGI
Casey Torgusson	Senior Operations Officer	GDD11
Emiko Todoroki	Senior Financial Sector Specialist	GFCAE
Emmanuel Taban	Highway Engineer	GTR01
Fiona Jane Messent	Consultant	GFALW
Gael Raballand	Lead Public Sector Specialist	GGOAE
Hamidou Songo	Senior Private Sector Specialist, (IFC co- team leader)	GFCA1
Heba Shamseldin	Lead Private Sector Specialist	GMTCI
Iftikhar Malik	Senior Social Protection Specialist	GSP01
Ignace Rusenga Mihigo Bacyaha	Principal Country Officer (IFC)	CAFE1
Irina Schuman	Senior Agriculture Economist	GFA07
Jessica Charles Wade	Senior Risk Management Officer, (MIGA co-team leader)	MIGEC
Joern Torsten Huenteler	Energy Specialist	GEE01
Kazi Fateha Ahmed	Environmental Specialist	GCCRA
Laura B. Rawlings	Lead Social Protection Specialist	GSP01
Lewnida Sara	Operations Analyst	GWA01
Matthew Stephens	Senior Social Development Specialist	GSU07
Miriam Schneidman	Lead Health Specialist	GHN01
Moritz Nikolaus Nebe	Sector Manager (MIGA)	MIGEC
Narae Choi	Senior Urban Development Specialist	GSU13
Nicoletta Feruglio	Senior Public Sector Specialist	GGOAC
Norah Kipwola	Senior Energy Specialist	GEE01
Pablo Cesar Benitez	Senior Environmental Economist	GENA1
Peace Aimee Niyibizi	Economist	GMTA3
Rogers Kayihura	Communications Officer	AFREC
Ruth Karimi Charo	Senior Education Specialist	GED01

Shohei Nakamura	Economist	GPV01
Silas Udahemuka	Human Development Specialist	GSP01
Sudha Bala Krishnan	Operations Officer (IFC co-team leader)	CCECE
Tania Priscilla Begazo Gomez	Senior Economist	GMTCI
Winston Dawes	Senior Agriculture Economist	GFA07
Xiaoyue Hou	Consultant	GFALW
Yadviga Viktorivna Semikolenova	Senior Energy Economist	GEE01

CONTENTS

Acknowledgements	iv
Executive Summary.....	ix
Introduction	1
1. Country Context	2
A. Historic Context and Genocide.....	2
B. Developments after the Genocide.....	3
2. Growth, Poverty Reduction, and Institutions	5
A. Growth, Productivity, and Structural Transformation	5
B. Poverty and Shared Prosperity	12
C. Vulnerability to climate change and environmental degradation	22
D. Governance and Institutions	24
3. Constraints and Pathways to Achieving the Twin Goals	26
A. The Analysis	26
B. Investing in Human Capital	27
C. Market and Private Sector Development	35
D. Investing Sustainably.....	47
E. Environmental Sustainability and Building Resilience to Climate Change	57
F. Good Governance: Foundational requirement and main comparative advantage	62
4. Prioritization of Policy Areas	64
5. Knowledge Gaps	69
Annexes.....	70
References	74

Figures

Figure 2.1: ODA inflows, percent of GDP).....	5
Figure 2.2: Public investments and sources of financing, 2003-17, percent of GDP	5
Figure 2.3: Public and publicly guaranteed debt, 2010-17, percent of GDP	6
Figure 2.4: Growth by demand factors, contribution by percentage points	6
Figure 2.5: Sector Growth 2005-17 (percent, annual average, at factor prices	7
Figure 2.6: Labor productivity in 2017 (Economy wide labor productivity = 100)	7
Figure 2.7: Exports of goods and services, million US\$	7
Figure 2.8: Rwanda's export performance vs global trends	7
Figure 2.9: Sources of growth by factor inputs in Rwanda, 2002–2016	8
Figure 2.10: Rwanda's TFP vs global trends, TFP=1	8
Figure 2.11: Agriculture employment, 2000-17	8
Figure 2.12: Employment and productivity in agriculture	8
Figure 2.13: Change in sector employment versus sector labor productivity in 2001-11	9
Figure 2.14: Change in sector employment versus labor productivity in 2011-17	9
Figure 2.15: Number of firms, and the share of independent non-farm workers	11
Figure 2.16: Independent non-farm workers, share in total workforce	11
Figure 2.17: Poverty trends	13
Figure 2.18: Moderate poverty rates (national poverty line) by province	13
Figure 2.19: Poverty rates by district, 2017.....	13
Figure 2.20: US\$1.9 poverty incidence vs GNI per capita	14
Figure 2.21: Growth elasticity of poverty (based on US\$1.9 poverty and GNI per capita growth).....	14
Figure 2.22: Agriculture value added per worker, selected countries, 2017	15

Figure 2.23: Ratio of rural population, percent, 2017	15
Figure 2.24: Distribution of consumption quintiles by main economic sectors, 2014 and 2017.....	16
Figure 2.25: Distribution of jobs by consumption quintile, 2014 and 2017).....	17
Figure 2.26: Occupational change by poverty profile, 2001-11	17
Figure 2.27: Occupational change by poverty profile, 2011-17	17
Figure 2.28: Government social protection financing, percent of GDP	18
Figure 2.29: Consumption quintiles by Ubudehe categories, percent in total	18
Figure 2.30: Education attendance	19
Figure 2.31: Literacy rate (15-24 years).....	19
Figure 2.32: Prevalence of Stunting in Rwanda, by Wealth Quintile, 2000–15.....	20
Figure 2.33: Prevalence of Stunting in Rwanda, by District, 2015	20
Figure 2.34: Distribution of B40 by education of adults, percent of total.....	21
Figure 2.35: Distribution of B40 by occupation, working adults, percent of total	21
Figure 2.36: Hazard-prone areas in Rwanda	23
Figure 2.37: Spatial distribution of change in vegetation density, 2000-16	24
Figure 2.38: Rwanda and various dimensions of governance	25
Figure 3.1: Poverty reduction and increasing shared prosperity: Framework for Analysis	27
Figure 3.2: Transition rates between primary and lower secondary education by location and income group, Rwanda and other Sub-Saharan African countries	29
Figure 3.3: Incidence of social protection programs	34
Figure 3.4: Domestic credit to private sector, percent of GDP.....	40
Figure 3.5: Interest rates and spread.....	40
Figure 3.6: FDI stock as share of GDP, selected East African Countries, 2000-16	45
Figure 3.7: Priorities for stimulating FDI performance.....	45
Figure 3.8: Gross fixed capital investments, selected EAC countries, 2000–16, percent of GDP	48
Figure 3.9: Rwanda: Domestic savings vs. investments, 2000–16, percent of GDP.....	48
Figure 3.10: Projected and actual PPG debt, percent of GDP	50
Figure 4.1: Proposed pathways and priority areas for achieving the twin goals in Rwanda	64
Boxes	
Box 1.1: The Physical Context.....	2
Box 1.2: Growth of the State	3
Box 1.3: Rwanda’s Achievements in Gender Equality	4
Box 2.1: The State-Led Model of Development	12
Box 2.2: Kigali’s untapped potential to reduce the national poverty rate	18
Box 3.1: Approaches to address Gender-Based Violence	35
Box 3.2: Using cooperatives and markets to promote mechanization.....	39
Box 3.3: Fintech for women entrepreneurs	41
Box 3.4: Agricultural finance and insurance	42
Box 3.5: Economic benefits from the East Africa single digital market (SDM).....	44
Box 3.6: Affordable housing as a business development opportunity for Rwanda.....	47
Box 3.7: Unbundling public-sector investments	49
Box 3.8: Results from experimental studies on the effects of expansion of irrigation in Rwanda.....	52
Box 3.9: The role of rural roads in poverty reduction	53
Box 3.10: Economic costs related to climate change	58
Box 4.1: Prioritization process and methodology.....	65

Tables

Table 2.1: Rural households with less than 0.3 ha farm land, percent	9
Table 2.2: Job profile of working adults in Rwanda, 2016 and 2019, thousands	10
Table 2.3: Distribution of the extreme poor in urban/rural areas and provinces	14
Table 3.1. Trend of key education indicators, 2005-17	29
Table 4.1: Priority areas with the highest impact on the twin goals	65

EXECUTIVE SUMMARY

Country Context, Growth, and Poverty Reduction

The Genocide against the Tutsi is the inescapable backdrop to the remarkable achievements of the country since. In 1994, over 1 million Rwandans were murdered during the conflict and about two million people fled to neighboring countries. The country's social and physical infrastructure was decimated, trade links were ruptured, businesses and agricultural assets dwindled, and institutions of governance required rebuilding. Insecurity and instability were the norm, with threats both internal and from across the region. Social trust had collapsed.

Since 1994, Rwanda has been celebrated for the remarkable social, political, and economic renaissance that has taken place despite the daunting challenges. Situated in the equatorial zone in Central Africa, Rwanda is a landlocked country with limited fossil fuel resources. Steep topographical gradients and poor farming techniques have resulted in a soil nutrient balance that is among the most negative in Africa. Temperature rises in recent decades have exceeded the global average. In 1994, following the Genocide, only Mozambique was poorer than Rwanda. Yet, under its new leadership, peace and national reconciliation were prioritized. The government took steps to modernize the country's infrastructure and delivered critical social services to the population to help build human capital. A results-oriented approach to service delivery and a zero-tolerance approach to corruption helped mobilize external assistance. Rwanda became a highly favored recipient of development assistance, which has been the main source of its development finance. Increasing from 5 percent of gross domestic product (GDP) in the early 2000s to an average of 15 percent in recent years, public investment became the main engine of transformation.

The result has been a more than three-fold increase in per capita income since the 1990s coupled with major progress in human development and poverty reduction. While still a low-income country, today Rwanda is ahead of more than 20 countries in Sub Saharan Africa in terms of per capita GDP. Rwanda has seen new economic sectors emerging, such as dynamic eco- and business tourism and food processing, and existing industries have expanded. The growth rate in agriculture has been one of the highest on the continent. Poverty fell from 77 percent in 2001 to 55.5 percent in 2017 (as measured by the international poverty line). With substantial investments in health systems and improved access to health services Rwanda has made excellent progress in improving adult survival and reducing maternal mortality to approach levels seen in lower middle-income countries. Access to prenatal care is now virtually universal and over 90 percent of women benefit from skilled attendance at birth. Rwanda's education system has made significant progress in expanding coverage and achieving high level of primary school enrollment. Beyond human development, Rwanda has achieved major gains in infrastructure, especially in terms of access to electricity, water, and sanitation. Rwanda has radically reformed its investment climate, climbing to 29th place in global rankings in Doing Business. Rwanda's strong governance and leadership's vision was a major driving force behind this progress, giving it a comparative advantage over most other countries in the region.

Rwanda has built strong foundations for future growth and shared prosperity, but the agenda remains vast. Making sure that the growth remains inclusive is currently its main challenge. Recent household surveys showed that the momentum of poverty reduction has weakened. Measured by the national poverty line, poverty declined from 59 to 39 percent between 2001 and 2014 but was almost stagnant between 2014 and 2017. Rwanda's poverty rate is still higher, and its growth elasticity of poverty reduction lower, than in many comparable countries in the region. Its structural characteristics, such as a higher share of the population depending on farming than in many of its regional peers, combined with lower agricultural value-added per worker, help explain this. It also

appears that shifting job patterns and slowing movement of workers from farm to nonfarm employment, combined with slowing human capital gains, may have affected poverty's response to growth in recent years.

Structural transformation momentum has weakened, affecting the potential of the economy to create nonfarm jobs. Structural transformation (the movement of labor out of low-productivity agriculture to industry and services, and from farms to cities) was a major source of growth and productivity between 2001 and 2011. Since 2011, however, the contribution of structural transformation to growth has slowed, and the share of agricultural employment has declined only marginally. Sectors attracting large capital investments with higher growth rates are less labor-intensive. While the rate of growth of the service sector continued to be well above that of GDP as a whole, the sector has not significantly increased its share in total employment since 2011. The emergence of the next wave of capital-intensive sectors in Rwanda (such as meetings, international conferences and events [MICE] and air transportation), which are seen as the foundations of its future economy, has contributed to growth in output and labor productivity but has not yet added many non-farm jobs. These new sectors have also contributed to the decline in the growth of total factor productivity because expected economy-wide spillovers from large upfront capital investments have not fully materialized yet. The increase in public and publicly guaranteed (PPG) debt from 22 percent of GDP in 2012 to more than 53 percent by 2019 reflects the weakened investment-growth nexus in Rwanda.

Agriculture's share in job creation remains large, and indeed has increased. While agriculture created less than 15 percent of new jobs in 2001-11, its share increased to 50 percent for 2011-17 and to 60 percent between 2017 and 2019, reflecting the slowdown in nonfarm job-creation. The sector has been under significant pressure and unable to generate quality jobs that could reduce poverty because of the growing scarcity of land and increasing land-fragmentation, combined with exposure to climatic shocks that have resulted in declining productivity gains. In this context, wage-farm workers residing in rural areas with little access to land have emerged as a fast-growing yet vulnerable occupational group with the highest poverty rate. There has also been a decline in the share of nonfarm independent workers (mostly micro and small private entrepreneurs engaged in informal services), which has also contributed to the weakening momentum in poverty reduction because this occupational group has one of the lowest poverty rates.

Since 2014, improvements in human capital have faltered in some key areas, such as literacy and secondary enrollment, that could have also contributed to less inclusive growth patterns. Rwanda's very strong trajectory in gains in youth literacy, and primary and secondary enrollment has slowed to a considerable degree in recent years. Transition out of poverty in Rwanda appears to be closely linked to the level of education attained by household heads but more than 70 percent of adults in bottom 40th percentile have only incomplete primary or no schooling at all. Stunting has emerged as an area where progress has been relatively slow, undermining Rwanda's overall human development agenda. Slow progress in rural areas appears to be the main factor behind stubbornly high stunting rates.

Urbanization and agglomeration have not delivered major gains in poverty reduction in recent years. Between 2014 and 2017, the incidence of poverty in Kigali declined substantially, in contrast to almost no reduction in poverty nationwide. Kigali has also shown significant potential to reduce the poverty rate among the newcomers. Despite the existence of strong "push" factors (scarcity of land) and "pull" factors (income and wage differential), migration remains limited due to structural impediments, such as low human capital and a unique regulatory framework that discourages informality. This pace of rural to urban transition appears to be a lost opportunity to reduce poverty

and increase shared prosperity in Rwanda, especially against the background of increased scarcity of agriculture land.

Framework for constraints analysis

The Systematic Country Diagnostic (SCD) analysis of growth, structural transformation, poverty reduction, and inclusion suggest that Rwanda will need to target the following outcomes to maintain rapid progress toward poverty reduction and shared prosperity:

- a shift to a **productivity-led growth** through structural transformation, supported by increased agricultural productivity, agglomeration, and rural-to-urban transition;
- an **increase in the growth elasticity of poverty for inclusive growth** by investing in human capital, promoting private entrepreneurship, improving accountability for service delivery, and addressing vulnerability;
- **increased sustainability** through addressing environmental degradation, building resilience to climate change, and maintaining debt sustainability.

The analysis of constraints identified the key pathways that Rwanda needs to take to achieve these higher-level goals: greater investment in human capital; continued market and private sector development; a more sustainable and balanced approach to investment; and building resilience and increasing adaptive capacity. Each of these will require a fifth ‘foundational’ pathway, namely strengthening state efficiency and accountability.

Investing in Human Capital

Rwanda’s education system has made significant progress in expanding coverage over the past 25 years. While Rwanda’s overall human capital index (HCI) in 2017 is lower than the average for Sub-Saharan Africa (SSA), it is broadly in line with expectations for a country with its income level. Detailed information on the underlying components shows, however, that the education-related indicators—especially expected years of school and learning-adjusted years of school—put the country in the bottom 25 percent of countries globally: children in Rwanda can expect to complete 6.5 years of pre-primary and basic education by age 18, which, when adjusted for learning, translates to 3.8 years—a learning gap of 2.7 years.

Rwanda is confronted by the same two challenges in improving basic education as many other countries: access and quality. Although access been improving, Rwanda still trails other countries of similar income. Virtually all children in Rwanda begin primary school, but fewer than two-thirds complete it. One reason for low educational outcomes is the out-of-pocket cost of education. Another is high opportunity costs, which are accounted for in part by high repetition rates in the early grades. In addition, many teachers have only a limited command of the language of instruction: a recent assessment found that less than half of teachers are at the “intermediate level” in English. A lack of proficiency in the language of instruction inevitably affects student performance, not only in English reading, writing, and speaking ability, but also in all other subjects that are taught in English, including math, science, and social studies.

At tertiary levels, enrollment is increasing rapidly, but still only 8 percent of tertiary-age youth are enrolled in tertiary education, well below the level in middle-income countries. Moreover, relatively few graduates are specializing in key job creation fields, such as science and engineering. Just 6 percent of university students in Rwanda are enrolled in engineering, manufacturing, and construction courses, and only 9 percent are studying sciences. If Rwanda intends to grow its manufacturing and technology sectors, then the number of students in sciences and engineering also needs to grow and technical and vocational training will need to be strengthened.

Rwandans have experienced impressive improvements in health. The World Development Indicators (WDI) show the following changes since 2010: infant mortality fell from 44.5 deaths per 1,000 births to 28.9 in 2017, under-5 mortality fell from 51.5 per 1,000 births to 39.1 in 2017; and the share of children under 5 who are short for their age fell from 44 percent to 38 percent in 2015. Furthermore, according to the Integrated Living Conditions Surveys (EICVs), access to improved water sources, sanitation, electricity, and housing conditions, all improved significantly between 2011 and 2017. For instance, access to electricity almost tripled.

Maternal mortality dropped steeply from 1,071 per 100,000 live births in 2000 to 210 in 2014, better than in many of Rwanda's SSA peers. Access to prenatal care is now virtually universal, and access to family planning services has also expanded rapidly, giving Rwandan women a full range of options for regulating their fertility, which has resulted in a steep drop in the total fertility rate from about 6.0 to around 4.0. Despite these overall positive trends, Rwanda is lagging in several key areas. The proportion of women who receive all four recommended antenatal care visits and who benefit from postnatal care within two days of delivery remains relatively low at slightly over 40 percent. An estimated 16 percent of newborns are characterized as very small, suggesting deficiencies in the health and nutritional status of pregnant women.

Infant and child mortality has also dropped sharply. The infant mortality rate declined to 50 per 1,000 live births in 2014 from 196 in 2000 and the rate for children under 5 to 32 from 107 in 2000. The decline in neonatal mortality has been somewhat slower, from 44 to 20 deaths per 1,000 live births, highlighting a need to give more attention to care during pregnancy, childbirth, and newborn periods. Although Rwanda has made excellent progress in improving infant and child survival, stunting remains relatively high at 38 percent, down from around 48 percent in 2000.

Rwanda also faces growing challenges from the emerging burden of noncommunicable diseases (NCDs). It is estimated that NCDs, which are a consequence of urbanization, changing lifestyles, and an aging population, now account for 52 percent of all outpatient consultations and 22 percent of all admissions to district hospitals. Further progress on adult survival will require new investments in reducing the emerging causes of premature morbidity and mortality that affect productivity and lifetime earnings and are occurring at younger ages. As in other countries, the health system in Rwanda also has limited staff, suffering from a serious shortage of qualified medical personnel, particularly physicians with only 1 physician per 10,000 people (2016), compared to the recommended minimum of 2.5 health providers per 10,000 people.

Many of the challenges relating to human development in Rwanda, as elsewhere, relate closely to the socioeconomic status of women. Rwanda is widely recognized for its commitment to gender equality. However, women still face several important constraints. Priority actions to promote gender equality are (1) strengthening women's participation in tertiary and technical-vocational education; (2) promoting entrepreneurship, including access to finance, for women; (3) strengthening women's participation in subnational democratic bodies, and (4) expanding response and prevention services to address gender-based violence in all districts and sectors and support awareness and behavior change).

Additional human development priorities are: (1) Scaling up access to high-quality family planning and reproductive health services is needed as well as ensuring continued, consistent use of modern contraception. (2) Further efforts are needed to improve child survival through enhanced maternal and child health and nutrition interventions to address childhood stunting and to tackle early and forcefully the emerging burden of NCDs. (3) There is a need to expand access to upper secondary education for girls and scale up interventions that promote women's economic empowerment

(particularly for adolescent girls), due to the links between child mortality, fertility, and women's education.

Market and Private Sector Development

Rwanda's structural features—e.g., small size, landlocked position, and low levels of human capital—have held back the development of its private sector. Although Rwanda's private firms are a growing presence, they are not yet capable of creating jobs in large numbers and driving structural transformation. Instead, Rwanda's public sector has been the driver of structural transformation since the early 2000s. Yet while the state-led model has fostered Rwanda's economic growth and delivered social and political stability, the challenge remains of creating the conditions that will allow private firms as well as state-owned enterprises to achieve efficient market-led outcomes.

A case in point is agriculture, which accounts for 70 percent of employment, more than 30 percent of GDP, and more than 50 percent of goods exports. Although the sector is overwhelmingly made up of individual farmers, the government has decided the what, where, and how of agriculture development, mostly motivated by the objective of achieving self-sufficiency. With this approach the sector has grown at an average rate of more than 5 percent since early 2000s. However, to maintain high growth rates, agriculture will need to continue to modernize, become more responsive to market signals, and more effectively integrate with regional and global markets. Its contribution will need to shift from primarily supplying commodities for domestic use to producing higher value-added goods as an integral part of food supply chains linked to regional and international markets through reaping the benefits of scale economies and specialization. This will require a greater role for markets in identifying crops, reforming price-setting practices and use of tariffs, reforming cooperatives, relying increasingly on private provision of agriculture inputs, as well as addressing cross-cutting constraints in agriculture and agribusiness, including addressing land degradation and climate change through interventions for better soil quality and water retention, strengthening research and regulatory institutions, promoting vertical coordination, and building skills for agribusiness.

Limited access to long-term credit at affordable cost is frequently cited as a challenge to entrepreneurs wishing to finance their investments through bank loans. Key priorities include strengthening macroprudential oversight of the financial system as a whole to bolster overall financial sector efficiency, credibility, and confidence in the system; further innovation in the design of financial products and services notably through financial technology (FinTech); and the development of long-term private finance and investment instruments. In agriculture, a holistic approach is needed that incorporates demand as well as supply factors and the enabling environment.

The high cost of power is another major challenge for Rwanda's enterprise sector. Unit costs of electricity in Rwanda are among the 10 highest in SSA. The government has recently reduced the tariffs for commercial sectors through subsidies but given that Rwanda's fiscal space has substantially narrowed and there are competing demands for public resources, long-term cost reduction requires adhering to the principles of least-cost power production, including considering electricity imports from neighboring countries, some of which are emerging as competitive electricity producers. Power outages—particularly for manufacturing firms—also hurt competitive advantage. One-third of firms report that access to reliable electricity is a challenge to their operations.

Connectivity and logistics remain major challenges for Rwanda. The government has implemented reforms to improve the logistics environment, but trade costs have remained stubbornly high, and Rwanda remains one of the most expensive places for a container to reach. Options to

reduce costs could be investments in off-dock terminals near the ports of Dar es Salaam or Mombasa, and freight terminals on the proposed rail line; establishing operations of third-party logistics service providers in Rwanda; bonded warehouses at the two Democratic Republic of Congo (DRC) border locations; and pursuit of open skies arrangements in air transport.

Digital connectivity has improved, but the agenda remains unfinished. The government has focused on increasing investment in downstream, ICT-enabled sectors and deploying mobile services in rural areas. However, the household penetration rate of fixed high-speed Internet subscribers is less than 1 percent, well below the regional average of 6 percent. Efforts are needed to foster adequate competition and bring down costs of access and to equip individuals and firms with the digital skills to be able to navigate the vast catalogue of digital services, information, employment and e-commerce opportunities now available at their fingertips.

Limited access to land remains a constraint for Rwanda's private sector. Access to serviced land is a major constraint for firms and is often raised as the biggest challenge by foreign investors looking to set up operations. The special economic zone program was intended to address this constraint, but land in Special Economic Zones (SEZs) remains costly. Access to agricultural land is a serious constraint for investors looking to undertake large-scale farming and land consolidation for private investors is challenging. There is a need to ensure that the land registration system is kept current and information on land transactions is publicly available. Further, the government could implement land assembly instruments (in addition to land banking) to ensure land availability over the medium term.

In addition to the above factors, SMEs face specific challenges. Starting from a very low level as an agrarian economy, Rwanda has made major strides in terms of the number of micro, small, and medium enterprises. There is evidence, however, that the dynamism in small-scale private entrepreneurship has weakened in recent years. The share of nonfarm independent workers in total employment, most of which are running micro and small enterprises, have not increased since 2011. In addition to the constraints facing the private sector, the informal sector in Rwanda faces more active discouragement from the state than is the case in many other countries. While the government's preference for formality is understandable, and formalization of the enterprise sector can be a welcome development, dynamism and job creation in the informal sector can still be an important element of private sector development at this stage of Rwanda's development.

While Rwanda has seen an increase in foreign direct investment (FDI), it still trails its regional peers, despite the major improvements in the business environment. An appropriate investment promotion strategy and incentives framework would attract priority investors and stimulate FDI inflows. Rwanda can create opportunities for investors by reducing bureaucratic hurdles and regulatory uncertainty. It should also offer enhanced access to domestic input markets. This will provide access to lower cost inputs, stimulate spillovers, and ensure that benefits are shared with the domestic economy. Rwanda also has sizable opportunities to attract new FDI by allowing the direct commercial presence of multinationals in the service sector and by reducing barriers to the cross-border provision of services.

Private sector development is closely shaped by patterns of urban development. Urbanization in Rwanda accounted for 37 percent of national structural change, and urban areas have accounted for 48 percent of national labor productivity growth over the past 15 years. Nevertheless, urban areas in Rwanda, and Kigali in particular, have not generated the kind of productivity gains that rapidly growing cities in successful East Asian economies have achieved, reducing the agglomeration economies from urbanization. Access to land in and around Kigali remains limited not only because of scarcity but also because of zoning and regulation practices, which reduce the availability of the land in line with market demand. Master plans have often required densities, structures, and uses that

may not match market demand. While it is imperative to maintain Kigali's reputation, which supports high-value industries like those in MICE, a better balance between long-term strategic bets to create new endowments and current market opportunities needs to be found.

Investing Sustainably

The state is the main investor in Rwanda, which has one of the highest public-sector investment-to-GDP ratios in the world. This has supported growth and translated into a substantial improvement in Rwanda's ranking in the global Logistics Performance Index. However, this investment push has also contributed to rising public debt. This experience highlights the need for prudent approaches in designing investment drives. A sound macroeconomic environment is needed for maintaining enough space for financing public investments in coming years. Large swings in public investment, such as the investment push of 2013-15, may lead to exchange rate overvaluation. In addition to prudent fiscal management, maintaining an exchange rate that is well-aligned with fundamentals and does not create disadvantages for Rwanda and is also important for minimizing macroeconomic volatility.

Rwanda's domestic savings have been fluctuating around 10 percent in recent years. Although this is largely in line with the global regression line, Rwanda's saving rate is low considering the relatively high investment rate and the need to scale up investments in the medium to long term. Low domestic savings combined with declining national savings have made financing Rwanda's investments more difficult. The following would support a virtuous circle between growth and savings: promoting household savings by developing a framework that would encourage households to save first before seeking loans; ensuring high economic returns from public investments, which would in turn encourage private savings; and introducing policy and institutional reforms that provide incentives for citizens to engage in productive investment and growth-promoting activities.

Public investment in Rwanda has also, it is argued, been skewed toward projects that aim to create a new reality rather than at alleviating pressing present scarcities. Both in public investments implemented through the budget and indirectly through public agencies, there is a preference for projects that create "new reality," including expanding and upgrading modern transport and MICE infrastructure such as air transportation, hotels, and conventional infrastructure. In addition, investment rates in recent years have been sustained by increased borrowing, including on commercial terms, as volumes of external assistance and public savings have declined relative to public investments.

By contrast, agriculture, which employs 70 percent of the labor force, has received only 10 percent of total public investment and other sectors also face unmet needs in irrigation and access to markets. For example, further investment in connectivity is also a priority. Despite recent scaling-up in investments, the poor quality of rural roads impairs the integration of Rwanda's countryside with its cities. Half of the rural population lacks access to a road network in good condition within a 2-kilometer walking distance. The poor quality is due to low spending on infrastructure repair and maintenance by districts containing secondary cities. Strengthening rural-urban links around secondary cities could both improve their access to inputs and raise the cities' impact on the surrounding environment. Provision of high-quality public transport is also a priority for Rwanda to improve connectivity and mobility. Bringing in private operators of transport and mobility services for both freight and passengers in rural and urban geographies is important to improve access and connectivity.

To rebalance its investment priorities, Rwanda needs to strengthen its public investment planning systems. This includes selecting appropriate structures and financing sources and managing multiyear fiscal commitments and the financial implications that can materialize in the medium to

long term. The key reform priority is to better align spending with government strategy and service delivery objectives, while improving control of expenditures to increase value for money.

Adjustments to Rwanda's industrial policy could stimulate trade-led growth. There are several issues with the current system. First, the incentives appear to equally prioritize export promotion and import substitution activities. Second, as part of industrial policy, tax incentives are granted to a range of sectors rather than built around performance criteria to target successful firms. A stronger focus on firm productivity, scale, and export promotion in areas aligned with the country's comparative advantages would be a more rewarding approach for Rwanda to take, just as it was for the high-growth East Asian economies.

Environmental Sustainability and Building Resilience to Climate Change

Rwanda is ranked 153rd in terms of its vulnerability to climate change (Notre Dame Global Adaptation Index). Since 1970, Rwanda's average temperature has gone up by 1.4°C and in some scenarios is projected to increase by 2°C by the 2030s. Precipitation is expected to increase by 5 to 10 percent by the 2030s relative to 1970, leading to higher frequency flooding and storms. Rainfall is expected to be more intense, thus increasing the risk of floods and landslides. Existing climate change variability is already affecting the people of Rwanda in different ways. The eastern and south-eastern parts of the country are most affected by seasonal droughts. Northern and western regions already experience intense rainfall, erosion, flooding, and landslides. Increased rainfall is expected particularly in parts of the Western, Northern, and Southern Provinces.

A steady depletion of Rwanda's forest and water resources has heightened the country's sensitivity to climate change. Between 2010 and 2015 alone, sparse forest areas declined by about 305,000 hectares (about 12 percent of national area), and annual crops increased by about 207,000 ha (about 8 percent of national land area). Critical watersheds and water catchments have been converted into agricultural land, resulting in the destruction and drying up of streams and a decline of ground water reserves. Watershed destruction, inappropriate settlements, inappropriate agricultural practices, and inadequate sanitation have increased siltation and sedimentation, pollution, and the risk of invasive aquatic weeds.

Climate change poses a range of challenges for Rwanda. All aspects of the agricultural value chain—irrigation, crop production and land management, livestock, rural transport, storage, and processing—are sensitive to climate variability. Climate change is therefore likely to stimulate migration from rural to urban areas, accentuating the already heightened sensitivity of urban areas to climate change. Infrastructure systems that support road transport modes are also vulnerable to climate variability and change. Temperature increases and rainfall variability could lead to lower tea and coffee production. Rwanda's energy supply is also sensitive to the effects of climate change. About half of Rwanda's electricity is generated from hydropower and more than 80 percent of the population depends on fuel wood to meet their energy demands. Rwanda has been identified as particularly at risk from the health effects of climate change, which can have particularly serious direct and indirect effects on the health of vulnerable groups like children, pregnant women, elderly people, and the poor. Since women are primarily responsible for household water and food security, climate change will increase their burdens disproportionately.

The climate policy and planning environment is fairly strong in Rwanda. Rwanda has a number of policies surrounding climate change adaptation and mitigation, as well as undertaking action on Nationally Determined Contributions (NDC) implementation. Going forward, key priorities will include: (1) developing climate-compatible, sustainable urban infrastructure, particularly given Rwanda's rapidly urbanization; (2) investing in stable and sustainable landscapes, for example to

build resilience against floods and landslides; (3) developing financing instruments for resilience and green growth that address the challenges posed by large upfront costs and uncertain long-run benefits.

Governance: A Foundational Priority

Rwanda’s strong overall governance provides a solid foundation for more inclusive growth. The institutions of governance have been significantly strengthened, earning the Rwanda government a reputation for efficiency and probity and providing a key comparative advantage over most peers in the region. Rwanda can now further consolidate the gains in the system of governance by encouraging more flexibility and innovation within the administration and local governments, while strengthening coordination between different government entities. The governance system in Rwanda also needs to institute a greater responsiveness to citizen concerns by improving the state’s accountability to its citizens and ensuring that policies and programs are aligned with the needs and aspirations of the people.

Prioritization of Proposed Policy Measures

The analysis in this SCD has yielded 24 priority areas in five pathway groups for Rwanda’s progress toward the World Bank Group twin goals of reducing extreme poverty and increasing prosperity. As not all actions to address these constraints will contribute to the twin goals to the same extent, the report outlines a prioritization process that includes a thorough review of the evidence; consultations with the government, civil society organizations, development partners, and other stakeholders in Rwanda; and a process of team discussion and scoring. Criteria used in scoring comprised (1) the five-year impact on the twin goals; (2) complementarity—the extent to which a particular intervention positively influences other interventions and objectives; and (3) long-term sustainability. The result is a shorter list of policy actions and supporting interventions that are likely to have the highest impact.

Pathways to Progress

Priority Areas	Actions
Prioritizing learning through investing in education and skill development	<ul style="list-style-type: none"> • Improve transition rates from primary to lower secondary education and secondary gross enrollment rates, especially in rural areas. • Prioritize teacher training for improved pedagogy and improved proficiency of language of instruction. • Strengthen the provision of technical and vocational training.
Prioritizing people’s health and well-being	<ul style="list-style-type: none"> • Improve access to antenatal and prenatal care for women. • Address food security and economic vulnerabilities to reduce stunting. • Address noncommunicable diseases. • Improve water and sanitation.
Improving social protection to reduce vulnerability and strengthen inclusion	<ul style="list-style-type: none"> • Improve targeting of social protection and increase budgetary financing for social protection. • Apply greater selectivity in social protection focusing on interventions with high impact. • Improve implementation readiness at all levels of social protection administration.
Building on the country’s success in gender equality	<ul style="list-style-type: none"> • Strengthen women’s participation in tertiary and technical-vocational education. • Promote entrepreneurship and access to finance for women. • Strengthen women’s participation in subnational democratic and governance bodies. • Expand response and prevention services to address gender-based violence in all districts and sectors.

Priority Areas	Actions
Balancing the role of the state and the domestic private sector	<ul style="list-style-type: none"> • Strengthen the enabling environment for the private sector. • Clarify government ownership strategy to optimize the public sector role in productive activities and ensure competitive neutrality. • Further advance reforms of the corporate governance of state-owned enterprises for healthier functioning of markets.
Strengthening the role of the market and the private sector in agriculture	<ul style="list-style-type: none"> • Allow markets a greater role in identifying profitable crops. • Reform price-setting practices and use of tariffs • Reform cooperatives. • Rely increasingly on private provision of agriculture inputs. • Address cross-cutting constraints in agriculture.
Addressing cross-cutting constraints for private sector development	<ul style="list-style-type: none"> • Improve access to finance. • Reduce costs and heighten the reliability of electricity through sector reforms. • Improve connectivity domestically and regionally. • Promote the digital economy and ICT. • Improve private sector access to land.
Promoting market-driven urbanization and agglomeration	<ul style="list-style-type: none"> • Balance long-term strategic bets with existing market opportunities from agglomeration to maximize nonfarm job creation in urban areas. • Review the master plans of Kigali and secondary cities and integrate them into overall economic planning to maximize economic and social outcomes.
Reorienting public investments for higher social returns and improved rural livelihoods	<ul style="list-style-type: none"> • Better balance investments in long-term strategic priorities and pressing infrastructure needs, such as irrigation, access to markets, rural-urban links, domestic connectivity, and quality public transport.
Prioritizing debt sustainability and macroeconomic stability	<ul style="list-style-type: none"> • Keep fiscal management prudent. • Strengthen the investment-growth nexus by a prudent approach to public and publicly supported investments. • Maintain an equilibrium exchange rate. • Strengthen mobilization of domestic revenue.
Engaging the private sector for infrastructure sustainably	<ul style="list-style-type: none"> • Balance ambitious infrastructure targets with consideration of fiscal risks. • Prudently engage with private investors to reduce possible fiscal risks from public-private partnerships.
Investing in stable and sustainable landscapes	<ul style="list-style-type: none"> • Strengthen landscape-based resilience. • Build technical and managerial capacity for the complete value chain of climate services. • Support communities in efforts to reduce landscape degradation.
Strengthening resilience through effective environmental management in the water sector	<ul style="list-style-type: none"> • Strengthen integrated water resource management and effective institutions. • Prioritize coordinated internal use and trans-boundary water cooperation.
Building a well-structured and high-capacity government	<ul style="list-style-type: none"> • Strengthen capacity and coordination within the government. • Advance the decentralization agenda to encourage local initiative and eliminate overlaps in responsibilities. • Modify the imihigo (personal performance contracts) to increase the autonomy of civil servants and local government.

INTRODUCTION

1. Rwanda's recent growth and poverty-reduction experience has been remarkable. Two decades ago Rwanda was one of the poorest countries in Sub-Saharan Africa (SSA); today its per capita income places it ahead of more than 20 countries in the region. Between 2001 and 2017, poverty have fell from 77.2 to 55.5 percent and aspects of the country's achievements in human development, such as health and gender equality, are even more impressive. The country's development vision today is highly ambitious: to become an upper middle-income country by 2035.
2. The challenges of further reducing extreme poverty and increasing shared property are enormous. Poverty has been less responsive to growth than in other strong performers on the continent and the poverty rate, as defined by the international poverty line of US\$1.90 a day, is higher in Rwanda than in many of its regional peers with similar incomes. Ensuring that future growth is pro-poor is thus a critical priority. Yet sustaining a high growth rate will itself be challenging. Structural transformation of the economy brought about by a movement of labor from farm to nonfarm occupations has slowed. Growth in "modern" sectors has become more capital-intensive and productivity in agriculture continues to be very low. This SCD builds on previous analysis that identifies the key constraints Rwanda confronts today and pathways to achievement of its vision, as well as new analysis undertaken by the World Bank Group specifically for this SCD. Two main studies are the main building blocks for this SCD: First, the joint government-World Bank Group (WBG) study on Rwanda's Future Drivers of Growth (the Growth study), which was launched in November 2018, provided detailed analysis and policy options for maximizing Rwanda's long-term growth potential. It focused on the agenda for reform of human capital, regional integration, urbanization, enterprise development, agriculture, and governance, which will be critical for sustaining a high-growth trajectory over the long run. Second, the WBG report on the Country Private Sector Diagnostic (CPSD), completed in 2019, was the SCD's main analytical underpinning in identifying constraints holding back Rwanda's private sector. The CPSD highlighted problems with the regulatory framework, infrastructure, finance, and skills, that deter investors from unlocking Rwanda's job creation and market potential. It also identified agribusiness and affordable housing as priority sectors for market creation and inclusive jobs.
3. Based on these reports and other analytical work, the SCD assesses options for addressing barriers to achievement of Rwanda's development vision, poverty reduction, and shared prosperity. Using an objective set of criteria, it sets out a list of the policy actions that have the highest potential for accelerating poverty reduction and sustainable growth. Most fundamentally, the SCD echoes the core finding of the Growth study and CPSD reports that the Rwandan state will need to build on its success and craft new ways to responding to the evolving needs of its economy and its citizens.
4. The Rwandan state has successfully delivered a secure environment and increased prosperity in uniquely challenging conditions. This track record clearly sets it apart from many of its peers, in the region and worldwide. As the needs and opportunities of the country have changed, a policy recalibration will be necessary not just to maximize long-term growth potential but also for nearer-term poverty reduction and shared prosperity objectives. Investing in human capital will facilitate rural-to-urban transition and energize productivity growth and structural transformation. Sustained growth will require giving markets and the private sector a bigger role, including in agriculture. The government will need to better optimize the use of scarce investment resources. Rwanda also needs to address risks generated by environmental degradation and climate change by building resilience, while continuing to build a system of governance that supports growth and inclusion.

1. COUNTRY CONTEXT

After 1994 everything was a priority and our people were completely broken. But we made three fundamental choices that guide us to this day. One — we chose to stay together. Two — we chose to be accountable to ourselves. Three — we chose to think big.¹

A. Historic Context and Genocide

5. Until independence in 1962, Rwanda was administered as part of the Belgian Congo. Belgium recognized the king or *Umwami* of the pre-colonial state as the traditional ruler of the territory but increasingly administered the territory itself, making use of its nobility. As decolonization became foreseeable, a new elite rooted in the peasantry challenged the country's noblemen. With the support of the departing Belgian administrators, the new Hutu elite prevailed. Due to the violence that followed independence, about half of the Tutsis fled abroad and settled in adjacent countries. Ethnicity however, was only one facet of a complex societal structure.

6. At the time of independence, the already densely populated country had almost no modern infrastructure, and mineral resources, mostly tin, were minimal (see Box 1.1). A moderate climate and, in some areas, rich volcanic soils have made it possible to successfully introduce such cash crops as tea and coffee as a foundation for a potentially productive agricultural sector. However, subsistence livelihoods continued to predominate, and a rapidly growing population has tightened the pressure on land; the results are smaller and smaller holdings, overuse of land, and soil degradation. Until the early 1980s, substantial foreign development aid helped Rwanda to realize modest economic growth. But as world market prices fell for minerals, coffee, and tea, and fiscal difficulties increased, the economy began to falter. The poor economic performance undermined the regime's legitimacy, and the fragile social fabric began to show rifts.

Box 1.1: The Physical Context

Rwanda is situated in the equatorial zone in Central Africa. It is a landlocked country with few fossil fuel resources. The country has some hydropower potential and access to geothermal and solar energy. From 1990 to 2015, cropland increased drastically, mainly at the expense of woodland and sparse forest. Rwanda has been exposed in recent decades to temperature rises above the global average. Because of steep topographical gradients and poor farming techniques, the soil nutrient balance in Rwanda is among the most negative in Africa.^a

^a Intergovernmental Panel on Climate Change

7. Meanwhile, Rwandan refugees in Uganda, mostly Tutsis, formed a political liberation movement, the Rwandese Patriotic Front (RPF), and its military wing, the Rwandese Patriotic Army (RPA). Starting in 1990, the RPF gradually gained control of parts of the Northeast. President Habyarimana was eventually forced to consent to an internationally mediated peace treaty (the Arusha Peace Agreement), which foresaw a multiparty government, the integration of RPF politicians into state structures, and the integration of rebel armed forces into the national army.

8. Officers of the national army resented the political concession. Growing internal violence and opposition stalled implementation of the Arusha agreements. The shooting down of Habyarimana's airplane on April 6, 1994, triggered the final phase of civil war: the Genocide against the Tutsi. Over 1 million Rwandans were murdered. Eventually the RPA conquered the rest of the country, stopping the Genocide and taking over the government. The perpetrators of Genocide, many officials, the army,

¹ H.E. President Paul Kagame, April 2014, in a speech at Amahoro Stadium on the 20th anniversary of the Genocide.

and some two million Rwandans fled to neighboring countries. The Genocide not only cost the lives of over one million people, it also destroyed the country's social and economic fabric.

B. Developments after the Genocide

9. The economic and social costs of Genocide were enormous. Within a year the country's GDP fell, from an already low base, by half and Rwanda became the second poorest country in the world with widespread hunger and food insecurity. The social and physical infrastructure was devastated, trade links were ruptured, businesses and agricultural assets dwindled, and institutions of governance required rebuilding. Insecurity and instability were pervasive, generated both internally and from threats across the region. Social trust had collapsed.

10. The Government of National Unity (GNU) that took over in 1994 was dominated by the RPF and RPA and relied on the Arusha Agreement as the legal basis for a transitional government. Through the rest of the 1990s, the RPF gradually consolidated its political power. In 2000 Parliament elected Paul Kagame president and, after a referendum endorsed a new constitution in May 2003, in August he won the presidential election. After the country had been pacified and reconciliation was underway, relief and reconstruction became the cornerstone of the new government. In December 1994, the GNU issued a Declaration of Principles that outlined its political, social, and economic agenda for a "New Rwanda." The declaration emphasized social stability, national security, and a commitment to a market economy, backed by a capable state and a strong private sector. National reconciliation and healing evolved through homegrown initiatives, such as establishment of first a National Unity and Reconciliation Commission in 1999 and then the *gacaca* courts, modeled on local customary approaches to dispute settlement.

Box 1.2: Growth of the State

Rwanda had a precolonial tradition as a state. The legitimacy of the post-independence nation-state has never been questioned. Nevertheless, Rwanda's monolingual society has been deeply divided between socioeconomic groups interpreted as being ethnically different, a division that was exacerbated by the colonial legacy. Tensions between elite groups for control of the state that often turned violent led to large waves of emigration in the 1960s and 1970s, and again during the 1994 Genocide against Tutsis. But among young people, identification with the Rwandan nation is growing. Rwanda's stability and security are now impressively high. According to the 2016 World Internal Security and Police Index, Rwanda is now ranked 50th in the world for the ability of its security apparatus to respond to internal challenges and is ranked 1st (equal with Botswana) in Sub-Saharan Africa. The administration functions well throughout the country. The replacement of former municipalities by new territorial entities, and the reform of their functions, has created a strong presence for the dominant party, RPF; at the center over provincial, district, and sector administrations down to the villages. Government officials are bound by a detailed personal performance contract (*imihigo*) with the President of the Republic, reflecting the strategic objectives of the central government. The system has proved to be an effective tool of performance management and top-down approach toward socioeconomic transformation.

Source: Bertelsmann Stiftung, BTI 2018 Country Report — Rwanda. Gütersloh: Bertelsmann Stiftung, 2018.

11. Strong state institutions and capable public administration became the cornerstones of Rwanda's transformation. In the absence of a viable private sector, the state led the economic recovery efforts through large public investments, mostly financed through external assistance. At the end of the 2000s, the government sought to partially privatize state-owned enterprises (SOEs). This was matched by establishing new SOEs and quasi-public companies, some owned by the military, in a bid to accelerate economic modernization; thus, the government assumed a more active role in the

economy. At the same time, and despite enormous improvements governance, weak political competition and a heavy role for the state in societal structures have weakened the role of voice and accountability—an outcome seen by some as the price that had to be paid for peace, and the undoubted economic and social progress delivered up to that point (Box 1.2).

12. The country having largely met the dual post-Genocide objectives of economic recovery and social and political stability, a solid foundation had been laid for long-term growth and development. This agenda was crafted early in Vision 2020 (adopted in 2000), with far-reaching development targets, later backed by ambitious reform programs that were part of a series of poverty reduction strategies. Although Rwanda will not become a middle-income country by 2020 as Vision 2020 envisioned, its accomplishments in terms of growth and many aspects of human development, especially access to health and gender equality, are impressive (Box 1.3). Vision 2050, adopted in 2019, sets the country on an even more ambitious course to reach upper middle-income country status by 2035. These aspirations imply double-digit average annual per capita growth. The new Vision identifies six pillars to achieve its goals: (1) good governance and a capable state; (2) human resource development and a knowledge-based economy; (3) a private-sector led economy; (4) infrastructure development; (5) productive and market-oriented agriculture; and (6) regional and international economic integration. Gender equality, environmental sustainability, and long-term commitment to science and technology were the cross-cutting themes in support of the six pillars.

Box 1.3: Rwanda's Achievements in Gender Equality

Rwanda is widely recognized for its commitment to gender equality. The Government of Rwanda has formulated policies and enacted progressive legislation on gender equality and protection of family property. Gender equality was highlighted as a priority in both Vision 2020 and the Second Economic Development and Poverty Reduction Strategy (EDRSP2), which provided vehicles for addressing gender-based related issues. The National Gender Policy provides guidance for equalizing opportunities for men and women in every sector. Rwanda has a National Gender Policy and a ministry dedicated to gender issues.

As a result, Rwanda ranks first in the world for female representation in the national parliament and fifth in the World Economic Forum's Gender Gap Report. The primary school enrollment and completion rates of boys and girls are equal. Major gains have also been made in increasing contraceptive prevalence rates and reducing adolescent fertility and maternal mortality. The country has enacted laws against gender-based violence (GBV). The Penal Code punishes a number of GBV offenses and court fees for claims related to GBV are waived in order to facilitate redress for GBV victims through the court process. Land reforms have given women more power over domestic property, and an impact evaluation found that the reforms led to an increase in investments in soil and water conservation, with more investments by female-headed households, which illustrates the multi-dimensional benefits of such reforms.^a

^a Ali, Deininger, and Goldstein (2011)

Source: World Bank, World Economic Forum

2. GROWTH, POVERTY REDUCTION, AND INSTITUTIONS

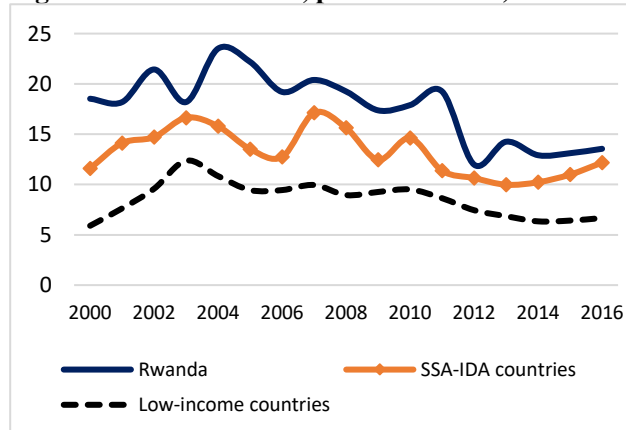
A. Growth, Productivity, and Structural Transformation

13. In 1994, at the time of the Genocide and after several decades of economic stagnation, in Sub Saharan Africa only Mozambique was poorer than Rwanda. Rwanda has since seen its per capita GDP income rise three-and-a-half-fold, and today has surpassed 20 countries in the subcontinent. Solid growth has decreased the poverty rate from 77 percent of the population in 2001 to about 55.5 percent in 2017 (based on the US\$1.90 per day international poverty line) and driven improvement in social indicators. Since 2006 growth in GDP per capita has averaged 5 percent per year, second only on the continent to Ethiopia.

Strong growth led by the public sector and supported by foreign savings

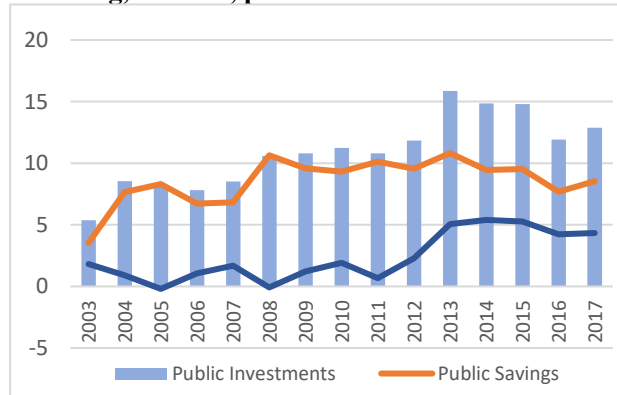
14. Rwanda's visionary leadership and the institutions established during the nation-building of the 1990s and early 2000s were central to Rwanda's recovery. After achieving peace and national reconciliation, the government focused on modernizing infrastructure and delivering critical social services to the population to build up human capital. A results-oriented approach to service delivery and zero tolerance of corruption helped create an environment that began to attract external assistance. Rwanda is now a highly favored recipient of development assistance, which has been the main source of its development finance. In flows of official development assistance (ODA) have averaged 17.2 percent of GDP annually, nearly 5 percent more than the average for SSA-IDA countries, and nearly double the average for low-income countries (Figure 2.1). With Rwanda's growing income, ODA inflows have declined in recent years, but are still high.

Figure 2.1: ODA inflows, percent of GDP



Source: MINECOFIN, WBG staff calculation

Figure 2.2: Public investments and sources of financing, 2003-17, percent of GDP

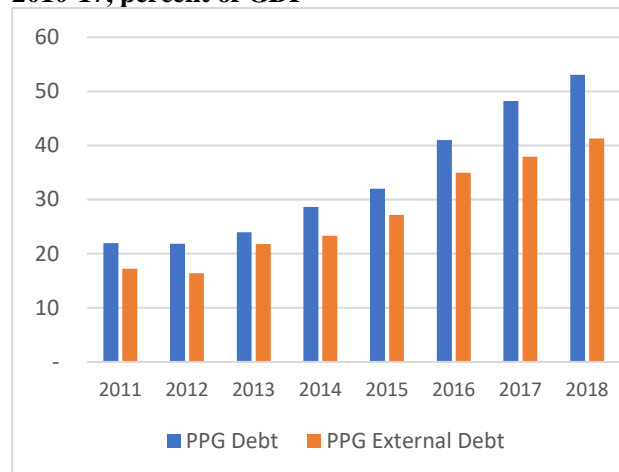


Source: MINECOFIN, WBG staff calculation

15. Since the early 2000s Rwanda has been able to sustain its economic growth by consistently increasing public investments. Public investment has risen from 5 percent of GDP to an average of 15 percent in recent years, driving the overall investment-to-GDP ratio from about 12 to 25 percent. Foreign savings are still the main source of funding for Rwanda's investments. While national savings have recovered from negative values about a decade ago to close to 10 percent of GDP in recent years, they are still modest and mostly comprised of public sector savings, which depend on official grants—underscoring Rwanda's continued dependence on foreign sources of finance. More recently, Rwanda has increasingly relied on borrowing, often on commercial terms; external assistance and public savings have declined relative to public investment (Figure 2.2). Borrowing by the public sector

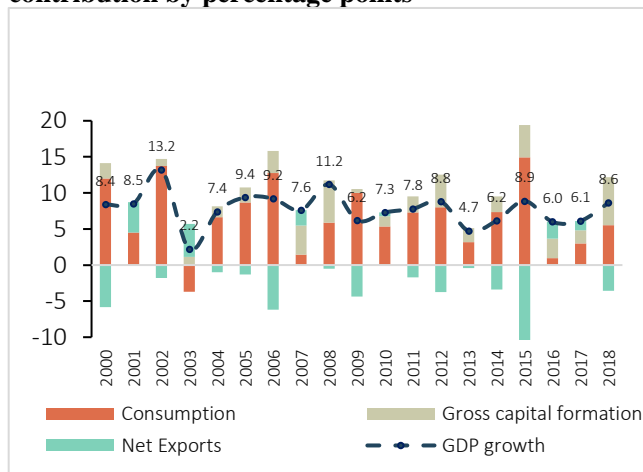
consists not only of direct government borrowing but also of government guarantees for loans to SOEs (mostly the air carrier, hotels, and conference centers), which are a big part of investments by the quasi-governmental sector. Reliance on borrowing, which has been overwhelmingly external, has pushed up the debt-to-GDP ratio (Figure 2.3). While average annual growth rates have been high, in recent years growth has been more volatile due to the both dependence on foreign-financed investments and the country's vulnerability to natural shocks (Figure 2.4).

Figure 2.3: Public and publicly guaranteed debt, 2010-17, percent of GDP



Source: NISR, WBG staff calculations

Figure 2.4: Growth by demand factors, contribution by percentage points

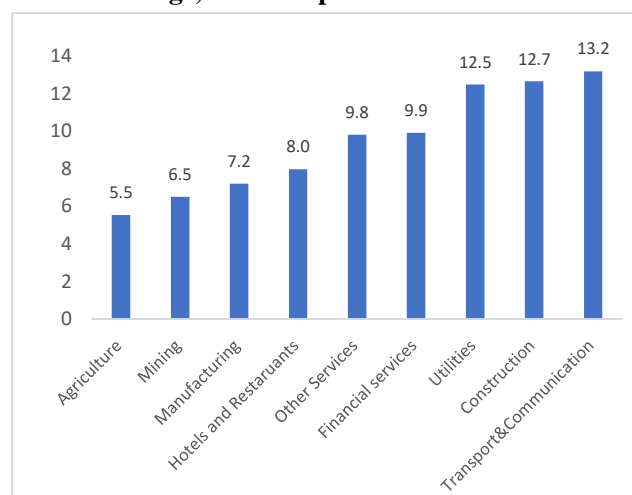


Source: NISR, WBG staff calculations

16. On the supply side, construction, mining, trade, and transport have each grown at 9-10 percent annually since 2006, while manufacturing grew at 7 percent and agriculture at 5.5 percent (Figure 2.5). Rwanda has seen new subsectors emerging, such as dynamic eco- and business tourism and food-processing, while existing industries have expanded. Overall, the growth in nontradables was stronger than that of tradable sectors—between 2000 and 2018 the contribution of net exports was positive in only six years. Because of its reliance on foreign savings for sustaining investments, Rwanda has consistently run large current account deficits, which peaked at 16 percent of GDP in 2016 during an investment push and then retracted to less than 8 percent in 2017 and 2018.

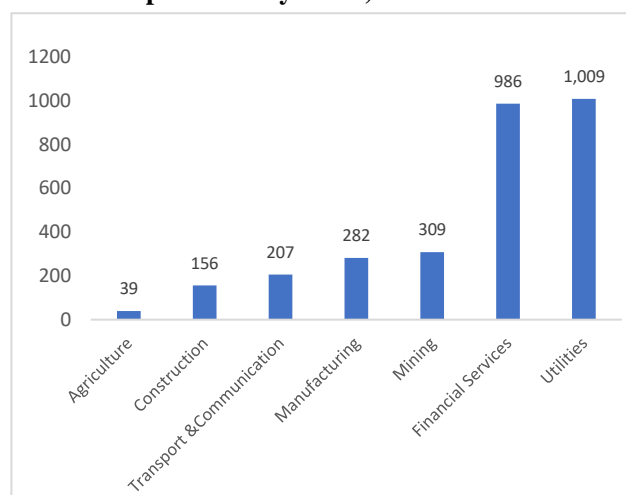
17. Agriculture accounts for close to 70 percent of employment and about 33 percent of GDP. Since the early 2000s productivity in the sector has been growing, boosted by supportive policies. The National Agricultural Policy of 2004 and its four- to five-year implementation plans emphasized growth in staple food crops for the domestic market, a strategic choice reinforced by the food crisis in 2008. Agriculture has the lowest productivity of all key sectors due the prevalence of subsistence farming (Figure 2.6); since the early 2000s, average growth of about 5.5 percent has been driven by expansion of the land devoted to agriculture combined with more labor, more use of inputs, and growth in total factor productivity (TFP). There are indications that the TFP growth has slowed down recently, pointing to possible challenges in allocative efficiency, as discussed in the Growth study. The scope for further land expansion is severely limited, as is the potential for worthwhile gains from applying ever more labor and inputs per hectare. The growing rural population continues to put pressure on scarce land resources because non-farm labor-intensive industries and rural to urban migration are still limited.

Figure 2.5: Sector Growth 2005-17 (percent, annual average, at factor prices)



Source: NISR, WBG staff calculations

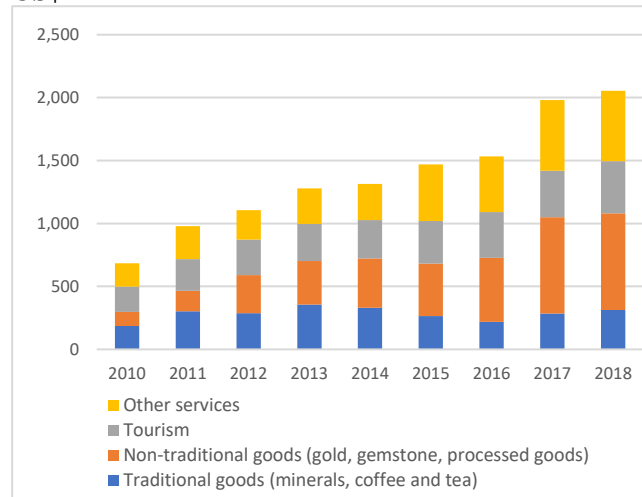
Figure 2.6: Labor productivity in 2017 (Economy wide labor productivity = 100)



Source: NISR, WBG staff calculations

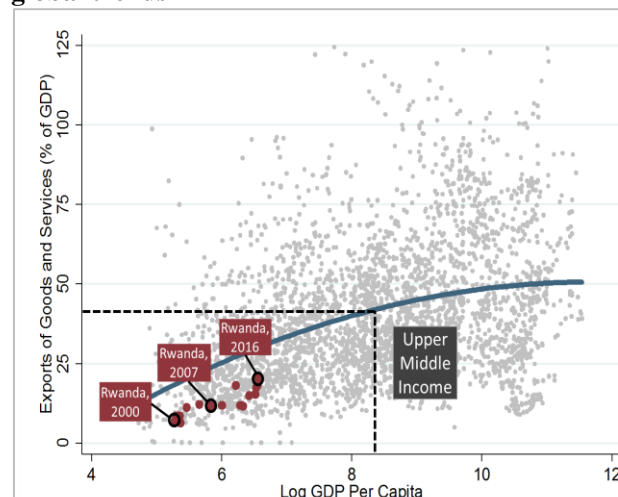
18. Although most of Rwanda's economic growth has not been export-led, the annual growth rate of exports of goods and services averaged 15 percent in 2010-18, which by 2018 brought total exports to more than US\$2 billion, more than 20 percent of GDP (Figure 2.7). Exports of tourism and transport services have done well, in part reflecting heavy investment in these sectors. Rwanda has emerged as a transit country servicing re-export operations from East Africa's ports to the DRC. On balance, however, Rwanda's exports are below the levels its level of income would predict (Figure 2.8). This reflects the lack of major mineral resources, weaknesses in tradable sectors, geographic disadvantages, and the impediments to regional trade and integration in the Eastern African Community (EAC), which because of political tensions between its members, the EAC has failed to remove.

Figure 2.7: Exports of goods and services, million US\$



Source: NISR

Figure 2.8: Rwanda's export performance vs global trends



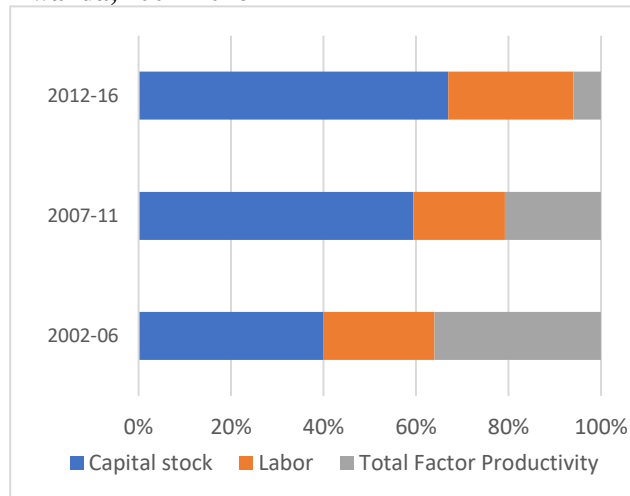
Source: WDI

Slow productivity growth and structural transformation the main weaknesses

19. As the Growth study showed, productivity has emerged as a major problem for Rwanda. While in the early years of recovery TFP had strong growth, that has slowed in recent years (Figure

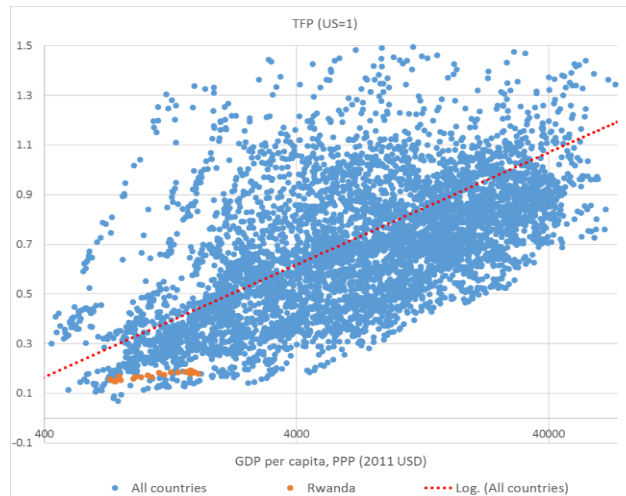
2.9). Declining TFP growth in agriculture is one of the reasons behind this trend, in addition to the overall slowdown in structural transformation and a weak TFP capital-intensive sectors where expected economy-wide spillovers have not yet materialized. In terms of both the level of TFP and its growth rate Rwanda underperforms its peers with similar incomes (Figure 2.10).

Figure 2.9: Sources of growth by factor inputs in Rwanda, 2002–2016



Sources: World Development Indicators (WDI), NISR

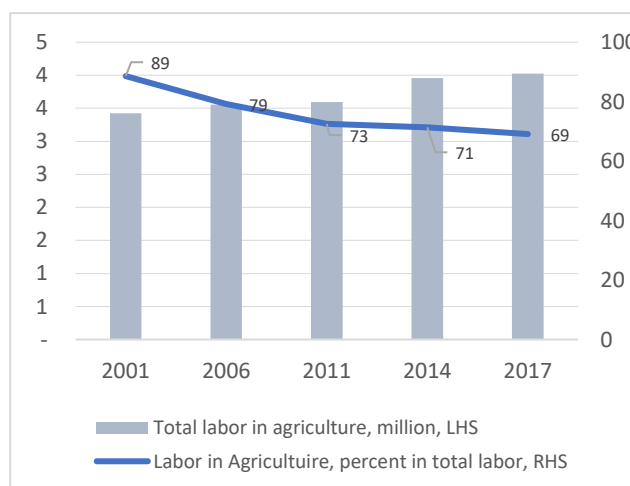
Figure 2.10: Rwanda's TFP vs global trends, TFP=1



Source: WDI (various years), NISR

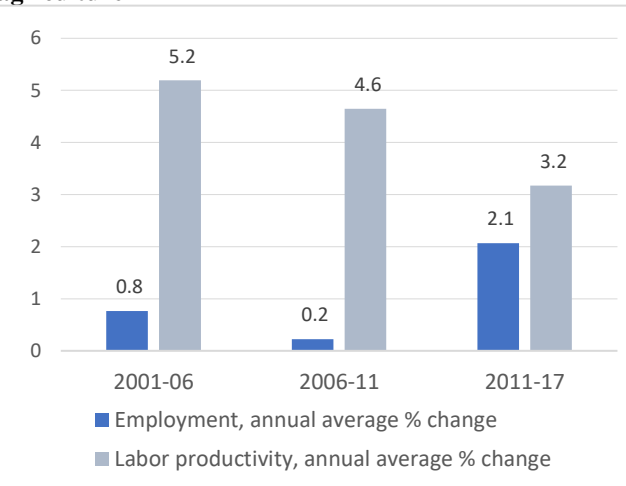
20. Structural transformation, the movement of labor out of low-productivity agriculture to industry and services and from farms to cities has characterized Rwanda's growth. Close to two-thirds of GDP growth since 2000 has been the result of structural transformation, with the rest coming from growth within sectors. Structural transformation was a major source of TFP growth between 2001 and 2011 as factors of production, most importantly labor, moved from farming to nonfarming sectors.

Figure 2.11: Agriculture employment, 2000-17



Source: NISR EICVs, WBG staff calculations

Figure 2.12: Employment and productivity in agriculture



Source: NISR EICVs, WBG staff calculations

21. However, the pace of structural transformation has slowed. Since 2011, based on household surveys the share of agricultural employment has declined only marginally, by just 3 percentage points, compared to a 7 percentage points decline in the previous five years and a staggering 9

percentage points decline between 2001 and 2006 (Figure 2.11.). As a result, while the absolute number of workers employed in farming was relatively flat between 2001 and 2011, since 2011 it has risen by 430,000. The surge, which is far above previous trends, took place as growth in agricultural productivity was slowing (Figure 2.12). There is evidence that access to farm land has narrowed markedly because of population pressure and the lack of farm to non-farm transition (Table 2.1).

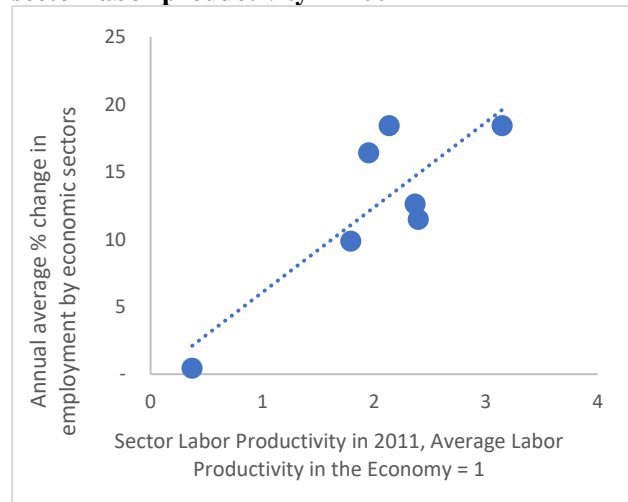
Table 2.1: Rural households with less than 0.3 ha farm land, percent

	2011	2014	2017
Rwanda	46.1	46.8	57.5
South	51.4	48.5	60.3
West	52.2	56.5	63.3
North	46.2	43.5	58
East	28.8	34.1	44.3

Source: EICVs and WBG staff calculations

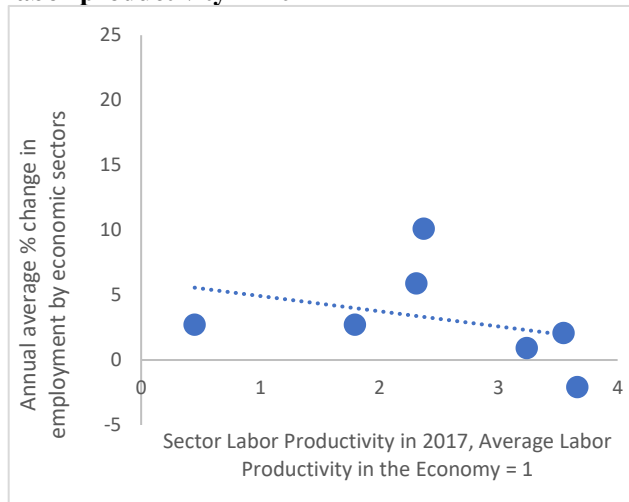
22. The non-farm sector was able to absorb only 50 percent of the workforce added to the economy in 2011-17, compared to 84 percent in 2001-11.² Figure 2.13 and Figure 2.14 show the change in the trends of structural transformation from 2001 to 2017; it is clear that the most productive sectors have not been able to sustain high rates of job creation, which suggests that there are bottlenecks to structural transformation. The inability of non-farm sectors to create jobs and absorb labor from agriculture at the rates observed in the previous decade also suggests that a growing number of Rwandans are dependent on low-productivity agriculture even as the sector is under pressure because of weather shocks and either limited or no potential for expansion of croplands.

Figure 2.13: Change in sector employment versus sector labor productivity in 2001-11



Source: NISR, WBG staff calculations

Figure 2.14: Change in sector employment versus labor productivity in 2011-17



Source: NISR, WBG staff calculations

² Based on EICV 4 and 5

Table 2.2: Job profile of working adults in Rwanda, 2016 and 2019, thousands

	2016	2019	Change
Employed in industry	514	605	92
Employed in services	1,181	1,309	128
Employed in non-subsistence agriculture	1,008	1,268	260
Engaged in subsistence farming	1,664	1,791	127
Unemployed but engaged in subsistence farming	361	270	-91
Total employed or engaged in subsistence farming	4,728	5,244	515

Source: NISR Labor Force Surveys (2017 and 2019)

23. Recent data from Rwanda Labor Force surveys (LFS) illustrate that agriculture continues to be the main job generator. The number of adults reporting any type of economic activity has risen by 515,000 since 2016, of whom 57 percent were in farming, subsistence or nonsubsistence (

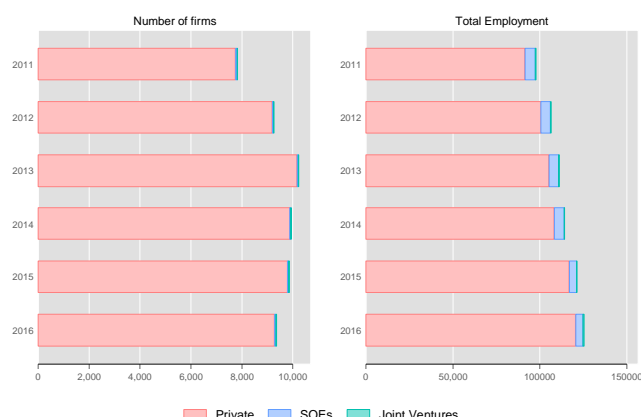
24. Table 2.2). The subsistence sector continues to expand, though slowly, in terms of number of workers. Sectors other than farming have lagged in creating jobs. Services created only 25 percent of new jobs, in line with their share in total employment—clearly services are not an important avenue for structural transformation. Industry performed better, generating 18 percent of new jobs in 2016-19 with an initial share in total employment of only 8 percent most of which in construction.

25. In addition to the job creation patterns discerned from EICVs and LFSs, the Growth study identified a weak rate of job creation at firm level. The number of non-farm enterprises, including micro and informal ones has grown rapidly from the 1990s to 2017, when there were about 190,000 firms employing more than 600,000 workers. Moreover, the business environment has improved, as evidenced by Rwanda's high ranking in the Doing Business Index. Yet the number of formal firms seems to have plateaued early at over 10,000 in 2013. Between 2013 and 2016, the number of formal firms declined by nearly 1,000 (Figure 2.15), and such firms added only 50,000 jobs in 2011-16, according to the census of businesses—and only 30,000 according to the Rwanda Revenue Authority database. This pace of formal job creation is slow considering that in that period an estimated 800,000 workers entered the labor market. The Growth study also showed that growth of productivity within firms decelerated: from 2011 to 2016 while only 3 percent of firms saw annual employment growth of over 20 percent for three consecutive years. It also showed that Rwanda suffers from serious resource misallocation by firms.

26. Job creation in the informal private sector has also slowed. Strong growth in the percentage of independent non-farm workers (mostly informal micro entrepreneurs) seen in 2001-11 has since reversed (Figure 2.16); the absolute number of these workers held at about 500,000 even as more than 800,000 Rwandans were entering the labor force.

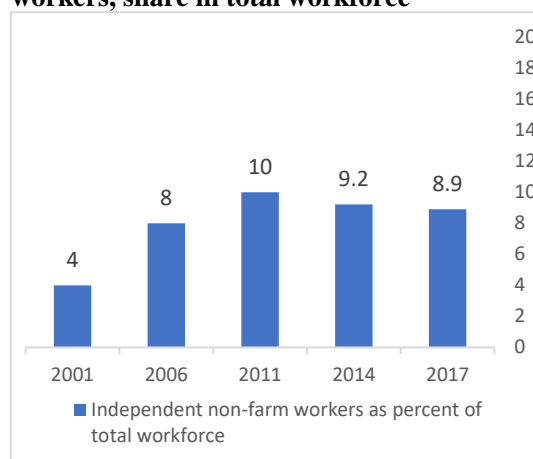
27. The main reason for the slowdown in nonfarm labor absorption is that the sectors attracting large capital investments and growing fast, especially services, have become less labor-intensive. In recent years, a substantial amount of investment resources, both public and private, went into sectors and programs identified by the government as strategic priorities, such as MICE (Meetings, International Conferences, and Events) and Rwandair, which are not labor-intensive relative to the scale of upfront investments. It is estimated that in 2013-17 close to US\$1.5 billion in public resources were invested in MICE and Rwandair. The emergence of these “modern,” capital-intensive sub-sectors has contributed to the growth in output and labor productivity but has not, directly or indirectly, added many jobs. The new sectors have also contributed to the decline in TFP growth because expected economy-wide spillovers from large upfront capital investments have not yet fully materialized. In terms of private investment, evidence from commercial bank lending portfolios suggests that only a smaller share of private investments has gone into labor-intensive sectors like manufacturing and agriculture.

Figure 2.15: Number of firms, and the share of independent non-farm workers



Source: Rwanda Revenue Authority and NISR

Figure 2.16: Independent non-farm workers, share in total workforce



Source: Rwanda Revenue Authority and NISR

Solid results from Rwanda's development model but emerging risks

28. Some of the constraints on structural transformation and productivity growth mentioned may be due to emerging inconsistencies between the evolving context in Rwanda and the development model that worked well in the first phase of nation building and recovery. That model emphasized centralized resource allocation to achieve outcomes aligned with government priority sector and spatial development preferences. The state played an important role in Rwanda's spectacular recovery following the 1994 Genocide and has been driving transformation since the early 2000s. In key areas Rwanda took a unique turn shaped by the government's choice of development model. This makes Rwanda's experience different in many ways from that of many other developing countries. "Signature" policies are recognizable, for example, in how the agriculture and enterprise sectors have developed so far, in the unique characteristics of Rwanda's urbanization and public investments in infrastructure, and, equally important, the accountability framework that underpins its public administration (Box 2.1).

29. These unique approaches are mostly seen as national strengths and were welfare-enhancing during the first phase of nation-building. But as the economy has become more complex, at least in the short run some of these deeply entrenched preferences may have resulted in a misallocation of resources and possible welfare and efficiency losses. As long as there are risks that the assumptions about long term spillovers and positive externalities underlying the government's approach may not materialize, welfare losses could be permanent.

Box 2.1: The State-Led Model of Development

Three examples illustrate the distinctive character of Rwanda's development model:

- ***An interventionist approach to production sectors, both in agriculture and modern industries.*** In agriculture, since the late 2000s the state has largely decided the what, where, and how of agricultural development, emphasizing staple foods. State-led crop intensification programs and cooperatives were the backbone of the model and in the early stage substantially increased yields. In modern industries the government actively encouraged new enterprises through a set of orthodox and less conventional policies. While the government has continuously improved the business environment to attract private investments, climbing in the Doing Business ranking, it has also introduced industrial policies by creating special economic zones and providing generous tax incentives to attract investments. Existing and new state-owned or state-connected companies (SOCEs) have actively invested in sectors identified by the government as strategic, among them air transport and luxury hotel and convention infrastructure, construction, food processing, logistics, IT, and medical services. However, there is evidence of large resource misallocation in the formal sector, as shown in the Growth Study.
- ***A futuristic vision of Rwanda as a hub for high-value services, high-end tourism, and MICE*** justifies large public investments in infrastructure in certain sectors and areas, as a means of attracting future service-based activity. Large public resources have been directed to this program, including substantial net lending from the budget to SOEs managing this infrastructure and guarantees for securing loans on commercial terms. These are long-term investments, and there were no illusions about short-term returns. There are promising signs such as the rapidly growing MICE sector, but economy-wide returns are as yet still quite low in comparison to the magnitude of the upfront investments. Meanwhile, Rwanda is confronted by major infrastructure needs in sectors where the economy's current endowments are: in recent years, agriculture, for example, has received only 10 percent of public investment, even though it employs almost 70 percent of Rwanda's labor force and has large infrastructure gaps.
- ***A long-term vision of spatial transformation supported by the strict use of zoning and master plans in Kigali (the capital), promotion of secondary cities, and the concept of "modern villages."*** The authorities aim to develop a modern urban space in Kigali that fits its vision. More "balanced" distribution of urban activities to reduce pressure on Kigali is another motivation for the government. Rwanda's unique urban planning and management of urbanization has had noticeable advantages, especially in terms of attracting visitors to Kigali. The approach to urban planning in Kigali prioritizes high-value development, even though the demand for such development currently falls far short and it limits the availability of land for the type of activity for which there is current market demand. The model may have short-term efficiency losses, as shown in the joint Growth study, which may be offset in the longer term if government expectations about new service industries materialize and positive spillovers reach the wider population. At this point, however, the policy may discourage rural-to-urban and farm-to-non-farm transitions and slowing structural transformation.

B. Poverty and Shared Prosperity

30. Rwanda has significantly reduced poverty and boosted shared prosperity. The second half of the 2000s witnessed the steepest decline; in recent years poverty reduction has been less responsive to growth. Rwanda has also made major strides in nonmonetary indicators of well-being.

Steady poverty reduction accompanying growth

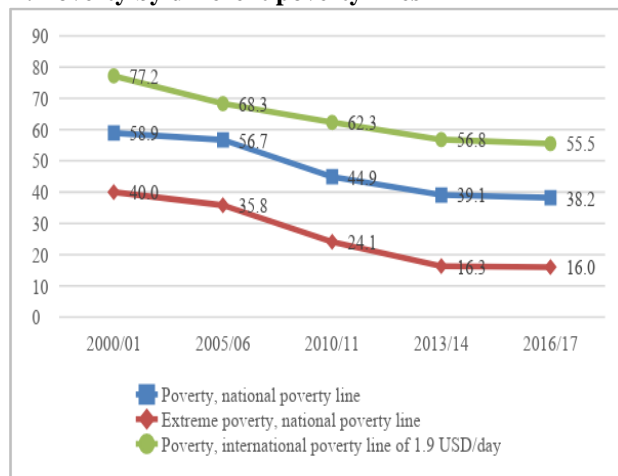
31. Between 2001 and 2017 poverty as measured by the international poverty line fell from 77.2 to 55.5 percent, and poverty measured by the national poverty line fell from 58.9 to 38.2 percent (Figure 2.17A). Poverty has also become less severe. The average difference between the consumption of poor households (those below the poverty line) and the poverty line itself has declined over the years: between 2001 and 2011 the poverty gap narrowed from 24.4 to 15 percent. A further,

though much slower, reduction in the poverty gap occurred between 2011 and 2017. Reductions in poverty rates were generalized across both urban and rural areas.

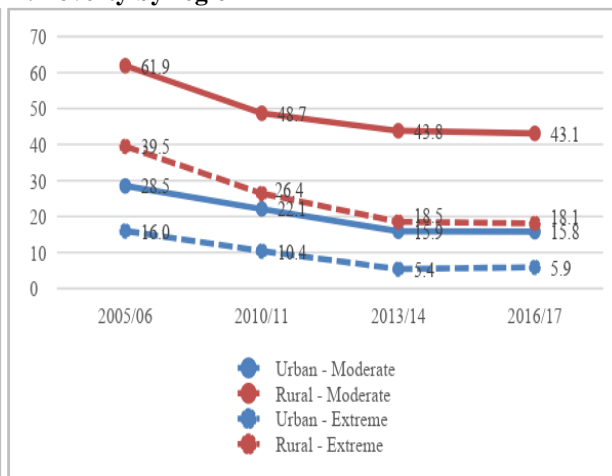
32. Despite Rwanda's good record in poverty reduction, the most recent household survey showed that poverty reduction stagnated between 2014 and 2017 because of droughts, a slowing in structural transformation and rural to urban transition, and a weakening of the job-creating potential of Rwanda's recent growth (see Annex 2 on the impact of the droughts). Between 2014 and 2017 poverty rose in the Southern province by 3 percentage points and in the Western by 2 percentage points. In 2017, the districts with the highest poverty rates were in the Western province, followed closely by districts in the Northern and Southern provinces (Figure 2.178 and 2.19).

Figure 2.17: Poverty trends

A. Poverty by different poverty lines

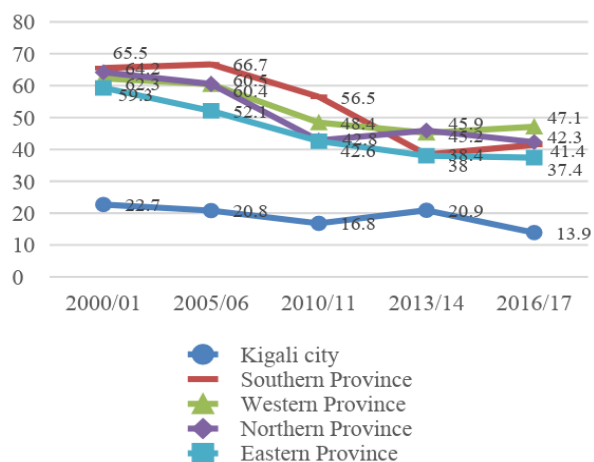


B. Poverty by region



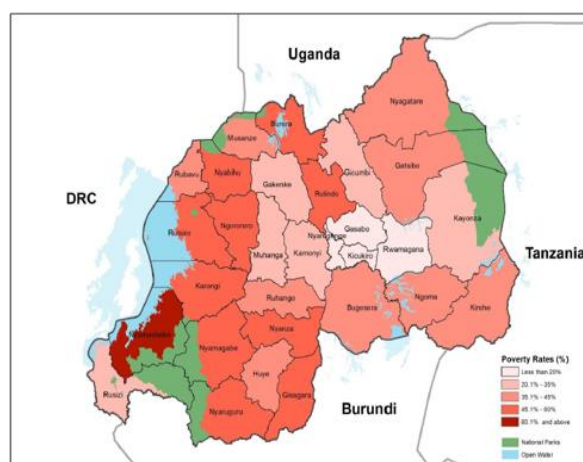
Source: NISR (2015, 2018).

Figure 2.18: Moderate poverty rates (national poverty line) by province



Source: NISR (2015, 2018).

Figure 2.19: Poverty rates by district, 2017



Source: NISR (2015, 2018).

33. More than 90 percent of the poor in Rwanda live in rural areas, especially in the Southern, Western, and Eastern provinces. However, between 2014 and 2017 there was a slight fall in the share of the poor in rural areas because of higher food prices for urban poor due to the droughts; the change parallels the rise in extreme poverty in urban areas. Given the city of Kigali's small share of the country's poor population (less than 5 percent) and its decline in extreme poverty rates, the rise in the

overall urban extreme poverty must have been driven by the increase in poverty rates, and in the share of the poor population, in urban areas of the Southern and Western provinces (Table 2.3).

34. Female-headed households are more vulnerable: 39.5 percent of them were poor in 2017 compared to 37.6 percent of male-headed households, and 62 percent of female household heads were engaged in independent farming, compared to only 43 percent for male heads.

Table 2.3: Distribution of the extreme poor in urban/rural areas and provinces

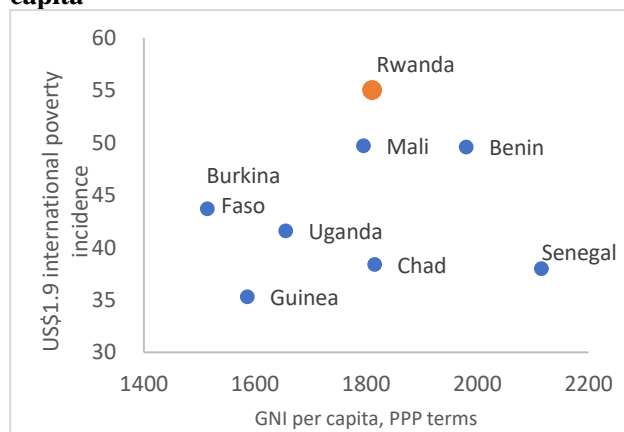
		2013/14	2016/17	Change %
	Urban	6.8	7.4	0.8
	Rural	93.2	92.6	-0.8
Province:	City of Kigali	5.9	4.8	-1.1
	Southern	22.9	25.1	2.2
	Western	27.0	28.1	1.1
	Northern	18.6	17.3	-1.3
	Eastern	25.6	24.7	-0.9

Source: NISR (2018)

Declining inequality but the less pro-poor growth in recent years

35. According to the household surveys, the Gini coefficient for Rwanda has been reduced. After it rose at the beginning of the 2000s, Rwanda saw inequality decline thereafter: measured by the Gini coefficient, from a base of 0.51 inequality increased two points in the first five years of the 2000s but in 2014 it dropped to 0.45 and in 2017 to 0.43. However, there are gaps in determining the extent to which growth has been pro-poor because of the discrepancy between private consumption as captured by the household surveys and by the national accounts (see section 5 on knowledge gaps). Rwanda also appears to have relatively higher poverty than neighboring peers with similar income per capita (Figure 2.20). Furthermore, the growth elasticity of poverty reduction is lower than in many such peers (Figure 2.21).

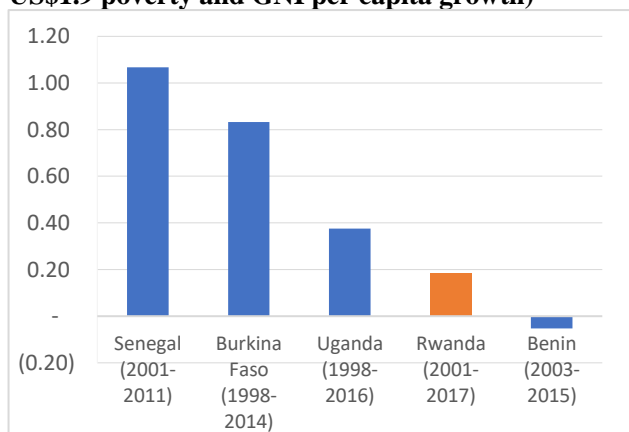
Figure 2.20: US\$1.9 poverty incidence vs GNI per capita



Source: WDI database

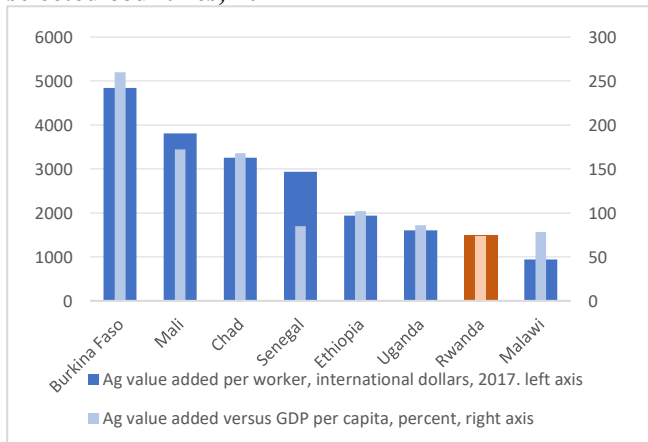
Notes: Data points by countries may represent different time periods for which both Gross National Income (GNI) and poverty data are available. Countries are chosen based on the proximity of their GNI per capita to Rwanda's level. Rwanda's number are based on 2017 GNI data and preliminary estimates of \$1.9 poverty incidence.

Figure 2.21: Growth elasticity of poverty (based on US\$1.9 poverty and GNI per capita growth)



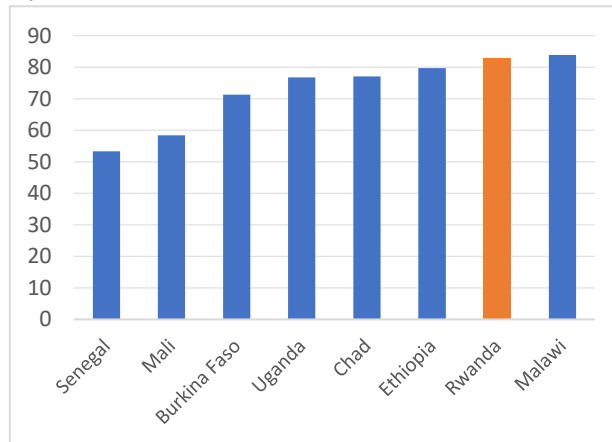
36. Rwanda's structural characteristics may contribute to the relatively high poverty rates and low elasticities of poverty to growth. Rwanda is characterized by a combination of a low share of agriculture in total value added coupled with a large concentration of population in rural areas. The low share of agriculture in GDP is a result of its low productivity in both absolute and relative terms (in relation to output per capita) even compared to Rwanda's Sub-Saharan peers³ (Figure 2.22). Rwanda also has the lowest relative agriculture value added per worker among selected comparators highlighting the gap between farm and non-farm sectors. Coupled with a larger rural population than most of its comparators (Figure 2.23), this creates a structural disadvantage for Rwanda's poverty reduction agenda and highlights the importance for poverty reduction of accelerating rural-to-urban and farm-to-non-farm transitions and reenergizing agricultural productivity. In both areas, unfortunately, Rwanda's performance has weakened recently, which, in addition to the effects of the droughts of 2015-16, explains the slowdown in poverty reduction.

Figure 2.22: Agriculture value added per worker, selected countries, 2017



Source: WDI Database

Figure 2.23: Ratio of rural population, percent, 2017

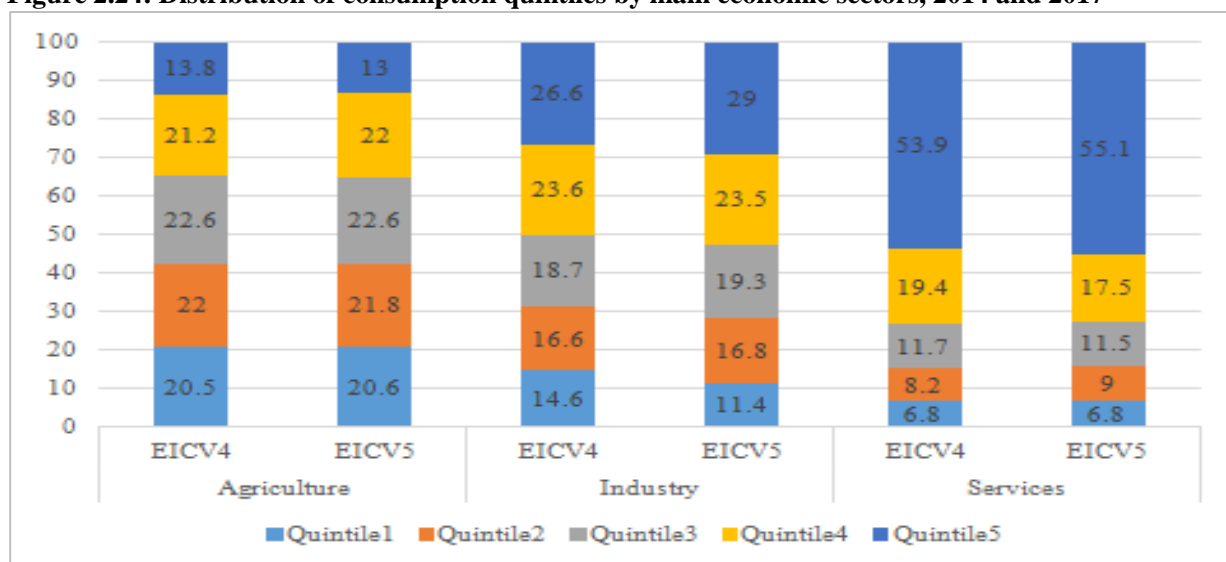


Source: WDI Database

37. Recent economic patterns shed light on what is driving the low elasticity of poverty reduction with respect to growth. Growth in general has favored sectors with relatively few of the poorest workers. Services, for example, have grown at an impressive rate of 9 percent since 2001; while agriculture and industry have grown more slowly and far below annual GDP growth. As of 2017, only about 30 percent of service workers were in the bottom three quintiles of the consumption distribution (comparable to the poverty threshold defined by \$1.9 per day according to which poverty is around 56 percent), while the shares in agriculture were 65 percent and in industry 50 percent (Figure 2.24). Higher growth in services, where incomes are well above the national average, had contributed significantly to poverty reduction between 2001 and 2011 as the share of services in total employment rose from 9.6 to 21.1 percent. However, since 2011 services have seen only a marginal increase in its share in total employment, from 21.1 to 22.6 percent in 2017, while continuing to grow well above GDP growth and maintaining higher than average incomes. More recent LFS data indicate that the share of services in total employment almost stagnated in 2017-19.

³ High values of agricultural value added per worker in Burkina Faso, Mali and Chad can be explained by large commercial farming for some crops, while Uganda, Ethiopia and Malawi are structurally more similar to Rwanda in terms of prevalence of small-holders and subsistence farmers.

Figure 2.24: Distribution of consumption quintiles by main economic sectors, 2014 and 2017



Source: NISR

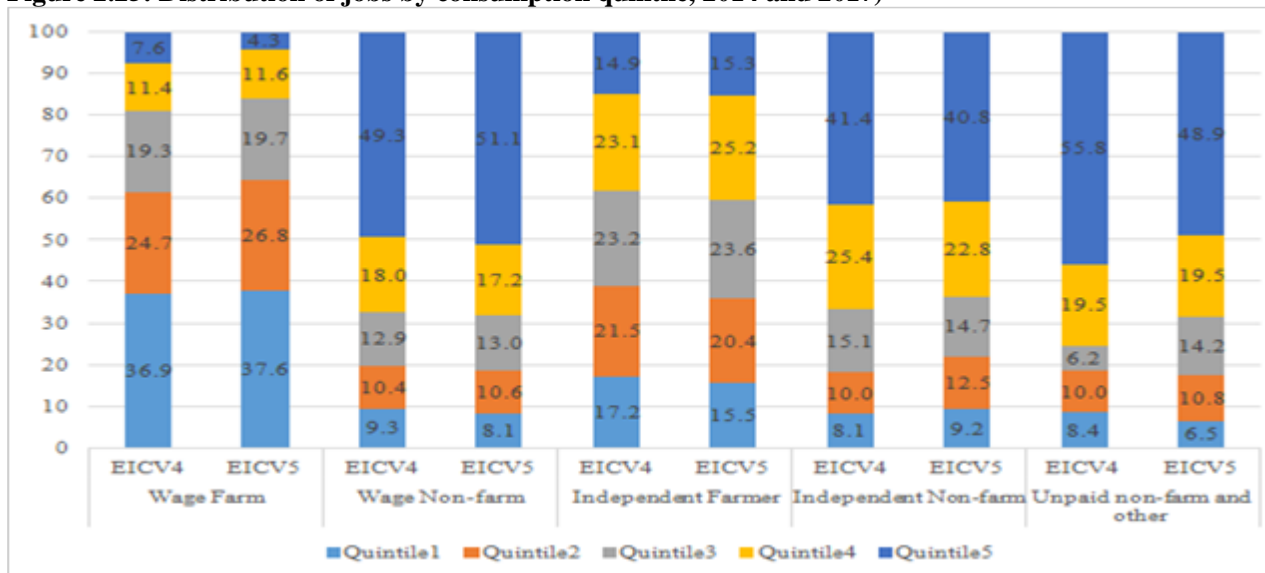
38. The distribution of workers by occupation type also shows that recent economic patterns have been less poverty-reducing than in the 2000s. The types of jobs that have the highest percentage of workers in the bottom three quintiles are independent farm workers, 60 percent of whom are there, and wage farm workers, about 84 percent; non-farm wage and independent workers are more likely to not be poor with only 35 percent of them in the lowest three quintiles (Figure 2.25). Between 2000 and 2011, there was a decline in the share in total employment of independent farmers and an increase in all three other categories (farm workers, non-farm workers, and independent non-farm workers), which tracks conventional predictions on the evolution of jobs in low-income countries (Figure 2.26). While the share of independent farmers continued to drop between 2011 and 2017, the share of independent non-farm workers (mostly engaged in informal activity in services) has also declined (Figure 2.27), which affects poverty reduction as this group enjoys a relatively low incidence of poverty. Meanwhile, the increase in the share of non-farm workers slowed, and the increase in the share of farm wage workers, the poorest occupational group in Rwanda, sped up. These findings are consistent with the evidence that structural transformation has slowed in recent years. They also illustrate the implications of that slowdown for poverty reduction in Rwanda—and the risks going forward.

39. The evidence on structural transformation and job creation patterns is further supported by the patterns of migration to Kigali. From 2014 to 2017 only 18 percent of migrants to Kigali were poor, while in the areas from which they migrated, the poverty rate was 45 percent.⁴ In 2014, only 8 percent of migrants aged 20–29 were poor, a sharp contrast with the 38 percent poverty rate for this age group in the areas where they came from. In fact, the share of poor households among the migrants was lower than Kigali's own poverty rate. The share of migrant households whose heads had been employed in agriculture before moving migration was only 34 percent, compared to 78 percent in general in the areas where they originated. In addition, while migration was skewed to the non-poor to begin with, the panel data suggest that migration is nevertheless associated with a substantial decline in poverty among those who were poor before migrating (though that was only a small fraction

⁴ Based on panel data from EICV 4 and 5

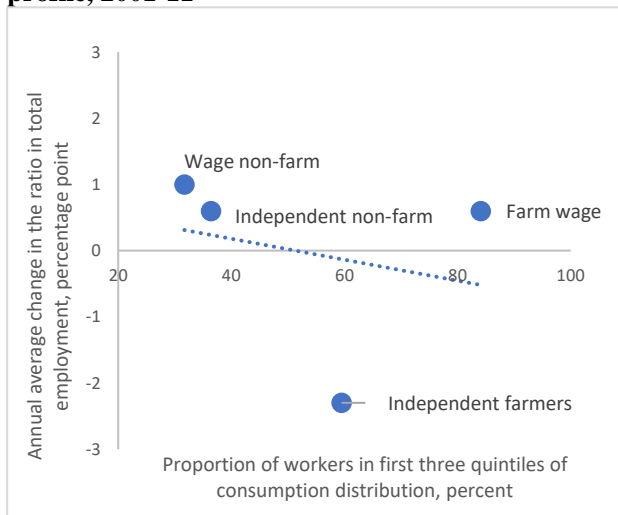
of all migrants), highlighting Kigali's potential to reduce poverty in Rwanda that is not yet fully tapped (Box 2.2).

Figure 2.25: Distribution of jobs by consumption quintile, 2014 and 2017)



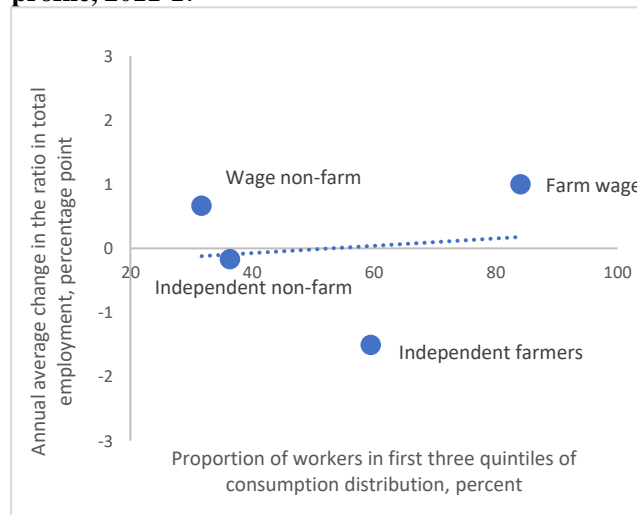
Source: NISR

Figure 2.26: Occupational change by poverty profile, 2001-11



Source: NISR, World Bank staff calculations

Figure 2.27: Occupational change by poverty profile, 2011-17



Source: NISR, World Bank staff calculations

40. In addition to the patterns of structural transformation and primary income distribution and their effects on poverty reduction, the trends in social protection may also have affected the extent of poverty reduction. Social protection has been a major vehicle for the Rwandan government to meet its extreme poverty reduction, consumption smoothing, and human capital development goals. Over the last 10 years the social safety net program has resulted in expansion both of unconditional cash transfer programs to all districts in Rwanda and of wage-based transfers conditional on participation in the public works program by able bodied individuals from targeted households to about half of the country. The objective has generally been to enable poor and vulnerable households to obtain access

to income that enables them to smooth their consumption and increase their human development, with a view to graduating from the program and moving out of poverty.

Box 2.2: Kigali's untapped potential to reduce the national poverty rate

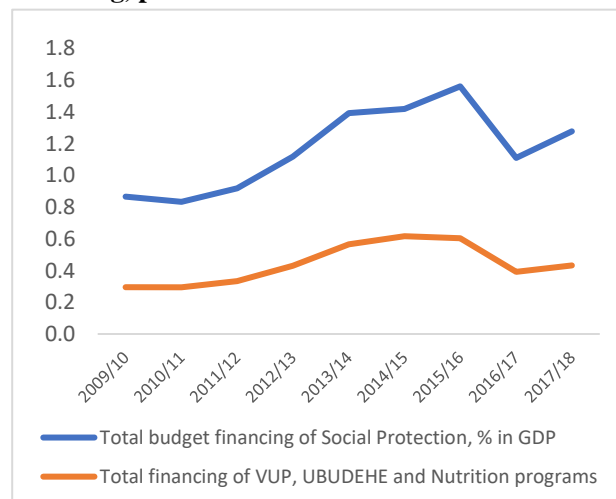
While only 18 percent of migrants to Kigali between 2014 and 2017 were poor, the ratio of migrant households graduating from poverty to those falling into poverty was 5:1, which meant that a significant net poverty reduction among migrants. Poverty reduction is notable especially among the most disadvantaged groups of migrants: Those with the highest poverty rate before migration had no education at all (poverty rate: 62 percent) and those employed as wage farm workers and most likely with no access to land (74 percent poor). Within three years, the poverty of the uneducated migrants to Kigali plunged to 44 percent and of the former wage farm workers to 23 percent. However, because these two groups constituted a very small share in total migration, their impact on overall poverty reduction was small.

Source: NISR, World Bank staff calculations

41. While the social protection program enjoyed increasing budgetary financing between 2008 and 2015, receiving 1.6 percent of GDP at its peak in 2016, the government has since reduced allocations to the program in both absolute and relative terms (Figure 2.28). The decline was driven by the components of the program that directly address vulnerability, most importantly the VUP. This has happened as part of a general curbing of recurrent spending in the budget to create fiscal space for its ambitious public investment program. The decline in financing coincided with the heightened vulnerability caused by the droughts of 2016 and 2017.

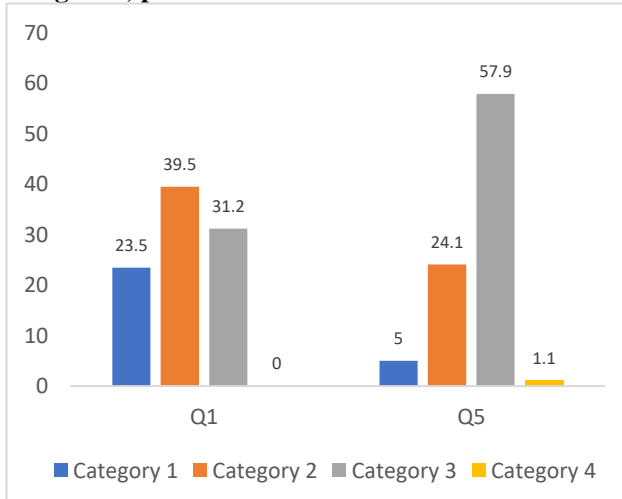
42. In addition to the drop in budgetary financing, there is evidence that targeting of social assistance is suboptimal. The *Ubudehe* system that tracks vulnerability based on a community-based assessment and assigns a social assistance category from 1 to 4 to all households, still has major inclusion and exclusion errors that have not been corrected in recent years. In 2017, 30 percent of households in the lowest consumption quintile were categorized in Ubudehe 3 (not very vulnerable), while 30 of households in the highest consumption quintile were categorized as very vulnerable (Ubudehe 1 and 2).

Figure 2.28: Government social protection financing, percent of GDP



Source: MINECOFIN and WBG staff calculations

Figure 2.29: Consumption quintiles by Ubudehe categories, percent in total



Source: MINECOFIN and WBG staff calculations

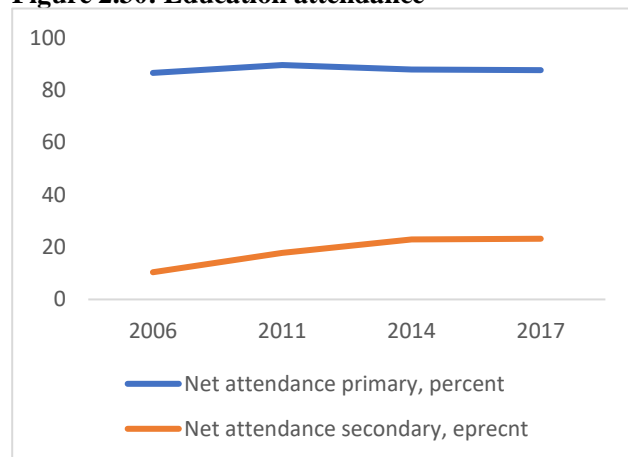
Progress in nonmonetary indicators but more needed in education and stunting

43. Rwanda has continued to make progress across a wide range of nonmonetary indicators of well-being, especially improving its human capital, which has become a major contributor to its economic performance. The World Development Indicators (WDI) show an impressive decline in several important health indicators, relative to 2010: in 2017 infant mortality fell from 44.5 deaths per 1,000 births to 28.9, and under-5 mortality from 51.5 per 1,000 births to 39.1; in 2015 the share of children under 5 that are short for their age fell from 44 to 38 percent. Furthermore, according to the EICV surveys, access to improved water sources, sanitation, electricity, and housing conditions all improved significantly between 2011 and 2017. For instance, households with grass roofing dropped from 2.2 to 0.0 percent and sheet-metal roofing jumped from 54.4 to 67.3 percent. Access to electricity almost tripled to about 27.1 percent. Households with improved sanitation went up from 74.5 to 86.2 percent in 2017.

44. Expanding basic education while ensuring quality is essential for sustained poverty reduction and shared prosperity. Yet while Rwanda has achieved some progress in education, recent data point to possible stagnation in several areas. Net primary attendance has been stagnant for more than a decade, and while literacy among Rwandans aged 15–24 years improved considerably until 2014, there has been no major improvement since (Figure 2.30 and Figure 2.31). Rwanda also trails other countries of similar income in education indicators. For example, Rwanda's primary completion rate is about 61 percent compared to the average of about 66 percent for all low-income countries. This measure not only captures whether youths are enrolling but also whether they are completing levels of schooling. Similarly, lower-secondary completion rates are 34 percent in Rwanda but 37 percent for low-income countries as a whole.

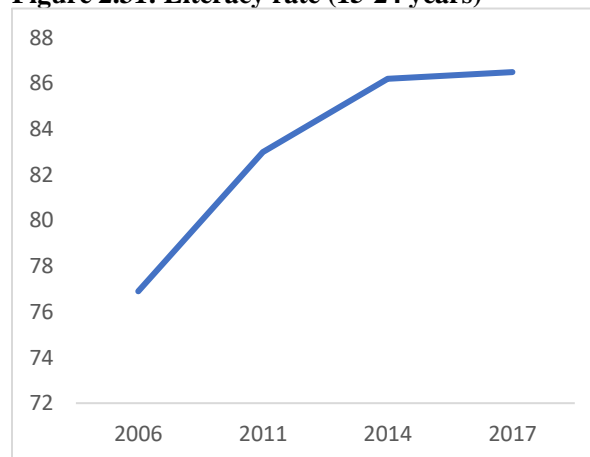
45. With respect to demographic developments, Rwanda has shown an impressive decline in both fertility and dependency ratios, and child nutrition indicators are improving. According to the WDI, fertility rates fell from 4.5 births per woman in 2010 to around 4.0 in 2016, and dependency ratios fell from almost 80 percent in 2010 to 75.8 in 2017. Building on this success and further reducing fertility rates will be important.

Figure 2.30: Education attendance



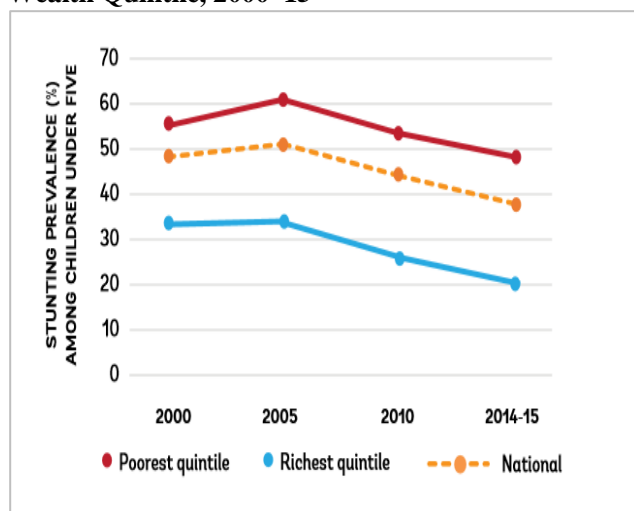
Source: NISR

Figure 2.31: Literacy rate (15-24 years)



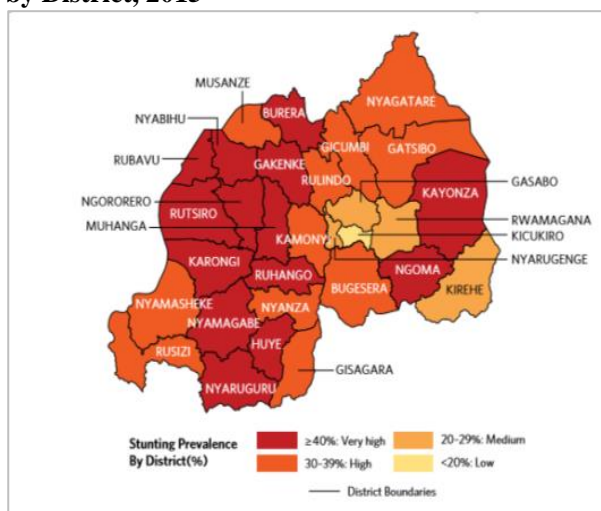
Source: NISR

Figure 2.32: Prevalence of Stunting in Rwanda, by Wealth Quintile, 2000–15



Source: NISR, DHS

Figure 2.33: Prevalence of Stunting in Rwanda, by District, 2015



Source: NISR, DHS

46. Stunting has emerged as an area where progress has been relatively slow. According to the latest Demographic and Health Survey (DHS), overall stunting rates decreased from 44.3 to 37.9 percent between 2010 and 2014/15, and from 54 to 49 percent for the poorest quintile. The stunting average masks variations related to socioeconomic and geographic characteristics across Rwanda. The stunting rate for the poorest 20 percent of Rwandans is 49 percent, and for the richest 20 percent it is just 21 percent (Figure 2.32). Between 2000 and 2015, each year stunting for children in richer households declined 3.2 percent but for children in poorer households it declined only 1 percent. The western districts of Rwanda have a higher concentration of stunting (Figure 2.33), which is also much are much higher among rural residents (40.6 percent) than urban (24 percent).

47. Among children under 5, stunting is more prevalent among boys (41 percent) than girls (33 percent). Among children whose mothers have secondary education or higher, stunting is about 20 percent, compared with 47 percent for children whose mothers have no education. Households struggle especially to satisfy the nutritional needs of their children as family size increases. Among poorer populations, there is a positive relationship between stunting and birth order: about 40 percent of first- and second-born children are stunted, but the rate rises to 47 percent of third-born, and 50 percent of fourth-born children. Poorly nourished mothers have children with worse stunting than well-nourished mothers.

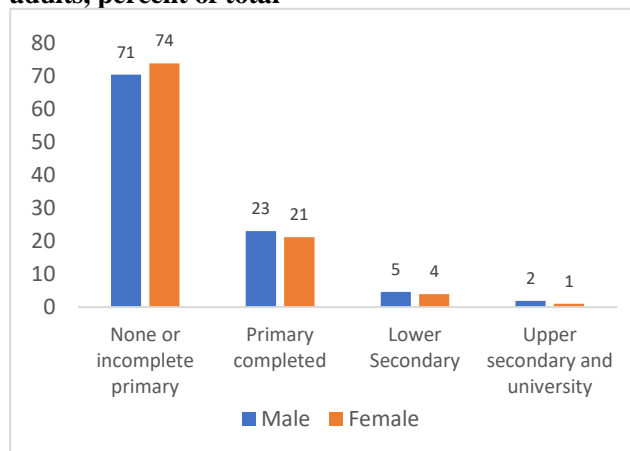
The continuing challenges of poverty reduction and shared prosperity

48. Several areas have emerged as priorities for maximizing Rwanda's potential for poverty reduction and shared property.

- First, human capital, one of the main predictors of poverty, is serious problem. More than 70 percent of adults at the 40th percentile of population distribution or below (B40) have only incomplete primary or no schooling at all (Figure 2.34). The share is higher for women. Lack of education appears to be a major reason for a slow rural to urban transition. A key predictor of migration to Kigali is the educational attainment of the household head. While the share of household heads with at most some primary education in departure areas for migrants was 65 percent in 2014, among those who moved to Kigali the share was only 35 percent. Conversely, while household heads with secondary education or more was 16 percent in the areas where

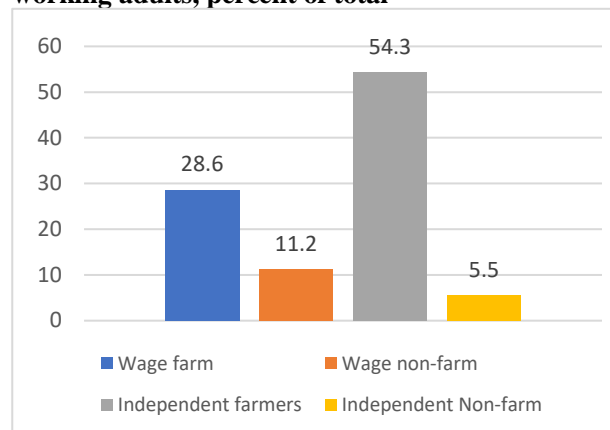
migrants originated, among those who migrated to Kigali the share was 44 percent. This illuminates how critical education will be in facilitating Rwanda's structural transformation.

Figure 2.34: Distribution of B40 by education of adults, percent of total



Source: NISR and WBG staff calculations

Figure 2.35: Distribution of B40 by occupation, working adults, percent of total



Source: NISR and WBG staff calculations

- Second, agriculture productivity is still very low, and it appears that recently the growth rate of labor productivity has been declining. Expansion of croplands and input intensification seem to have reached their limits; what is now needed is allocative efficiency to boost productivity. Wage farm workers and their households are clearly a vulnerable group. Since 2011 wage farm workers have been the fastest growing occupational category; its share in total employment has gone up by 6 pp. This group has a disproportionately high share in B40—almost 30 percent of B40 households are headed by wage farm workers even though they constitute only 16 percent of working adults (Figure 2.35). In addition to having the highest incidence of poverty this rapidly growing group has also seen its share of workers in the lowest three consumption quintiles go up by 3 percentage points between 2014 and 2017. This cannot be explained solely by the droughts during those years as the incidence of poverty among independent farm workers who operate in the same sector went down in the same period. This group also has the least educational attainment, highlighting that education is critically important for a large segment of Rwandans who lack access to land and thus need to be able to move to non-farm jobs.
- Third, poverty reduction from urbanization and agglomeration appears to have eroded in recent years. Between 2014 and 2017, poverty in Kigali has improved substantially but nationwide there has been almost no reduction in poverty. Kigali has also shown significant potential for reducing the poverty rate among newcomers, as discussed above. As both “push” factors (declining productivity gains in agriculture and the increasing difficulty of gaining access to new land) and “pull” factors (the wage differential between Kigali and the rest of Rwanda) are currently present, the fact that migration is still low can be explained by structural impediments to market-led agglomeration and urbanization, such as low human capital and regulation. The sluggish pace of rural to urban transition is a lost opportunity for Rwanda's poverty reduction and shared prosperity agenda.
- Fourth, the decline in the share of non-farm independent workers whose poverty is low is worrisome. This group mostly comprises informal micro-entrepreneurs in services. Typically, this sector offers an important opportunity to move from farm to non-farm activities, especially when industrial and formal sectors are not able to absorb surplus labor from rural areas. Between 2001 and 2011 the ratio of these jobs increased from 4 to 10 percent, in line with conventional

predictions and other low-income country experiences, significantly promoting poverty reduction as this group has shown real potential of income generation and graduation from poverty. The trend, however, has reversed since 2011. The low tolerance for informality characterizing Rwanda's regulatory environment could in part explain the change. The poverty reduction potential of domestic private sector and entrepreneurship, including small and medium enterprises (SMEs), is as yet largely untapped.

C. Vulnerability to climate change and environmental degradation

49. Rwanda is ranked 153rd in terms of its vulnerability to climate change.⁵ In keeping with other parts of equatorial and southern East Africa, Rwanda has been exposed in recent decades to temperature rises above the global average and increased precipitation. Since 1970, Rwanda's average temperature has gone up by 1.4° C and in some scenarios is projected to increase by 2° C by the 2030s.⁶ Relative to 1970, precipitation is expected to rise by 5 to 10 percent by the 2030s, leading to more frequent flooding and storms. Increased rainfall is expected particularly in parts of the Western, Northern, and Southern provinces. The more intense rainfall expected in the rainy seasons will heighten the risk of floods and landslides.

50. Seasonal droughts are expected to be prolonged, which will cause problems especially in the east and southeast.⁷ Between 1910 and 2010, 11 major droughts were recorded, each causing crop failures and famine.⁸ Frequent rainfall deficits are expected in parts of the Eastern Province (Bugesera, Nyagatare, Gatsibo, Kayonza, Ngoma, and Kirehe) and the Southern Province (Nyanza and Gisagara). Dry seasons will be longer and dryer, bringing new challenges for water management, storage, and drainage.

51. Climate change variability is already affecting the people of Rwanda in a variety of ways. Rwanda's sensitivity to climate change is shaped by agro-ecological variations across the country. The eastern and southeastern parts of the country are most affected by seasonal droughts; the northern and western regions experience intense rainfall, erosion, flooding, and landslides (Figure 2.36).⁹

⁵ ND-GAIN. <https://gain.nd.edu/our-work/country-index/rankings/>. Republic of Rwanda (2011). Green Growth and Climate Resilience: National Strategy for Climate and Low Carbon Development. Kigali: Republic of Rwanda. These increases also hold in relation to a longer time span. Thus since the decade 1970-1980, average temperatures are 1 to 1.5 degrees warmer.

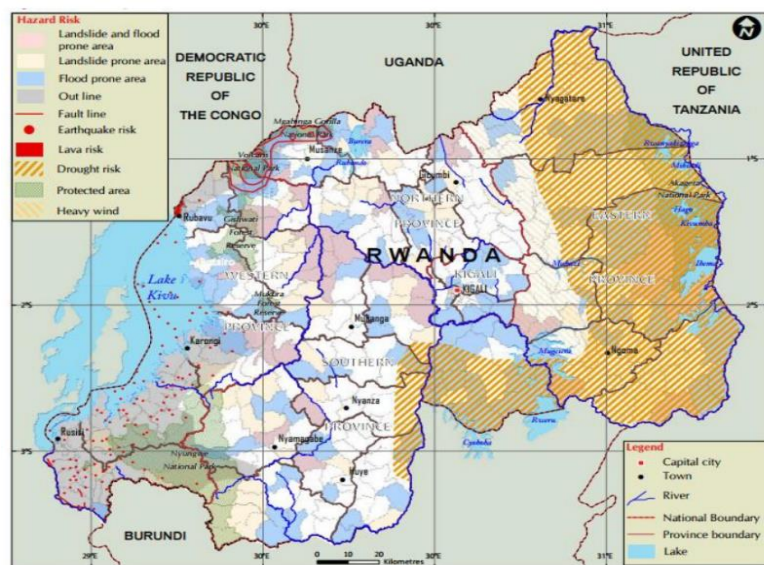
⁶ Republic of Rwanda (Ministry of Environment) 2017.

⁷ MIDIMAR. 2015.

⁸ Poorer districts tend to have more forests, and lower rates of deforestation (Figure 2.37). It is not clear, however, if cropland expansion reduces poverty, or if areas that become wealthier are more likely to start clearing land for agriculture. More research is needed to untangle this relationship.

⁹ Ministry of Land and Forests, 2017. Forest Investment Program for Rwanda.

Figure 2.36: Hazard-prone areas in Rwanda



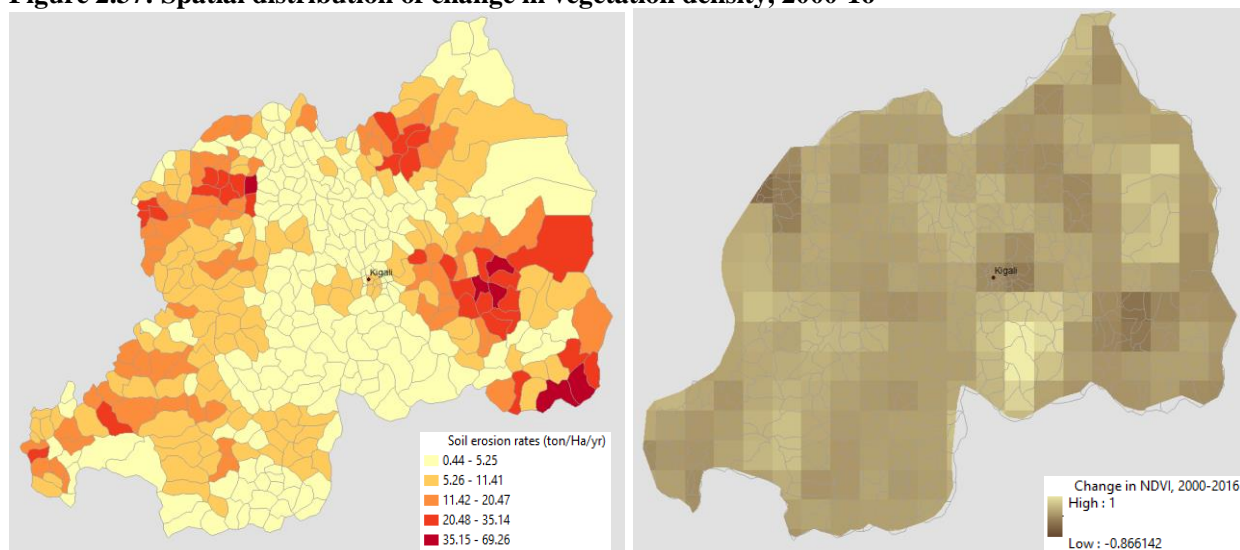
Source: REMA 2015.

52. A steady depletion of Rwanda's forest and water resources has heightened the country's sensitivity to climate change. Between 1990 and 2015, the area of cropland encroached substantially on woodland and sparse forest (Rwanda Land Accounts 2018). This is particularly true for steeply sloping areas in the east and west (Figure 2.37). Overall, the share of land covered by vegetation dropped from 25 percent in 1960 to less than 10 percent in 2010. Vegetation density as measured by the Normalized Difference Vegetation Index (NDVI) decreased by more than 1.5 percent between 2000 and 2016. Between 2010 and 2015 alone, sparse forest areas shrank by about 305,000 hectares (about 12 percent of the country's total surface area), and annual crops increased by about 207,000 ha (about 8 percent). Annual tree cover loss has recently accelerated, with 2013–16 among the top 5 years during 2001–16. Forests are concentrated in the west. Between 2000 and 2012, however, tree cover loss occurred in the middle of the country, in locations with more cropland. Meanwhile, wetlands decreased by about 13,000 ha, about 13 percent of total wetlands in 2010.

53. Demand for biomass for energy use is a major driver of deforestation and forest degradation. More than 95 percent of the rural population depends on wood for fuel, and the national dependency level is over 85 percent. There is a severe and increasing gap between wood supply and demand, which is more than twice the sustainable supply.¹⁰ Shortage of fuel wood drives forest degradation in public forests and private forests are often seriously overcut. Both these factors jeopardize future productivity. Given the lack of active, high-quality management and the damage from fire, pests, and illegal activities, the level of forest services is significantly lower than it could be.

¹⁰ Republic of Rwanda (Ministry of Natural Resources 2010).

Figure 2.37: Spatial distribution of change in vegetation density, 2000-16



Notes: Darker red denotes higher vegetation density degradation

Source: World Bank staff using NASA Earth Observatory and Hidden Dimensions data

54. Rwanda's water resources are highly sensitive to climate variability and change and to environmental pressures. They have degraded significantly over the last three decades, as evidenced by heavy sediments in rivers, pollution from agricultural chemicals and fertilizers, industrial effluents, and municipal waste.¹¹ Critical watersheds and water catchments have been converted to agricultural land, streams have dried up and been destroyed, and ground water reserves have been depleted. Watershed destruction, inappropriate settlements, inappropriate agricultural practices, and inadequate sanitation have led to more siltation, sedimentation, pollution, and the risk of invasive aquatic weeds. This deterioration in water assets has been exacerbated by climate-related impacts on water resources, such as rainfall variability, leading to more floods, dry spells, and diminishing groundwater recharge, which affects hydrological flow, water storage, and availability. These impacts have raised concerns about future water access for household consumption and irrigation. Meeting ever more numerous demands for internal water use and transboundary needs will thus be Rwanda's primary water resource management (WRM) challenge.¹²

55. Serious environmental problems are also caused by poor management of solid waste in Kigali and secondary cities. Current management processes and facilities are unable to cope with the growing production of waste; only a tiny fraction is recycled. Where solid waste is collected and disposed of, the facilities are inadequately designed and managed, and the resultant environmental pollution threatens surface and groundwater resources and ultimately the ecosystem and human health. These problems are exacerbated by extreme weather, particularly heavy rainfall, and Rwanda's steep topography. The urban poor, whose waste is either uncollected or who live close to landfill sites, are particularly impacted.

D. Governance and Institutions

56. Rwanda's strong governance was a major driver of its rapid growth and gives it an important comparative advantage over most other countries in the region. Considering the very difficult initial

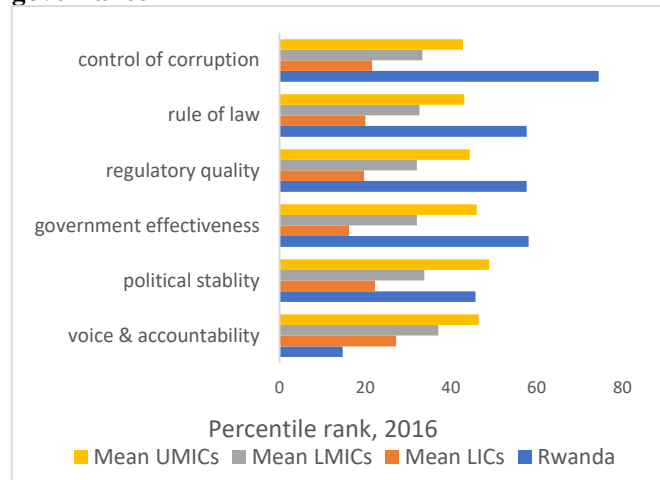
¹¹ Republic of Rwanda (Ministry of Environment) 2017.

¹² Groundswell (2018).

conditions after the 1994 Genocide, Rwanda has made remarkable progress in strengthening governance. Public sector reforms have produced an effective government with relatively little corruption and capable institutions. The once-bloated civil service has been downsized and the skills of government officials have markedly improved. Homegrown approaches to performance management have entrenched a culture of results at all levels of government, greatly increasing its effectiveness.

57. Rwanda emerges on par with middle-income countries, with particularly sound performance on indicators of government effectiveness, control of corruption, rule of law, and regulatory quality (Figure 2.38). On voice and accountability, however, Rwanda trails its regional and low-income peers. According to the 2017 Ibrahim Index of African Governance, Rwanda is the only country to have made consistent year-on-year improvements on governance generally since the index was started. The government has sustained high-profile anticorruption efforts. Institutions such as the Ombudsman’s Office have sought to root out corruption, and the courts have prosecuted cases at all levels of government. Thus, in 2017 Rwanda was ranked 48th (of 180 countries) for control of corruption in the Transparency International Corruption Perception Index—a vast improvement over its 2006 ranking of 121, placing it 3rd (with Mauritius) on the continent. Rwanda has achieved high levels of stability and security. According to the 2016 World Internal Security and Police Index, which measures the ability of a country’s security apparatus to respond to internal challenges, Rwanda (with Botswana) performs the best in SSA region and is ranked 50th globally.

Figure 2.38: Rwanda and various dimensions of governance



Source: 2016 WGI from Kaufmann, Kraay, and Mastruzzi 2010.

58. Rapid improvements in governance and institutional structures have served Rwanda well, contributing to its impressive development outcomes. But as shown in the Growth study, some gaps in governance may undermine Rwanda’s ambitions to achieve inclusive high growth. Building a well-structured, high-capacity government may be complicated by the centralized, top-down decision-making approach that may hamper innovation within the bureaucracy and local governments. It could also weaken mechanisms for coordination across different government entities and limit the capacity of major agencies through inadequate career management, poor incentives, and insufficient training. What is also called for now is enhancing responsiveness to citizen concerns by making the state more accountable to its citizens and ensuring that policies and programs are aligned with the needs and aspirations of the people, as discussed in the Growth study.

3. CONSTRAINTS AND PATHWAYS TO ACHIEVING THE TWIN GOALS

A. The Analysis

59. Rwanda's remarkable growth is almost unparalleled in SSA. It has made major strides in poverty reduction, driven mainly by its proactive and ambitious Government, which has invested in infrastructure and delivery of services to build human capital. Rwanda has built solid foundations that will facilitate achievement of poverty reduction and shared property.

60. Drawing on previous diagnostic work and additional analysis based on recent household surveys, the report has thus far simply outlined the challenges that face Rwanda in reaching its goals. Growth is still strong, but it has recently relied on capital investments as productivity growth has slowed. Growth has also become less labor-intensive due mostly to the pattern of investment, including public-sector-led investment, that favors capital-intensive sectors that could have long-run economy-wide spillovers and externalities but has less potential to absorb labor. This investment pattern and slowing growth in agricultural productivity have combined with slow progress in education and more frequent extreme climatic events to undermine the livelihoods of the poor. These trends have made poverty reduction somewhat less responsive to growth. However, the strength of Rwanda's governance is the foundation on which policies for more inclusive and sustained growth will be built.

61. In what follows, this report looks more deeply at specific constraints and outlines pathways forward. It links constraints and pathways to higher outcomes and ultimate achievement of the twin goals (Figure 3.1). Specifically, Rwanda will must achieve three-higher level outcomes: a shift to **productivity-led growth** through structural transformation, supported by rural-to-urban transition and agglomeration and higher agricultural productivity; an **increase in the growth elasticity of poverty for inclusive growth** by investing in human capital, promoting private entrepreneurship, improving accountability for service delivery, and addressing vulnerability; and **increased sustainability** by addressing environmental degradation, building resilience to climate change, and keeping debt sustainable.

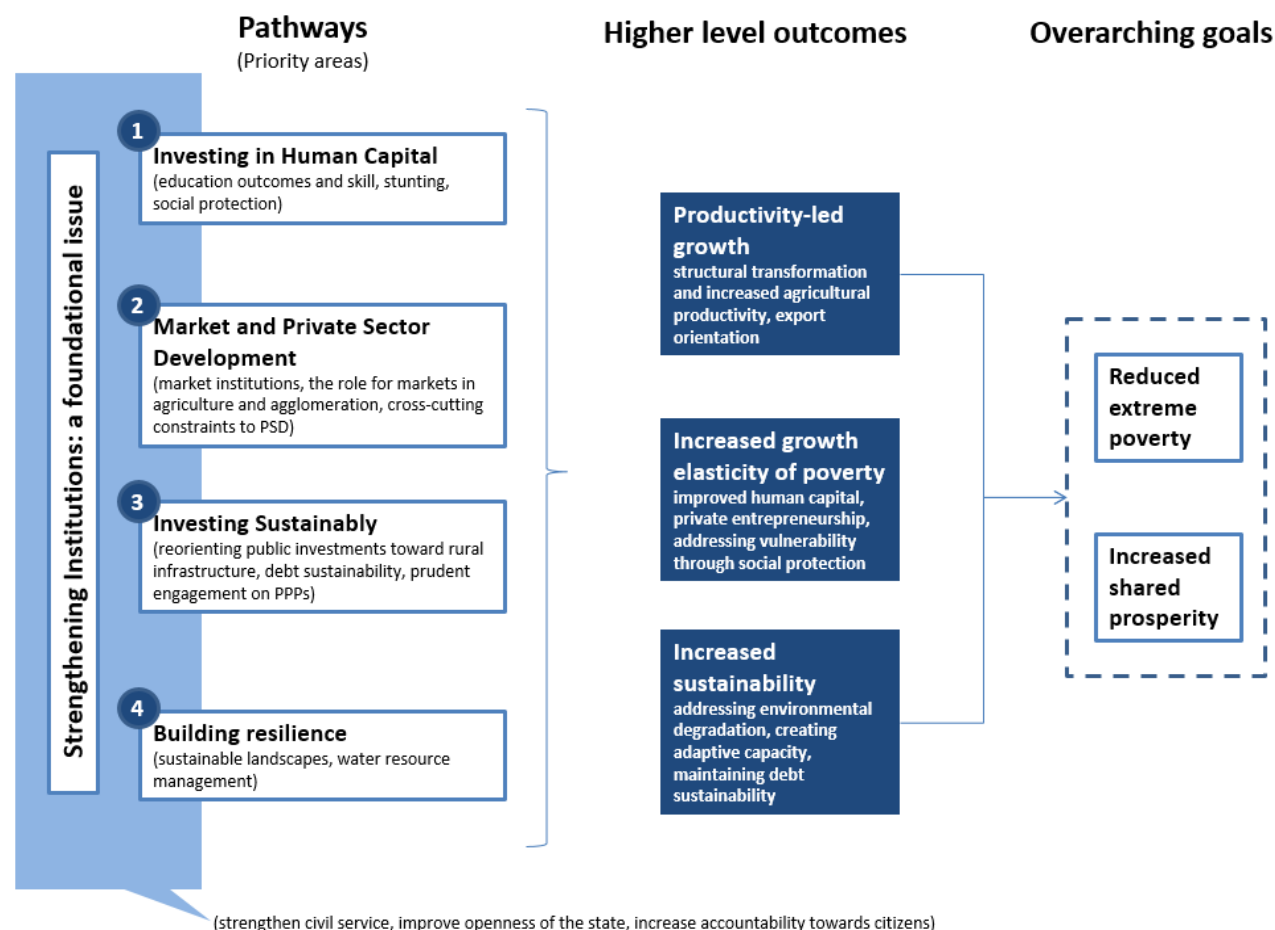
62. These outcomes form the basis for discussing and evaluating the policies and actions required for Rwanda to reach the twin goals. The SCD organizes the analysis of constraints into these cross-cutting themes:

- First, there is a need for greater **investment in people** both to maintain high rates of productivity-led growth and to make growth more inclusive. Although many human development indicators have improved markedly, many still lag behind.
- Second, continued **market and private sector development** is a precondition for achieving all three higher-level outcomes. Although Rwanda's state-led model of development has served it well so far, there is now a need now to encourage the private sector so as to engender the innovation and productivity necessary if Rwanda is to become a middle-income country. Releasing the entrepreneurial energies and initiative of Rwandans by giving the private sector a bigger role and facilitating rural-to-urban migration will ensure more equitable distribution of the benefits of growth.
- Third, a more **sustainable and balanced approach to investment** is needed. Reorienting public investments in sectors with large social returns, such as agriculture and rural livelihoods, will support productivity-led growth and make growth more inclusive; prioritizing debt sustainability will continue to be critical for sustainability overall.

- Fourth, given Rwanda’s exposure and sensitivity to a range of natural hazards, there is a need to **build resilience and increase adaptive capacity**. This is critical for protecting the vulnerable and thus contributing to a more equitable distribution of growth in the long run.
- Finally, all four of these intermediate outcomes are grounded in one foundational requirement—**building up state efficiency and accountability**, to better leverage Rwanda’s main comparative advantage, good governance, for sustaining growth and reducing poverty.

63. The policy areas that emerge from the SCD analysis will be prioritized based on a set of criteria to generate a ‘short list’ of constraints the removal of which, combined, would contribute most to the three desired outcomes.

Figure 3.1: Poverty reduction and increasing shared prosperity: Framework for Analysis



B. Investing in Human Capital

64. Any future strategy is unlikely to succeed if it does not provide basic equality of opportunity for its people. Investing in people, a country’s most valuable resource, is crucial for a prosperous and inclusive economy. Human capital is not only critically important for the productivity of society, it is also intrinsic to the proper functioning of political, social, and civic institutions. A healthy, well-educated and skilled labor force is essential to Rwanda’s prospects. Maintaining high growth with sustainable poverty reduction and shared prosperity will not be possible without significant and

tailored investments in human capital. Ultimately, human capital investment and economic development form a virtuous cycle: greater human development pushes up economic development and vice versa. Countries that invest in human capital early in the cycle have proved to enjoy the benefits of this virtuous cycle; countries that experience high initial economic growth without investing in human capital almost always fall into a vicious cycle of low human capital followed by a slowdown in economic development.¹³

65. Continuing to build a strong system of social protection for the most vulnerable Rwandans and expanding access to quality public services (e.g., education, health care, and basic infrastructure, such as sanitation, potable water, electricity, and road and telecom connectivity) are priorities for raising productivity and fostering inclusion. A stronger emphasis on educating girls, especially at the tertiary level, and empowering women can also help to break the initial cycle of poverty and expand the country's human capital base.¹⁴ Such investments, particularly in priority areas like reducing stunting and improving basic education, are particularly essential for Rwanda.

66. To build the human capital base needed to realize its future Vision, Rwanda must pursue a wide array of interventions that support human development throughout the life cycle. These start with investments in early childhood, including prenatal care and early child nutrition and cognitive stimulation. Following this would be a high-quality basic education, good higher education opportunities, and investment in adult learning, both through on-the-job training and adult education. Interventions also include health investments beyond early child nutrition, from vaccinations for children to preventive and curative health care for children and adults. Rwanda will need to invest in innovations to continue creating new opportunities.

Prioritizing learning by investing in education and skill development

67. Over the past 25 years Rwanda's education system has made significant progress in expanding coverage and has now entered a new phase of development in which what is learned will become just as important a focus, if not more. The stock of functioning schools and classrooms has increased in tandem with the increase in population; the curriculum has benefited from several rounds of revisions; and a system for recruiting and training teachers, staffing schools, and managing the teacher workforce is in place. Rwanda has also institutionalized the process for reviewing and preparing policies and investment plans, aligning donor financing for education, and routine reporting of selected indicators of progress. Rwanda has rebuilt a functioning education system and reinforced its budgeting and budget execution system, both of which provide the tools for strategic reforms that can make significant contributions to the country's basic education goals.

68. The magnitude of Rwanda's challenge—in terms of both coverage and learning—is clear. Compared with SSA countries with more established systems of education, Rwanda has exceptionally high gross enrollment rates in primary education but dropping out is still common, so that only 68 percent of first graders eventually complete six years of primary schooling, and only 38 percent complete the full nine years of basic education. Learning outcomes are alarmingly low: only 45 percent of 2nd and 5th graders tested in 2014 met grade level expectations in Kinyarwanda and in English; and the average score for mathematics was 33 percent for 2nd graders and 38 percent for 5th graders. According to the World Bank's new Human Capital Project, Rwanda's Human Capital Index

¹³ Ranis, Stewart, and Ramirez (2000).

¹⁴ Enrollment and completion is actually slightly higher for girls than for boys at primary and secondary level but there is a gender gap at tertiary enrollment, with a gender parity index of 88%, against the background of overall very low enrollment.

(HCI) ranking is consistent with its level of per capita GDP, but the ranking is particularly low on the education-related HCI subcomponents, which illustrates the need for more policy attention to learning outcomes and school completion rates (Annex 1). There is also evidence that progress in some areas has stalled, especially in net secondary attendance rates and youth literacy.

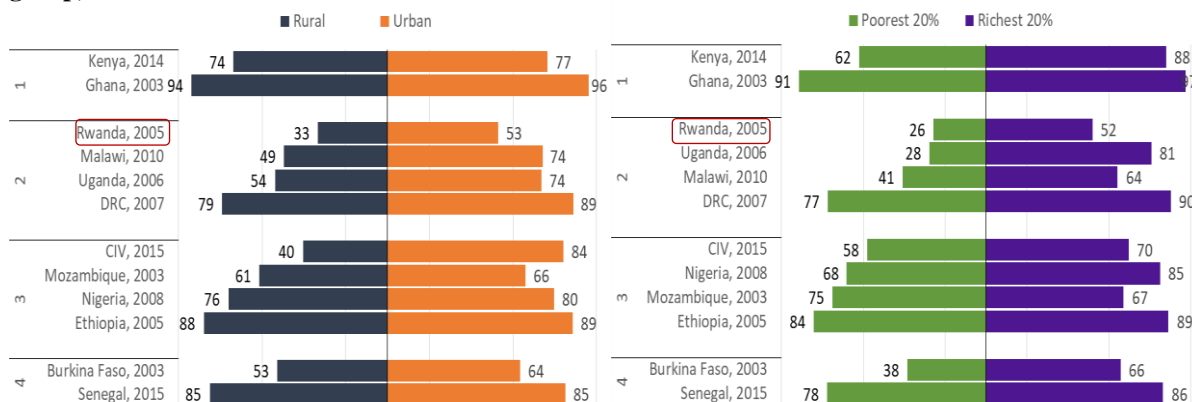
Table 3.1. Trend of key education indicators, 2005-17

	2005/06 EICV2	2010/11 EICV3	2013/14 EICV4	2016/17 EICV5
Percentage of individuals (6+ years) that have ever attended school	78.7	83.2	86.1	87.2
Net attendance rate in primary school	86.6	89.6	87.9	87.6
Net attendance rate in secondary school	10.4	17.8	23.0	23.2
Literacy rate among people aged 15-24	76.9	83.1	86.2	86.5

Source: NISR (2018).

69. Although Rwanda stands out for gender equality in access to both primary and lower secondary education, there is still a large gap in access between rural and urban children: in lower secondary, the latest data show that gross enrollment for this level is 82 percent in urban areas, but only 44 percent in rural. Differences in the rates of transition from primary to lower secondary reveal equally wide gaps: 53 percent in urban areas, but only 33 percent in rural; and 52 percent among the richest quintile, but only 26 percent in the poorest (Figure 3.2).

Figure 3.2: Transition rates between primary and lower secondary education by location and income group, Rwanda and other Sub-Saharan African countries



Source: Latest available household survey data, as cited in Bashir *et al.* 2018.

Note: the numbers 1 to 4 on the left side of each panel denote the four country groups; the numbers at the end of each bar, the transition rate between primary and lower secondary schooling, computed as the ratio of non-repeaters in the first grade I lower secondary education to non-repeaters in the last grade of primary education

70. Rwanda is confronted by the same two challenges in improving basic education as many other countries: access and quality. Although access been improving, Rwanda still trails other countries of similar income. Virtually all children in Rwanda begin primary school, but fewer than two-thirds complete it. One reason is out-of-pocket costs. Another is high opportunity costs, which are accounted for in part by high repetition rates in the early grades. Nearly one-quarter of first-grade students must repeat that grade (USAID 2017). The concern about the quality of education is just as serious. If students are failing to learn, investments in education will not produce economic growth. Yet at the end of grade 3 85 percent of Rwandan students were rated “below comprehension” on a recent reading test, and one in six could not answer any reading comprehension question (EDC 2017). In addition,

young people approaching the job market need better opportunities for skills training to help them transition to employment.

71. Rwandan teachers attend and put forth significant effort, but the effort is undermined by skills deficiencies and pedagogy. Crucially, many teachers have limited command of the language of instruction: a recent assessment found that less than half are at the intermediate level in English. Lack of teacher proficiency in the language of instruction inevitably affects student performance not only in ability to read, write, and speak English but also in all other subjects that are taught in English, including math, science, and social studies. The government has invested extensively in teacher language training, but more intensive efforts are needed to bring teachers to fluency in the language of instruction.

72. Currently, relatively few Rwandans complete tertiary education, although enrollments is rising rapidly. The latest numbers (2015) suggest that just 8 percent of age-qualified youth are enrolled in tertiary education, far below the level in middle-income countries. Moreover, relatively few graduates are specializing in such key job creation fields as science and engineering. Just 6 percent of university students in Rwanda are enrolled in engineering, manufacturing, and construction, and only 9 percent are studying sciences. If Rwanda intends to grow its manufacturing and technology sectors, the number of students in sciences and engineering also needs to grow. Even though historically, Rwanda has invested more in higher education than other countries in the region, public financing of higher education has recently declined, even as the demand for higher education continues to grow. Strengthening the provision of technical and vocational training as well as developing a quality tertiary education system focused on high-return activities deserve heightened consideration.

Prioritizing the health and well-being

73. It is widely recognized that investments in health improve productivity and contribute to economic growth and shared prosperity. Rwanda met most of the Millennium Development Goals (MDGs) targets and is now transitioning to the Sustainable Development Goals (SDGs), setting more ambitious goals that are harder and costlier to reach. Rwanda must deal with a double burden of disease—a continuing communicable disease (HIV/AIDS, TB, malaria) and maternal and child health burden and an emerging burden of noncommunicable diseases (NCDs). Despite the country's remarkable achievements since 2000, considerable gaps and unmet needs persist.

Maternal and child health

74. Rwanda has made excellent progress in improving adult survival and reducing maternal mortality, but there is still much to be done. With substantial investments in health systems and improved access to health services, survival of adults (15-60) has increased rapidly, approaching levels seen in lower-middle-income countries; the probability of survival has risen from about 0.55 (2000) to about 0.75 (2017). Maternal mortality has plunged from 1,071 (2000) to 210 (2014) per 100,000 live births, with Rwanda outperforming many of its peers in SSA. Access to prenatal care is now virtually universal and over 90 percent of women benefit from skilled attendance at birth. Access to family planning services has also expanded rapidly, giving Rwandan women a full range of options for regulating their fertility. As a result, in the past decade the modern contraceptive prevalence rate has soared from 10 to 48 percent, which combined with delayed childbearing, has resulted in a steep drop in fertility, from a total rate of about 6.0 to around 4.0.

75. Despite these overall positive trends, the proportion of Rwandan women who receive all four recommended antenatal care visits and who benefit from postnatal care within two days of delivery

is relatively low at slightly over 40 percent. An estimated 16 percent of newborns are characterized as very small, suggesting that there are deficiencies in the health and nutritional status of pregnant women. Even though most Rwandans benefit from the national Community Based Health Insurance (*mutuelle*) scheme, almost 50 percent of women generally, and 77 percent of the poorest women, still cite financial reasons as barriers to accessing health care (2015 DHS). Finally, the quality of care, which remains variable, deserves much more attention.

Noncommunicable diseases

76. Urbanization, changing lifestyles, and an aging population are contributing to the emerging burden of NCDs (cancers, cardiovascular diseases, diabetes, and kidney diseases). It is estimated that NCDs accounted for about 52 percent of all outpatient consultations and slightly over 22 percent of all admissions at district hospitals. Further progress on adult survival will require new investments in reducing these emerging causes of premature morbidity and mortality that affect productivity and lifetime earnings and are occurring at younger ages. As in other countries, the health system in Rwanda also suffers from a serious shortage of qualified medical personnel, particularly physicians with only 1 physician per 10,000 people (2016), compared to the recommended minimum of 2.5 health providers per 10,000 people. This shortage of physicians is a binding constraint not only on strengthening primary health services but also on tackling NCDs, which require greater skills. A substantial increase in the number of health workers, especially doctors, is needed to bring Rwanda to the level of its best-performing peers.

Stunting

77. While Rwanda has made excellent progress in improving infant and child survival, stunting remains high at 38 percent (about the average for SSA), impeding progress on human capital development. With the rapid scale-up of basic health services and general improvement in socio-economic conditions, from 2000 to 2015 mortality for infants dropped from 196 to 50 per 1,000 live births, and for children under 5 from 107 to 32 per 1,000 live births. The decline in neonatal mortality has been somewhat slower, from 44 to 20 deaths per 1,000 live births, highlighting a need to give more attention to care during the pregnancy, childbirth, and newborn periods. Progress in reducing childhood stunting has been particularly slow, though it compromises cognitive development and impede educational attainment, productivity, and lifetime earnings.

78. Children from the two lowest wealth quintiles, especially those born to mothers with relatively little education, poor nutritional status, and numerous children have the highest stunting rates. Nearly 50 percent of children from the bottom two wealth quintiles are stunted, compared with 20 percent for the richest, highlighting large disparities and uneven opportunities for children to grow, thrive, and become productive adults. Stunting also rises with birth order with rates climbing to nearly 50 percent for fourth births, which underscores the links between undernutrition and child-bearing. While exclusive breastfeeding protects infants in the first six months, there is a steep and progressive rise in stunting after weaning (i.e., from 21 percent in 9-11-month-olds, to over 49 percent in 18-24-month-olds), which stems in large part from food insecurity and economic vulnerability, especially for the poorest households.

Safe water, sanitation, and hygiene

79. Rwanda needs to expand access to water and sanitation to maximize benefits in reducing stunting and malnutrition. Cross-country studies using DHS data show that exposure to water-related pathogens is correlated with stunting, and poor WASH is associated with a higher incidence of water-borne diseases. The multi-sectoral convergence approach (health, nutrition, social protection, WASH,

and early education) has the potential to bring lasting and sustainable outcomes for the entire society. Rwanda is recognized as one of the few countries in SSA that met the MDG for sanitation, but the 2016/17 household survey found that, while about 87 percent of households have access to an improved water source, the levels of service are very low, with only 9.4 percent having water on premises. This has the ripple effect of taking women and children away from other critical activities, such as school, in search of water; and the risks of contamination of water rise with multiple handling and storage. This compromises both the health and the productivity of Rwandans. It is important to continue investing in the sector to guarantee growth and ensure health, well-being, and economic opportunities for the poor.

80. The survey did find that 86 percent of the population has access to improved sanitation. However, providing equitable access to sustainable sanitation and moving from the MDGs to the SDGs requires addressing the entire sanitation service delivery chain: from access to conveyance, to treatment and safe disposal or reuse. In terms of hygiene, the 2014/2015 Demographic and Health Survey (DHS) found that 91 percent of households do not have a handwashing station.

Transport safety

81. Transport safety has emerged as a challenge for Rwanda, with increasing social and economic losses from road fatalities and injuries, which mostly affect the youngest and working-age cohorts of population. Rwanda is ranked the 13th highest in Africa for modelled deaths per 100,000 based on road crash data (2016 WHO Road Safety Status Report, though down from 6th). The estimated number of fatalities in 2015 was 3,535.

Accelerating the demographic transition

82. Demographic changes are also critical to human capital development. While childbearing patterns have been changing rapidly since the early 2000s, population growth is still a substantial 2.4 percent, which implies that the population will double every 29 years. Rapid population growth runs the risk of undermining Rwanda's growth prospects by putting pressure on scarce land resources, exacerbating the demand for social and infrastructure services, and outstripping the capacity of the economy to generate jobs. Rwandan policymakers are cognizant of the importance of attaining the demographic dividend—the economic benefit that can take place when a country undergoes a rapid decline in mortality, followed by a rapid decline in fertility, thus producing smaller, healthier families and a youth cohort that can be educated and empowered to enter the labor market—as was done by the East Asia tigers.

83. In contrast to most countries in SSA, Rwanda is an “early dividend” country, with a total fertility rate of about 4.0 and a life expectancy of 68 years. If Rwanda accelerates the fertility decline, its age structure will change to one dominated by working-age adults rather than dependent children, which will give the country the opportunity to also accelerate economic growth. To harness the demographic dividend will require mutually reinforcing policies (e.g., reducing fertility; improving child survival; expanding access to upper secondary education and economic empowerment activities for girls) that both hasten the transition to smaller cohorts and enable cohorts to be more productive. Effectively implemented, such policies will contribute to both economic growth and poverty reduction.

84. The government of Rwanda needs to adopt three sets of mutually complementary strategies that will build up human capital and set the country on a positive demographic trajectory: (1) It is necessary to scale up access to high-quality family planning and reproductive health services and to ensure continued, consistent use of modern contraception. (2) Additional efforts are needed to

improve child survival with enhanced maternal and child health and nutrition interventions to address childhood stunting, promptly tackle the emerging burden of NCDs, and increase access to clean water and good sanitation with strong monitoring systems to evaluate which policies deliver the greatest gains. Finally, there is a need to expand access to upper secondary education for girls and scale up interventions (particularly for adolescent girls) that promote women's economic empowerment, due to the links between child mortality, fertility, and women's education.

Improving social protection to reduce vulnerability and expand inclusion

85. Rwanda has taken major steps toward well-functioning social protection. The contribution of social protection to addressing lagging human capital development indicators is critical, particularly through the government's renewed commitment to eliminate chronic malnutrition. To make social protection more efficient and more effective, efforts should be directed at consolidating gains and enhancing the integrated social protection system. What must be addressed ranges from policy, programs, and projects to integration of delivery systems (both supply and demand mechanisms) and expansion of institutional capacities. Decisions for investments in social protection should be sensitive to not only extreme poverty and vulnerability but also the potential for better returns in terms of human capital. Globally there is well-documented evidence of positive human development results from the use of safety nets, especially transfers, on health and nutrition outcomes,¹⁵ and Rwanda has already launched innovations that build synergy between safety nets and early child development.

86. Based on recent analyses that draw from the EICV5 results, sector analyses, lessons in project completion reports, knowledge-sharing with other countries where human capital investments have achieved impressive results, several improvements can realize the full potential of social protection. Strategic priorities with potential for multiplier benefits in several other areas need to be prioritized. The following may be pertinent in the medium term:

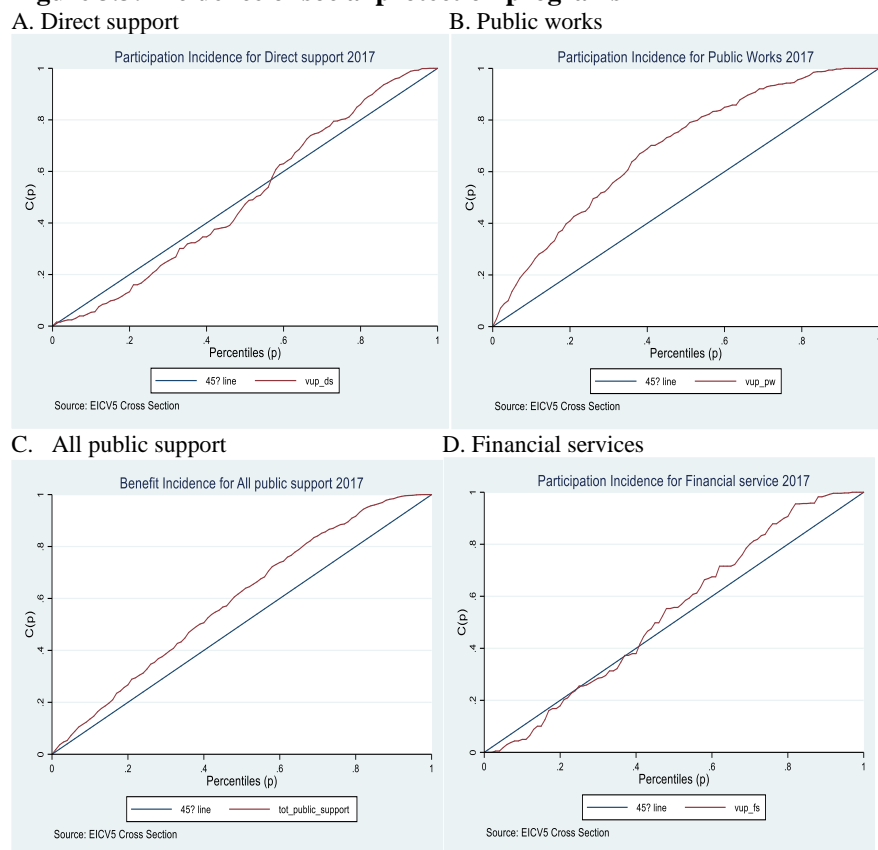
- First, urgent reforms of the targeting mechanism can make it more effective in addressing issues of exclusion and inclusion and ensuring its quality. In general, the three main components of Rwanda's social protection (public works [PW], direct support [DS], and financial services) is pro-poor, mainly because distribution of PW is pro-poor; the other components are poorly targeted (Figure 3.3). The Ubudehe mechanism has potential to be more robust and less static by improving the tools and their application so that this community-based targeting mechanism is dynamic and systematic, and it can be relied on as a credible social registry that informs targeting by social protection programs and other basic services interventions.
- Second, as targeting improves, scaling-up of budgetary financing for social protection will expand coverage. Financing went up significantly in the 2000s but in recent years has declined as a percent of GDP, even when droughts worsened the situation of many social protection beneficiaries. The value of benefits to eligible households has eroded recently because there have been no adjustments to account for inflation. Ensuring that funding for social protection as a percent of GDP at least does not decline is important for keeping benefits adequate.
- Third, selectivity in social protection focusing on "Best Buy" interventions for which there is strong evidence of high social impacts is important. Innovations can be introduced in the menus of public works to ensure the availability of works beyond terracing and roads. Public works can also be better adapted to the needs of labor-constrained households by providing more accessible job types and providing higher transfers for a sustained period through a higher number of days

¹⁵ e.g. Jamaica PATH program and TASAF/PSSN in Tanzania (ODI, 2016)

worked. More impacts can also be achieved by expanding the targeting criteria for direct support or designing a separate program for more vulnerable households and women, specifically those with limited labor and caring responsibilities.

- Fourth, improving implementation readiness at all levels of social protection administration will ensure that public spending is efficient. This is especially important for expanding PW household coverage of public works (currently only about 49 percent). That will require (a) addressing local short-term planning practices by introducing multiyear planning, (b) digitizing beneficiary management processes; (c) frontline social protection officials mastering social and environmental safeguards issues to assess compliance with policy requirements; and (d) general improvement of delivery systems and consistent efforts to address specific institutional capacity.

Figure 3.3: Incidence of social protection programs



Source: NISR and WBG staff calculations

Building on success in gender equality

87. Although Rwanda's commitment to gender equality is widely recognized, women still find it difficult to participate fully in society and the economy. The percentage of female representation at senior levels in subnational elected and appointed positions remains low. For instance, women comprise only 17 percent of district mayors (although this is up from 6 percent a few years ago). Literacy rates for women are 68 percent, for men 77 percent. Women comprise 42 percent of the student body in tertiary and technical-vocational institutions. Female-headed households are more likely to be poor than male-headed households. While women's labor force participation and unemployment rates are similar to men's, the quality of employment is lower. Women are rarely represented in the ranks of managers, professionals, and other high-paid jobs and are over-represented in low-paying or unpaid jobs.

88. Gender-based violence (GBV) and violence against children are also serious problems in spite of the firm government commitment to promote gender equality (Box 3.1). Rwanda has a strong policy, legal, and institutional framework to promote gender equality and address and prevent violence against women and children. It is now embarking on a full national scale-up of the model in health facilities across the country.

89. Priority actions to promote gender equality are strengthening women's participation in tertiary and technical-vocational education; promoting entrepreneurship, especially access to finance, for women; building up women's participation in subnational democratic bodies; and expanding response and prevention services to address GBV in all districts and sectors and support for awareness and behavior change.

Box 3.1: Approaches to address Gender-Based Violence

Engaging men in efforts to combat GBV: For example, one study in Rwanda showed that group discussions for couples and a men-only session on issues related to sexual health and GBV can have significant impacts on women's reports of intimate partner violence, greater sharing of household chores, and greater sharing of decision-making on household finances and fertility (Doyle et al. 2018)

Skills development and entrepreneurship support for vulnerable girls and young women: In Rwanda, the Adolescent Girls Initiative (AGI) project is implemented jointly by the Ministry of Gender and Family Promotion (MIGEPROF) and the Workforce Development Authority (WDA). The project provided skills development and entrepreneurship support for 2,000 vulnerable girls and young women ages 16-24, consisting of: (1) 2 weeks induction (life skills), (2) 6 months vocational training (culinary, arts and crafts, food processing, agriculture), and (3) 5.5 months placement or cooperative formation. The project used the 'safe space' girls club concept used successfully in the Empowerment and Livelihood for Adolescents (ELA) program in Uganda. An impact evaluation by the Africa Gender Innovation Lab found that the project led to a substantial increase in non-farm employment among beneficiaries, including increases in participation in businesses, wage employment or internships, incomes, and wider social networks and moderate improvements in their relationships with friends, family and community members following their participation in the project. Notably, more girls declared having someone to borrow money from in case of an emergency and having a place to meet female friends, both aspects directly related to goals of the AGI project.

Source: World Bank. <http://documents.worldbank.org/curated/en/642841468190152265/The-adolescent-girls-initiative-in-Rwanda-final-evaluation-report>

C. Market and Private Sector Development

90. Rwanda's structural features—small, landlocked, low human capital—are challenging for market development and the private sector's ability to create more jobs. These structural features mean Rwanda will have to work even harder to address the constraints that impact private sector growth. The business environment for attracting private investment has been a priority for the government. But there is still many barriers to overcome if the private sector is to drive jobs. Although Rwanda has made major strides in consistently improving its Doing Business ranking, and private firms have become a growing presence in the economy, they are not yet able to create jobs in large numbers and drive structural transformation. An overwhelming majority of firms are small, lacking the scale economies critical for competitiveness. The CPSD notes the pace of job creation in the formal enterprise sector has slowed. The Growth study showed that there is a significant misallocation by businesses of factors of production that is slowing structural transformation and inhibiting TFP growth; there is a need to let markets and the private sector play a bigger role in resource allocation. The Growth study also showed that allocative efficiency in agriculture is weak because of inadequate market mechanisms.

91. This section synthesizes the constraints analysis findings in the Growth Study and the CPSD and outlines several critical paths to making Rwanda's growth more inclusive and sustained by creating a bigger space for the private sector.

Balancing the role of the state and the domestic private sector

92. Rwanda's public sector has been driving structural transformation since the early 2000s. The CPSD notes Rwanda's SOEs occupy a prominent position in the economy because of proactive government policy. In the absence of formal private entities after the Genocide, SOEs were essential for recovery and reconstruction. A strong role for the state was also justified for long-term societal benefits, even with implied losses in near-term growth potential. While the state-led model has supported both Rwanda's economic growth and social and political stability, there could be consequences for private firms and their competitiveness. The Growth study identifies a central reform priority for Rwanda as being to *enable the emergence of competitive domestic enterprises*.

93. Specifically, strengthening the enabling environment for both private firms and SOEs to achieve efficient market-led outcomes is essential for improving the four drivers of growth—innovation, integration, agglomeration, and competition. If the government still sees a role for SOEs, it will have to be balanced with the private sector, for example with the government withdrawing gradually from productive activity through continuing SOE privatization. Further advancing on the agenda for reforms of SOE governance is critical for achieving more efficiency and transparency and overall healthier functioning of markets (Annex 2).

Strengthening the institutions for competition and contract enforcement

94. The Growth study and CPSD describe Rwanda's major progress in improving regulations that support market institutions and competition, such as reinforcing private ownership rights. Yet applying the new laws and removing the remaining regulations that restrict competition is still difficult. There remain opportunities to (a) continue reform of SOEs and strengthen their governance; (b) decide on appropriate SOE involvement within each sector based on relative competitiveness; (c) address competition issues by guaranteeing technical and independent decisions by the Rwanda Inspectorate and Competition Authority (RICA) and giving it adequate resources once operational; and (d) leveraging private financing of infrastructure with an enabling framework for public-private partnerships (PPPs) to address high barriers to entry in network industries, such as telecommunications (e.g., 4G/LTE), and electricity. In addition, the CPSD examines the agriculture/agribusiness sector as a high potential market opportunity for private investors and notes the importance of RICA oversight to strengthen knowledge and compliance with food safety health standards and ensure competition in key subsectors, such as sugar imports. The CPSD examines Rwanda's housing market potential for private investors, especially construction, which is the largest contributor to industrial GDP, and cites the relatively high costs of contract enforcement as a problem despite low regulatory barriers. The impact on long-term growth of better contract enforcement and well-functioning courts is also very important as discussed in the Growth study.

Strengthening the role of the market and private sector in agriculture

95. Agriculture is critical to Rwanda's growth and inclusion strategy. The sector accounts for close to 70 percent of employment, more than 30 percent of GDP, and more than 50 percent of goods exports. Although the sector consists overwhelmingly of individual farmers, the government has decided the what, where, and how of agriculture development. It is mostly motivated by a focus on self-sufficiency, a policy priority reinforced after international food prices surged in 2008. The focus of public interventions has been on stabilizing and expanding terraces, boosting the use of more

adapted fertilizers, increasing farmers' use of better seeds, improving farmer skills, and extending the irrigated area, which helped the sector to grow on average rate by more than 5 percent annually since the early 2000s. However, the impact of such improvements will decline over time as the low-hanging fruit are picked. Not only does agriculture appear to have reached the limits of fast, but it is increasingly exposed to natural shocks like droughts and floods. There is also evidence that land fragmentation has accelerated recently as a result of growing population pressure and slow rural to urban transition.

96. The Growth study emphasizes the need for private sector-led growth in agriculture with the public sector having a complementary role as regulator, facilitator, and provider of public goods to attract investments. The CPSD highlights the importance of the private sector in producing higher-value-added products with export potential to regional and international markets, given Rwanda's small domestic market. To maintain high growth, agriculture must continue to modernize, become more responsive to market signals, and more effectively integrate with regional and global markets. Its contribution will need to shift from primarily supplying commodities for domestic use to producing higher-value-added goods as an integral part of and international food supply chains to reap the benefits of scale economies and specialization. This will require rapid responses to market signals, ready access to investment resources, technical expertise, and the ability to organize production that can only be accomplished by the private sector. This agenda is important for faster increases in TFP, which so far have been based largely on upgrading technical efficiency. Further increases in TFP will have to be based more on improvements in allocative efficiency, which implies a much larger role for markets.

97. A greater reliance on markets and private initiative will ensure that investments are based on expected economic returns; losses on losing ventures are cut; value is added through processing where profitable; specialization is in the most profitable opportunities; importation of products that are cheaper in neighboring countries; tapping into larger markets outside the country; active pursuit of scale economies to increase the competitiveness of exports; and benefits are gathered from the experience and networks of successful firms elsewhere in the world. This will rely on creating an institutional, infrastructural, and policy environment where the market decides where, when, and how agriculture produces and trades, and a gradual shift in the public sector's role to facilitate the fair implementation of those private sector decisions. While public sector efforts to improve the technical efficiency of smallholders should continue, policy needs to shift to supporting a different form of industrial organization, where producers have more freedom to maximize returns given prevailing market opportunities.

98. There is already a strong focus on private sector investments throughout the Strategic Plan for the Transformation of Agriculture IV (PSTA4), which emphasizes a larger role for the private sector, including farmers, with the government becoming a market enabler rather than a market actor. The plan envisages reducing direct government involvement in production, processing, and marketing. The government will turn its attention to public goods otherwise undersupplied by the private sector, such as infrastructure, research, social protection, and emergency response.

Bigger role for markets in identifying crops

99. With respect to the need to allow the markets to identify crops, livestock, and food products where Rwanda has a comparative advantage, high growth comes from scale economies and specialization, which particularly in a small economy such as Rwanda can only be achieved through regional and international trade. Global demand seeks higher-value, certifiably organic, green, and high-quality branded agricultural products, such as essential oils, herbs, spices, and medicinal crops.

Natural insecticides also offer considerable potential for value addition. In smallholder systems in Rwanda that are confronted by long, wide, and anonymous value chains, vertical integration with value chain actors and collective action will be necessary to gain the international market recognition necessary for success. This will require realignment in many areas, such trade policy and crop intensification programs.

Reforming price-setting practices and use of tariffs

100. The Ministry of Trade and Industry (MINICOM) is mandated to regulate food prices in the agriculture sector to counteract unfair trade practices. MINICOM also monitors compliance with the agreed prices by different actors, such as farmers, the middlemen, and traders in the markets. Prices are set in consultation with agricultural producers (cooperatives), traders, and technical staff from the Ministry of Agriculture (MINAGRI), Rwanda Agriculture Board (RAB) and MINICOM, and they play a significant role in the setting of minimum prices in rice, maize and potato value chains. The committee responsible for setting prices conducts field visits and collects information on the costs of production and then presents its findings to a wider stakeholder meeting. Farmers, however, report that they have very little influence on the setting of market prices, and that often the cost of production is not factored in, so that the farmers feel they lack ownership in the whole process.¹⁶ Less-educated farmers were less likely to adopt efficient and economical practices of farming, less likely to keep records to facilitate accurate determination of costs, and therefore less likely to have an influence on price decisions.¹⁷ Widening the consultations to include farmers outside cooperatives is important to improve the quality of price-setting exercises.

Reforming cooperatives

101. Cooperatives have been central to state-led collective action. Cooperatives are organized along commodity lines corresponding to value chains, such as rice, maize, potatoes, beans, coffee, tea, horticulture, and dairy. Crop and livestock cooperatives account for about half of Rwanda's 8,000 primary cooperatives (MINICOM 2018). Most cooperatives are aggregated into federations along commodity lines, with rice and tea being the most significant in terms of members and value (World Bank 2016). These more organized federations offer support services such as finance, aggregation, and marketing. In 2016 about 20 percent of farmers belonged to cooperatives (NISR 2016b); some commodities, such as rice and coffee, more naturally lend themselves to cooperative development in dealing with aggregators. Resource constraints in government programs, such as subsidized seed and fertilizer inputs that are distributed through cooperatives could be a reason why all smallholders for not incorporated into cooperatives.

102. A recent survey conducted for MINICOM found significant dissatisfaction among cooperative members with accountability and transparency in the system (MINICOM 2018). Many cooperatives lack the financial capacity to support regular and timely member access to farm equipment. However, more than 70 percent of farmers with more than 10 hectares (large farms by Rwandan standards) were members of cooperatives, suggesting that membership was important for obtaining access to government and other support (World Bank 2016). Cooperatives have the potential to provide solution to many challenges that Rwandan farmers face (Box 3.2) but good-practice agricultural cooperatives require transparency, clarity of ownership, and accountability (Zeuli, Cropp, and Schaars 2004).

¹⁶ Market Intelligence Study on Agricultural Mechanization in Rwanda, Oct 2017

¹⁷ Recommendations on this priority to be developed during consultations

Box 3.2: Using cooperatives and markets to promote mechanization

Most of Rwandan agriculture is carried out under conditions of abundant—sometimes surplus—labor on small plots, and mostly on hillsides. The use of labor-saving machinery, such as tractors and combine harvesters, is confined to a few small niches. However, there is a huge need for mechanical solutions for expanding bench terraces and irrigation at lower costs per unit, in both cases involving whole communities. Post-harvest mechanization needs—for smallholders as well as large farms—are for transport, processing, and packaging of agricultural commodities along the value chain. In some cases, equipment will need to be owned collectively. Recommendations of a recent study on mechanization interventions include risk-sharing for mechanization financing and cooperative service models; providing service incentives for suppliers; and creating farmer awareness.

Balancing public and private provision of agriculture inputs

103. Private companies should gradually take over functions such as certified seed production, contract farming, professional training, and agro-processing. In Rwanda, as in other countries, these functions have had substantial public involvement in the recent past but have mostly been devolved to private actors in emerging and developed countries. While many innovation public goods for smallholders and for basic food staples will likely need to be provided by the government for the foreseeable future, the private sector needs to do more to provide these services for more efficient outcomes.

Addressing cross-cutting constraints in agriculture and agribusiness

104. In addition to these policy issues, as discussed in the CPSD there are cross-cutting priority areas for enhancing agricultural performance and ensuring economy-wide spillovers. Among them are (1) strengthening research and regulatory institutions to ensure that certifications are credible (Rwanda's comparative advantage); (2) enhancing vertical coordination with private enterprises that could provide access to export markets along with skills and capital; (3) engage more effectively and opportunistically within the region and bilaterally with neighbors on comparative advantages and best practices; (4) take advantage of big data to support smallholders through "smart farming" techniques and lower the costs of small financial transactions; (5) better target infrastructure in irrigation and in high-return products such as horticultural exports; (6) build skills in agribusiness, high-value supply chains, and agricultural technology applications; and (7) address land degradation and climate change through interventions to better soil quality and water retention.

105. Rwanda should seek to maximize access to regional and international markets with a strategy that incorporates strong national branding, internationally trusted food safety institutions and regulations, good national quality infrastructure, and easy trade. Rwanda should also explore strategies to significantly deepen, and formalize, its trade with the DRC—a market that is large and in which there is already significant informal cross-border trade—as well as beyond to the entire West African market and even beyond. Though this transformation would reduce the number of jobs in agriculture, more jobs would be created in the manufacturing segments of the value chain. The CPSD summarizes and prioritizes interventions to facilitate private investments in agriculture.

Promoting SMEs to energize private entrepreneurship

106. SMEs offer a valuable pathway for surplus labor to move out of agriculture, with opportunities that in general are more remunerative and productive. Starting from a very low level as an agrarian economy Rwanda has made major strides in terms of the number of micro, small, and medium enterprises. There is evidence, however, that in recent years small-scale private entrepreneurship has become less dynamic. The number of nonfarm independent workers, most of whom run micro and

small enterprises, has declined since 2011. On average, informal nonfarm establishments, mostly micro-enterprises employed no more than two workers, added less than 10,000 jobs annually in 2011-17, even as new entrants into the job market averaged more than 160,000 annually. Cross-cutting constraints that affect private sector development as a whole also affect small-scale entrepreneurs. Restrictions on informality may be further limiting the opportunities for private entrepreneurship in Rwanda, where the state more actively discourages the informal sector than in many other countries (see the Growth study). While the government's preference for formality is understandable, and business formalization can be a welcome development, dynamism and job creation in the informal sector can be important for developing private entrepreneurship.

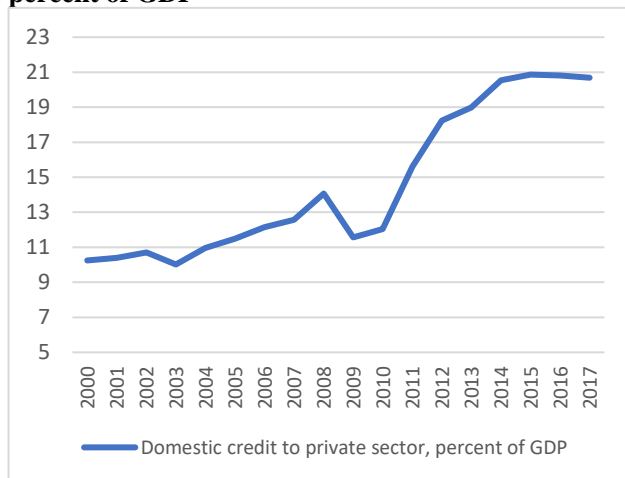
Addressing cross-cutting constraints on private sector development

107. The CPSD and the Growth study identify several cross-cutting constraints to the private sector in Rwanda that affect both growth and inclusion agenda, as summarized next.

Improving access to finance

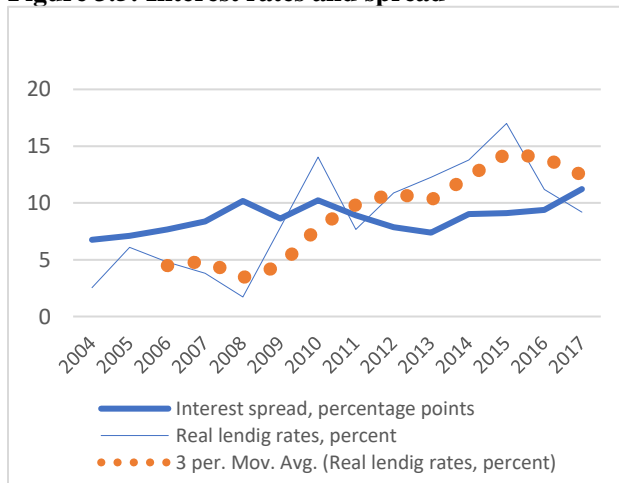
108. Limited access to long-term credit is often cited as a challenge by entrepreneurs wishing to finance their investments through bank loans. The lack of adequate long-term financing requires firms to resort to such alternatives as financing their investments through their own equity or short-term loans at less favorable terms. Many entrepreneurs consider the interest rates charged for bank loans, which average 17-19 percent, to be high. Domestic credit to the private sector reached about 20 percent in 2014 and has since stagnated (Figure 3.4). Interest rates spread are stubbornly high and real lending rates have mostly remained above 10 percent (Figure 3.5). High operating costs are believed to be the main factor behind the high spread, but the banking system is constrained by the maturity of their liabilities, which consist mainly of local short-term deposits, which limit the ability of most banks to invest in longer-term assets.

Figure 3.4: Domestic credit to private sector, percent of GDP



Source: BNR and WBG staff calculations

Figure 3.5: Interest rates and spread



Source: BNR and WBG staff calculations

109. To expand access and use of financial services will require several reforms. For instance:

- First, vulnerabilities and risks need to be monitored and mitigated to sustain, and strengthen confidence in, bank performance, resilience, and oversight. The government and the central bank have undertaken major reforms to the legal and regulatory framework for the financial sector, especially reinforcing the system's preparedness for a financial crisis. Continuing these reforms

and eliminating possible barriers to efficient investment allocations will help Rwanda become a more attractive destination for local, regional, and international investments.

- Secondly, innovations in the design of financial products and services are critical to expand access to and use of financial services. Financial technology (fintech) will bring financial services within reach of more people. Digital technologies are providing innovative ways to increase proximity without the need to massively expand branch networks.
- Thirdly, to support sustained economic growth and the government's transformation agenda, long-term private finance and investments are needed. The most promising source is institutional investors, such as pension funds and insurance, but its availability depends on among other factors the depth of financial and capital markets. The government has drafted a 10-year plan to develop capital markets that emphasizes deepening debt markets, expanding listings on the Rwanda Stock Exchange, developing financial sector intermediaries, and further integrating Rwanda's capital markets with those of its East African neighbors. Underpinning all is the need for financial education and awareness to build a national culture of long-term savings and investment (see also Box 3.3).

Box 3.3: Fintech for women entrepreneurs

One type of fintech that has the potential to specifically help women entrepreneurs is the use of alternatives to traditional collateral for business loans. For example, under the Women Entrepreneurship Development Project in Ethiopia, the World Bank is testing the use of a psychometric test that predicts the likelihood that an entrepreneur will be able to repay a loan, as an alternative to traditional collateral. If they score above a certain cut-off they can get an uncollateralized loan of up to \$7,500. Customers who scored at a high threshold on the psychometric test were seven times more likely to repay their loans than lower-performing customers.

Source: World Bank, <http://documents.worldbank.org/curated/en/651751524666164146/Disruptive-Finance-Using-Psychometrics-to-Overcome-Collateral-Constraints-in-Ethiopia>

Access to finance in agriculture

110. The expansion of financial services for agriculture requires a holistic solution that covers both demand and supply of finance and an enabling environment. Contract enforcement, property rights, high-quality agricultural yield data, increasing farmer financial literacy, public sector financial support (for example, through premium subsidies), products that meet farmer needs, and organizations of farmers and value chains are all critical. In addition, providing more and better agricultural and weather information, supporting digitization of agriculture payments, building the capacity of commercial banks and MFIs in agricultural financing, improving public support mechanisms and institutions such as BDF and BRD, and building technical capacity and awareness of agriculture insurance will be important in expanding agricultural finance and insurance. Finally, de-risking the sector through insurance will enhance farmer access to finance. The government has launched on a pilot basis the National Agriculture Insurance Scheme (NAIS), which offers livestock and crop insurance. The authorities should continue working to establish an Agriculture Risk Sharing and Financing Facility to reduce risks and costs and increased financial access (Box 3.4).

Box 3.4: Agricultural finance and insurance

Agricultural finance is an area of special concern. Credit to agriculture is limited and the penetration of insurance is minimal. While the general credit to gross domestic product (GDP) ratio is about 20 percent, credit to farmers and agricultural enterprises was only 4.6 percent of the agricultural GDP in 2016, down from about 6 percent in 2015. Bank aversion to lending to agriculture can be explained by lack of collateral and the perceived high risk of lending driven by climatic exposure (the rate of nonperforming loans mirrors agricultural production, which is often affected by the climate). Only 1 percent of farmers have agricultural insurance even though 63 percent reported experiencing a crop failure or loss of livestock. The insurance pilots started in 2011 have failed to scale up since due to, among other reasons, limited interest from global reinsurance providers, and the fact that microclimates in Rwanda make it difficult to collect accurate data.

Costs and unreliability of electricity

111. Unit costs of electricity (about \$0.25 per kilowatt hour in 2018) are among the 10 highest in SSA. To reduce the cost for commercial users, the government introduced a large subsidy that brought the tariff down to about \$0.10, comparable to the average in the EAC. Since Rwanda's fiscal space has narrowed substantially and there are competing demands for public resources, long-term cost reduction requires adhering to the principles of least-cost power production and delivery, possibly including imports from neighboring countries, some of which are emerging as competitive electricity producers.

112. Particularly for manufacturing firms, power outages also undermine competitive advantage. One-third of firms (31.5 percent) report that access to reliable electricity is a problem for their operations (NISR 2017a). Power outages cripple production and capacity utilization as well as raising costs due to low production or having to use a generator. This is particularly true for larger firms in manufacturing and high-end services, for which high-quality connectivity is paramount.

Connectivity

113. For any economy efficient transport systems and services are the backbone of competitiveness, whether for access to inputs or for export. It is all the more important for Rwanda, on which being geographically landlocked imposes a significant logistics penalty. Rwanda has implemented reforms to improve logistics, but the cost to trade is still stubbornly high, making Rwanda one of the most expensive places for a container to reach (Vanguard Economics 2017)—infrastructure issues along the trade corridors are a main reason. Among these are transport system deficiencies in terms of the inadequate availability and poor quality of road, rail, and water networks and associated terminal and handling facilities; nontariff barriers (NTBs) along road-based trade routes to and from Rwanda; high tariffs for infrastructure use; and skills gaps along the trade value chain that cause bottlenecks and delays.

114. The CPSD suggests that Rwanda could lower transport costs through intensive collaborations on Rwanda's trade corridors. Investments in off-dock terminals near the ports of Dar es Salaam or Mombasa could also help, as well as freight terminals on the proposed rail line. As trade between Rwanda and its neighbors and the world expands, the government should actively court the third-party logistics service providers to Rwanda (World Bank 2018). Bonded warehouses at the two DRC border locations would also improve cross-border trade flows by managing security issues. In addition, RwandAir's expansion has offered considerable opportunities for improved connectivity. This needs to be balanced with the potential financial risks for the government and the opportunity costs of the public resources currently being channeled to sustain the carrier. Here, Rwanda should aggressively pursue open skies arrangements in air transport.

115. With respect to domestic connectivity to reduce the private sector's transaction costs, the government, supported by multiple donors, is investing heavily in a network of feeder roads nationwide. However, storage facilities domestically need investment and improvement, particularly in agribusinesses where perishable products spoil quickly. In spite of perceived high returns from such investing, there is still not enough investment, which affects the potential of business development in this critical sector.

The digital economy and ICT

116. For a small, landlocked country distant from major markets, digitally enabled services seem a promising pathway for export-oriented services for Rwanda because for these distance to markets and locational disadvantages are a much lower barrier to global competitiveness. This is especially true given the significant digital infrastructure investments and strong and adaptive government leadership as Rwanda recognizes that digital technology and connectivity in the economy will be instrumental in achieving growth and development goals. Rwanda's ICT sector has been growing rapidly:¹⁸ In 2018, Information and Communication value added increased by 18 percent, twice the rate of overall GDP.¹⁹ Between 2010 and 2018 the share of ICT value-added in GDP rose from 1.3 to 1.9 percent. Nevertheless, the relative size of the sector still remains well that of other East African countries.

117. The government has focused on increasing investment in downstream ICT-enabled sectors and nationwide mobile services deployment, with attention to rural areas. Mobile Internet users have risen to 24.5 percent.²⁰ Household penetration of fixed high-speed Internet subscribers is less than 1 percent, far below the regional average of 6 percent. Several constraints are holding back more rapid adoption, such as the low purchasing power of Rwanda's citizens and their low computer and smartphone ownership, an erratic electricity supply, low digital skills and lack of sufficient local digital content and services. Despite having in absolute terms some of the most competitive retail prices in the region, ICT services costs are still high relative to average incomes. Most of the country's connectivity is still 2G and 3G.²¹ While the 4G wholesale network is now complete, enabling unparalleled geographic coverage for a country at Rwanda's level of development, adoption is still low due to the strategies of the dominant mobile operators, which are emphasizing 3G, and the buyer constraints that suppress demand. Of Rwanda's total connections, 2G accounts for 77.98 percent, 3G for 15.81 percent, and 4G connections just 6.21 percent of total connections.

118. Attention now needs to focus on how to unlock the benefits of this investment by expanding access to more Rwandan citizens and firms. Efforts are needed to foster competition, bring down access costs, and equip individuals and firms with the digital skills to be able to navigate the vast catalogue of digital services, information, employment, and e-commerce opportunities now at their fingertips. The CPSD notes the need to reinforce regulation of the single wholesaler of wireless broadband and access to the radio spectrum for wireless services to encourage uptake. In the medium

¹⁸ Disaggregated data that would allow compilation of the ICT sector are not available. Information and Communications includes key components of the ICT sector with the exception of manufacturing, trade and repair. Specifically, Information and Communications consists of the following International Standard Industrial Classification (ISIC) divisions: publishing, film, sound, broadcasting and ICT services industries, namely Telecommunications (61), Computer programming, consultancy and related activities (62) and Information services activities (63). See: United Nations (UN). 2008..

¹⁹ <http://statistics.gov.rw/publication/gdp-national-accounts-2018>

²⁰ GSMA (Q1 2019)

²¹ GSMA Intelligence (2018)

term, Rwanda could formulate a policy to manage, allocate, and price radio spectrum to allow operators to deploy new wireless technologies for broadband access.

119. Efforts are also needed to build an environment that encourages innovation and development of locally relevant digitally enabled services, content, and business models to create a compelling reason for more people and firms to go online. Local content will provide incentives for people to go online, and expanding basic ICT literacy is necessary in schools and among adults out of school who do not work in the public sector.

120. In addition to Rwanda's national efforts, fostering an integrated regional digital market is important to create economies of scale and network effects. Rwanda can become a digital economy success by supporting digitally enabled firms to grow and continue to attract foreign investment (Box 3.5).

Box 3.5: Economic benefits from the East Africa single digital market (SDM)

An economic assessment to estimate the impact of implementing an East Africa SDM conservatively projects a boost to regional GDP of between US\$0.93 and US\$2.6 billion over five years (0.57 to 1.60 percent additional growth), driven at first by increased access to the Internet, with growth accelerating thereafter driven by development of new digital industries and services and by traditional firms adopting technology and digital platforms. It further projects creation of 1.6–4.5 million new jobs (2.2 to 6.2 percent additional growth) over the same period, and also predicts that the impacts will be felt across the income spectrum, with those at the bottom gaining disproportionately as citizens and businesses previously shut out of the digital economy due to low incomes and digital illiteracy become able to connect to the Internet and access valuable digital services, content, and e-commerce platforms. Internet users will also capture a consumer surplus of US\$1.2–4 billion as broadband prices fall and the perceived value of being online rises due to the higher quality and variety of digital services and content.

Source: World Bank 2019.

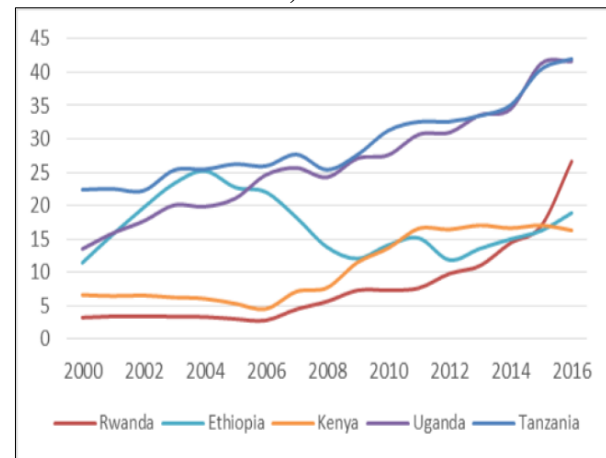
Access to land for the private sector

121. Unavailability of land crowds out private sector participation and investment. Inability to access serviced land is often raised as the biggest challenge by foreign investors looking to set up operations. In most sectors, companies typically require access to serviced land near an urban center where they can get skilled labor. The Special Economic Zone (SEZ) program was intended to address this, but SEZ land is still costly. Access to agricultural land is a serious problem for would-be investors in large-scale farming and land consolidation for private investors is difficult. The CPSD notes the need to ensure that the land registration system is kept current and information on land transactions is publicly available. The government could also implement land assembly instruments (in addition to land banking) to ensure land availability over the medium term. Among priority areas for developing affordable housing highlighted in the CPSD are to (1) implement instruments for land assembly (forming a single site from a number of smaller properties) in the City of Kigali, which should help ensure land availability over the medium term; (2) upgrade land-access mechanisms, in addition to land banking, to make land accessible for redevelopment, especially in secondary cities, for example through land readjustment; and (3) ensure that the land available is serviced.

Promoting Foreign Direct Investment

122. Rwanda's growth ambitions will require sophisticated market players and cannot be premised only on building up domestic firms. Multinational firms bring in new managerial, technical, and design skills and are a source of the competition that drives productivity. While Rwanda has seen FDI rising, it still trails regional peers, despite the major progress in improving the business environment (Figure 3.6). Many international investors are not yet convinced Rwanda's value proposition as an FDI location citing the challenges of high transport costs, lack of skilled labor, and high input costs. Survey respondents also cited poor, unfair, and unstable regulations and exempting specific companies from regulation (ASI 2017).

Figure 3.6: FDI stock as share of GDP, selected East African Countries, 2000-16

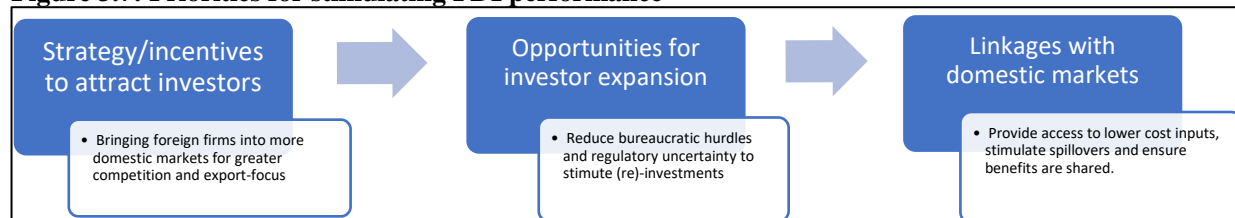


Source: UNCTAD

123. To stimulate FDI inflows, Rwanda should have three priorities (Figure 3.7):

- Adopt an effective strategy and incentives to attract priority investors.
- Open up opportunities for expansion of established investment projects by reducing bureaucratic hurdles and regulatory uncertainty.
- Offer enhanced access to domestic input markets. This will provide access to lower-cost inputs, stimulate spillovers, and ensure benefits are shared with the domestic economy.

Figure 3.7: Priorities for stimulating FDI performance



Source: World Bank

124. Rwanda also has sizable opportunities to attract new FDI by allowing the direct commercial presence of multinationals in services and by deregulating cross-border provision of services. Absence of competition is one reason some industries have high costs. Despite the advent of quality Internet service and the spread of mobile telephony, for example, telecommunications in Rwanda still suffer from higher than average consumer prices and costly restrictions (Steenbergen and Von Uexkull 2018). In some sectors SOEs have been found to prevent market entry or competition from FDI—avoiding SOE crowding out of FDI is therefore essential.

125. To encourage expansion of established investment projects Rwanda should continue to address remove red tape that makes it harder to do business. Rwanda also needs a better system for identifying investor issues, managing grievances, and minimizing dispute escalation. In this context the country's new Systemic Investment Response Mechanism is an important advance (IFC 2018)

126. Stimulating links between multinationals and domestic suppliers can further enhance the benefits of FDI. Rwanda could explore using tax incentives to stimulate local sourcing. For example, Korea's Equal Footing Policy extends the fiscal benefits from some multinationals to domestic suppliers of intermediate goods by giving the multinationals tax credits and offering duty-free access to imports used as inputs. This gives foreign firms reason to source locally and stimulates domestic value addition (Steenbergen and Von Uexkull 2018).

127. In addition to these priorities, addressing cross-cutting constraints hampering private sector development as discussed will also help to attract FDI. Tax incentives also offer potential for attracting FDI, which should be more closely linked to export performance and targeted at "efficiency-seeking" investors who are looking for low-cost destinations for labor-intensive export production.

Promoting market-driven agglomeration

128. Rapid and well-managed urbanization is essential for Rwanda to achieve its aspirations for growth and poverty reduction. Its urban population has more than doubled since 2002, and Kigali especially has grown in population and area. The Growth study notes that urbanization accounted for 37 percent of national structural change in Rwanda, and over the past 15 years urban areas have accounted for 48 percent of growth in national labor productivity. Nevertheless, the Growth study showed that urban areas in Rwanda, Kigali in particular, have not generated the productivity gains that rapidly growing cities in successful East Asian economies have achieved, which means fewer agglomeration economies. The pace of rural-to-urban migration also has been relatively muted recently, which has limited urbanization potential.

129. For rapid structural transformation, Rwanda needs an economic engine that will deliver dynamic agglomeration economies of the kind seen only in large cities. Kigali's economy, which is already seven times the size of the next largest urban area, can perform this role. However, while many peripheral areas of Kigali experienced large population increase, central areas retained similar, or even smaller, populations. There is evidence that zoning and urban planning have operated to restrain the market forces that generate scale economies and to reduce Kigali's potential to grow and absorb surplus workers from rural areas.

130. As the Growth study showed, fragmented development is driven partly by rigid building requirements tied to the use of master plans. In Rwanda, master plans and urban design documents have often required densities, structures, and uses that do not match market demand. Kigali's master plan sets maximum building heights and floor areas that are often interpreted as targets. As a result, lesser investments or upgrades to preexisting buildings are rejected. Thus, the economic potential of an area does not match the development encouraged. Such mismatches are exacerbated by the fact that master plans are updated only ad hoc, are often taken as binding legal standards rather than strategic guidelines, and local planning capacity is limited (Goodfellow 2014). The results are visible in the lack of occupants in new buildings and the removal of well-used, less modern structures; less visible are the many planning applications that are turned down or never launched and the number of plots that remain undeveloped.

131. Access to land in and around Kigali is limited not only by scarcity of land but also by zoning and regulations that reduce the availability of land that could meet market demand. This is a major impediment for affordable housing, the lack of which, in combination with the low tolerance to informality in most of Kigali, discourages rural-to-urban transition. The lack of affordable housing is also a missed market creation and business development opportunity, as identified in CPSD (Box 3.6).

Box 3.6: Affordable housing as a business development opportunity for Rwanda

The CPSD identifies the link between Rwanda's rapid urbanization, growing incomes, and increased housing demand as a key market creation opportunity still largely untapped. There is projected demand for 345,000 new houses by 2022 in Kigali alone. More than half of these would need to attract the affordable housing segment of the market, and one-third would be mid-range housing. Costs of building a house are high in Rwanda, which means a short supply of affordable housing. Construction account for most of the difference in costs between Kigali and other regional markets, representing 52 percent of the total cost in Kigali compared with 48 percent in Nairobi. Materials costs account for half the difference in the cost of identical houses in South Africa and Rwanda, followed by infrastructure costs (17 percent) and value-added tax (15 percent). Compliance and approvals are also more expensive; property and housing standards in Rwanda are a major contributor to high housing costs. Import taxes add to materials prices and put homes built of these materials out of reach of most Kigali, much less Rwandan, households. Professionals like architects, engineers, and developers are in short supply

To facilitate private investment in affordable housing in Rwanda, the CPSD suggests a range of reforms that span skills, regulatory compliance and approvals, urban planning and incentives, competition, and supporting infrastructure. Among priority interventions, the CPSD also suggests that alternative building technologies (ABTs) could offer innovations that complement traditional construction techniques and materials. There may also be opportunities for new technologies to deliver services like solar energy for housing that can address the challenge of adequately servicing housing locations.

Source: Rwanda Country Private Sector Diagnostic.

132. Master planning and zoning regulations will be important for the government to transform Kigali into a kind of city that appeals to MICE tourists. The results so far are truly impressive. While it is imperative to maintain Kigali's reputation, which supports a promising high-value MICE industry, a better balance is needed between long-term strategic bets to create new endowments and current market opportunities. The recent slowdown in structural transformation suggests that the balance may have tilted too much toward the long-term strategic transformation of Kigali, restraining market forces that could deliver higher productivity and job creation in the short to medium term. The continuing review of the Master Plan for Kigali and secondary cities is a welcome effort, built as it is on lessons learned from the first five years of Master Plan activities and introducing more flexibility, incrementalism, and affordability. As the Master Plans are being reviewed, the government should also plan to improve capacity for and the efficiency of their implementation.

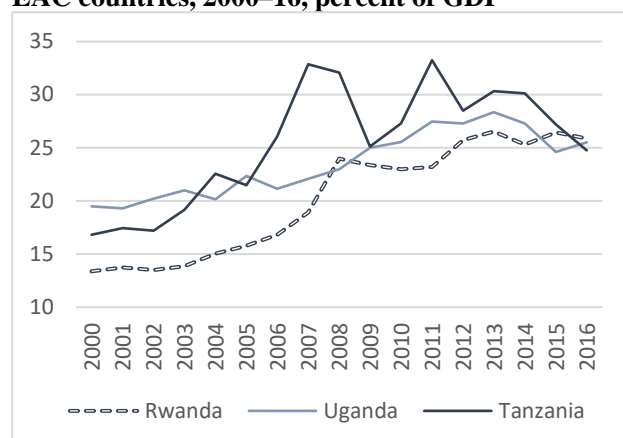
D. Investing Sustainably

Overview: Rwanda's investments profile

133. Rwanda has been able to increase investments from a low base to a level equivalent to regional comparators (Figure 3.8). This was instrumental in maintaining high rates of growth. The increase in investments was accompanied by a similar increase in domestic savings; since 2008 the gap between investments and domestic savings has been relatively stable, averaging about 18 percentage points of GDP (Figure 3.9). The increase in domestic savings has been driven mostly by public sector saving; domestic non-government savings were barely positive.

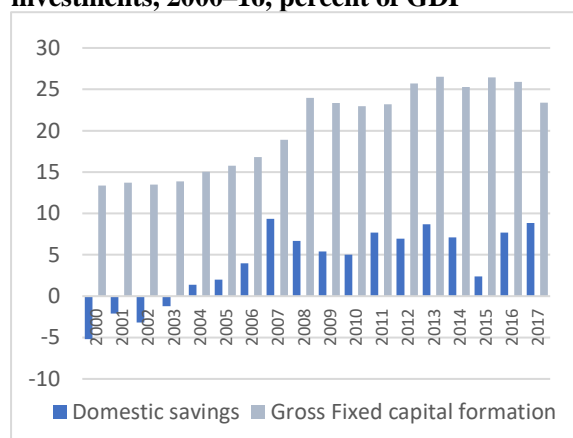
134. The state is the main investor in Rwanda, which has one of the highest public-investments-to-GDP ratios in the world, especially compared to other non-resource-rich economies. High public investments are reflected in the strides Rwanda has made in infrastructure: its Logistics Performance Index ranking for quality of infrastructure improved from 140 in 2006 to 60 in 2017, an outstanding performance by any standard.

Figure 3.8: Gross fixed capital investments, selected EAC countries, 2000–16, percent of GDP



Source: World Development Indicators

Figure 3.9: Rwanda: Domestic savings vs. investments, 2000–16, percent of GDP



Source: World Development Indicators

135. The role of the state is not limited to conventional investments in infrastructure. The scope of public investments also includes net lending to SOEs to fund priority investment activities, mostly for MICE and expansion of Rwandair, and investments in fixed capital by public agencies like the Rwanda Social Security Board. Investments by SOEs are also believed to be substantial, although hard to quantify. Furthermore, the state has been proactive in promoting private investments through industrial policy. Tax expenditures directly stemming from the Investment Code are estimated at 1 percent of GDP, in addition to other nontax interventions. Rwanda has also actively cooperated with foreign investors to attract investments in the power sector, where the main modality of engagement has been power purchase agreements.

136. Government ability to finance a large public investment program and investment-inducing incentives comes from the fiscal space it generates through restraint on recurrent spending. While the fiscal envelope has increased in recent years, additional budgetary resources (relative to GDP) have gone exclusively to public investments and net lending (Box 3.7). Borrowing has had an increasing role in more recent years, especially against with grant financing declining. The primary fiscal deficit, which had been negligible up to 2012, has now reached about 4 percent of GDP, and is one of the main drivers of Rwanda's PPG debt, in addition to public guarantees issued for Rwandair and other enterprises, state and nonstate, involved in MICE.

137. In contrast, the investment activity of the bona fide private sector, estimated at 6 to 8 percent of GDP, is quite modest. This reflects a still nascent domestic private sector combined with low domestic savings and minimal access to finance. FDI has emerged as a potential source of funding, increasing from negligible levels in the early 2000s to about 3 percent of GDP by 2014 but largely stagnant since then.

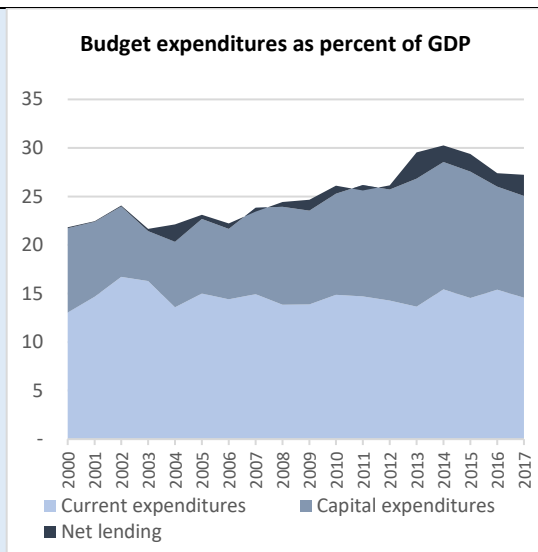
138. Rwanda's current investment agenda is substantial. Increasing investments sustainably is a critical policy priority for Rwanda. It will require maintaining a sound macroeconomy and debt sustainability, encouraging more FDI, strengthening institutions for more efficient investment allocation by the market, and promoting domestic savings. The reform agenda, discussed earlier in relation to strengthening the role of market, is very relevant for supporting better allocation of investment resources, which is essential for sustainable investment in development. In the short to medium term, given the large presence of the state in investment activity, reinforcing resource allocation by the public sector is paramount to ensure efficiency, economic returns, and sustainability. The authorities therefore need to rethink their investment approach in terms of sectoral allocation of

investments, allocation of incentives for promoting private investment, and engaging the private sector in infrastructure.

Box 3.7: Unbundling public-sector investments

At their peak, public investments directly executed through the budget reached 13 percent of GDP in 2013-15. They have since come down, stabilizing at about 10 percent of GDP. In addition to the large public investment program, in recent years net lending has averaged 2 percent of GDP. Most net lending has gone to SOEs to finance investments in the Kigali Convention Center (KCC) and Rwandair. The government has also issued guarantees for KCC and Rwandair to support their commercial borrowing. The Rwanda Social Security Board (RSSB) has been investing in real estate as part of portfolio diversification. Combined, in recent years total investments by public agencies may have exceeded 16 percent of GDP. Adding investments made by SOEs, which have a prominent role in the economy, highlights the large role of the public sector in Rwanda, where its overall investments are about 25 percent of GDP.

Source: MINECOFIN, World Bank



Prioritizing debt sustainability and macroeconomic stability

139. A sound macroeconomic environment and manageable public debt are vital preconditions for ensuring the sustainability of investments—excessive accumulation of debt can substantially narrow the fiscal space for investments. In the long run, accumulation of excessive debt in relation to total output can indicate inefficient investment allocation. Rwanda has a relatively good track record in macroeconomic management. It withstood the aid crisis of 2012 quite well, and its response to the deteriorated external position in 2015-16 was very effective, restoring the external balance and competitiveness of the exchange rate relatively quickly with the help of an IMF program. However, space to maneuver has substantially narrowed in recent years with the increase of PPG debt. To maintain investment levels as grant financing was declining, the government has been running much larger deficits, with primary deficits approaching 4 percent. Guarantees issued to attract investments in priority sectors have also reduced the fiscal space.

Designing investment programs to avoid debt built-up

140. The rapid debt accumulation in recent years can be explained by the fact that growth expectations from the investment push have not fully materialized yet. The 2014 joint World Bank/IMF DSA projected that over the medium term the expected uptick in investment will be largely debt-neutral. However, by 2018 the investment push had significantly elevated the debt-to-GDP ratio (Figure 3.10).

141. This experience highlights the need for prudence in designing investment drives. Sustainable financing of much-needed public investments requires a sound macroeconomic environment with adequate fiscal and external buffers. Rwanda's recurrent spending program is already lean, with no room for consolidation. If anything, recurrent spending will need to be increased to address emerging needs related to human capital and inclusion, as discussed in the section on human capital. Prudent design of the public investment program, in terms of both total size and optimal sector allocation of projects, is thus critical for long-term macroeconomic stability.

Maintaining the equilibrium exchange rate

142. Maintaining an exchange rate that is aligned with fundamentals and does not disadvantage Rwanda's export and tradable sectors is also important for minimizing macroeconomic volatility. It will also help to maintain necessary external buffers. Large swings in public investments, such as the of 2013-15 investment push, may lead to overvaluation pressures, and subsequent adjustments could be costly and incomplete. Rwanda's own experience in 2013-2015 has demonstrated how critical it is to avoid large external imbalances and exchange rate misalignment. Large investment projects need

to be avoided if they do not considerably expand the tradable and export sectors or reduce the cost of nontradable services. Directing investments to alleviate market scarcity and reduce economy-wide transaction costs will facilitate the decline in relative prices of no-tradable services, support the competitiveness of the economy, and in general contribute to a steady macroeconomic environment.

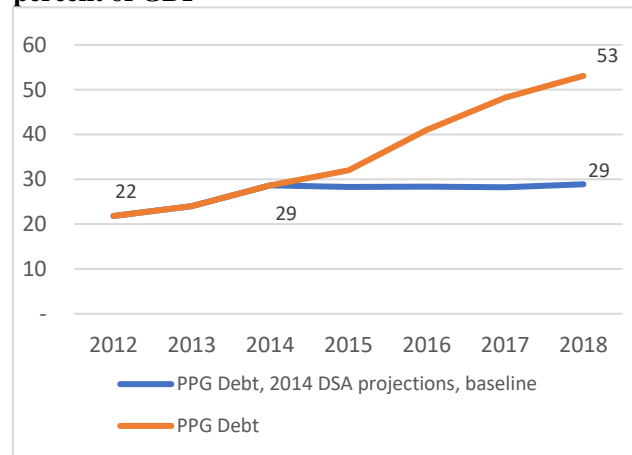
Mobilizing more domestic revenues

143. Gradually enhancing domestic revenues is another important factor in fiscal sustainability. Rwanda has made great strides in pushing up the ratio of tax revenues-to-GDP to about 16 percent but in recent years the ratio has been relatively stagnant. Rwanda's ability to restrain recurrent spending allows it to keep the tax burden relatively light, which is an advantage. But bringing in more tax revenues is now warranted, given emerging spending needs, declining grant financing, and little borrowing space. Rationalizing Rwanda's extensive tax incentives will support this agenda, as will the recently adopted property tax.

Reorienting public investments for higher social returns and improved livelihoods

144. Rwanda is unique in terms not only of the magnitude of its public investment program, but also of the sector allocation of investments. There is a general preference for investment in "futuristic" sectors, funded by the budget and the public sector generally. This includes expanding and upgrading modern transport and MICE infrastructure—air transportation, hotels, and convention infrastructure. These investments are intended to create a new reality Rwanda rather than alleviating current scarcities. This is even more evident in the government's support for SOE investment pursuits and joint ventures with public participation. In recent years net lending from the budget, the main modality of public sector engagement in these sectors, has averaged 2 percent of GDP, and additional government guarantees for these enterprises have further narrowed the fiscal space. So far, the developments in aviation, tourism and MICE have been encouraging as the sectors are expanding and Rwanda's reputation as a MICE destination grows. While financial returns from these projects are not likely to materialize in the near to medium term, large economy-wide long-term returns from spillovers and externalities are possible. However, there are clear signals of infrastructure scarcity in

Figure 3.10: Projected and actual PPG debt, percent of GDP



Source: WB/IMF DSA, 2012 through 2018

conventional sectors. For instance, budgetary investments make up about 10 percent of total investments, even though around 70 percent of its labor force is engaged in farming²².

Scaling up investments in agriculture

145. Among areas where there are obvious major investment gaps, agriculture features prominently. First, the sector is highly vulnerable to weather shocks, and irrigation is clearly a problem, especially in marshlands and in the drier eastern regions. Less than 5 percent of all land used for production is currently irrigated—an estimated 7.5 percent of irrigable potential (MINAGRI 2017c). But more than half of the land deemed irrigable is on hillsides, where irrigation can be very expensive. As yet only 16 percent of potentially irrigable marshlands have been developed for irrigation. Recent studies have made it clear that the economy-wide returns from higher investments in irrigation can be very large (Box 3.8); but as the Growth Study has shown, linking irrigation expansion plans with market development is necessary for higher-value products like horticulture and dairy, which, especially in the case of horticultural products, are likely to be for regional markets. It is likely that horticulture for export would be able to cover the costs more easily than existing crops for domestic consumption, including exports to the rapidly growing DRC market and possibly farther west by air.

Investing in domestic connectivity and rural-urban links

146. Providing transport infrastructure and services to reach all populated centers is critical for market agglomeration and better rural-urban integration; it will reduce transaction costs in agriculture by improving access to inputs and product markets, facilitating access to education and health services, and expressing the commitment to serving women and the most vulnerable groups (Box 3.9).

147. The poor quality of rural roads impairs the integration of Rwanda's cities with the countryside. Half of the rural population have no access to a road network in good condition within a 2-km walking distance (World Bank 2017e). The impact of poor-quality rural roads is evident in the wide variation in food prices within and across districts, which as shown in the Growth study, implies poorly integrated national food markets. The lack of rural-urban links limits the opportunities for rural workers, including off-farm rural workers, to raise the efficiency, specialization, and ultimately productivity that can otherwise slow rural poverty reduction and limit the supply of inputs to urban areas. A missed opportunity lies in the fact that a third of Rwanda's poor live within 20 km of a secondary city, yet the productivity and welfare advantages of these cities are undetectable more than 5 km from their centers (World Bank 2017e). Strengthening rural-urban links around secondary cities could both improve their access to inputs and raise the cities' impact on the surrounding environment. Government has prioritized this area recently, which is encouraging; now the focus needs to be sustained.

²² MINECOFIN data, WBG staff calculations

Box 3.8: Results from experimental studies on the effects of expansion of irrigation in Rwanda

In partnership with MINAGRI, the Development Impact Evaluation (DIME) of the WBG has been working on experimental studies related to irrigation systems. Given the expense involved in setting up an irrigation system, the government is deeply concerned about the cost-effectiveness and sustainability of these investments. DIME-led research will guide both scale-up decisions and as strategies to improve the performance of irrigation schemes. To evaluate the impact on farmers of access to irrigation, outcomes for farmers whose plots are just inside the irrigation scheme are compared with farmers whose plots are just outside the irrigation scheme—a spatial regression discontinuity design. In the dry season farmers with access to irrigation are more likely to grow horticultural crops and less likely to cultivate bananas (Figure B3.8.1). The shift to horticulture thus has a large direct impact on farm earnings. Adopters see their earnings shot up by 100 percent (figure 2)

Figure B3.8.1: Land use change due to access to irrigation

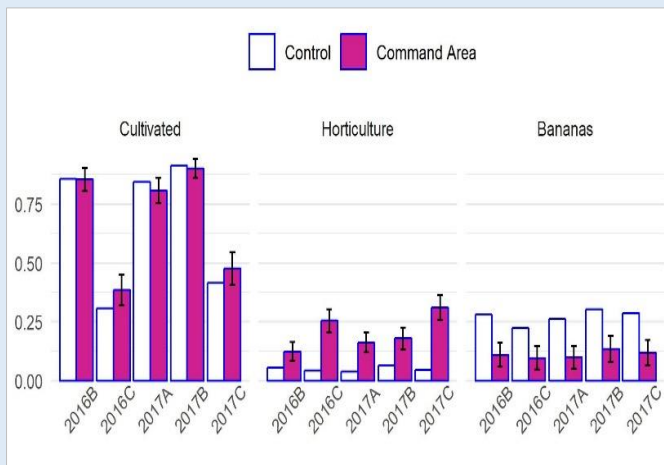
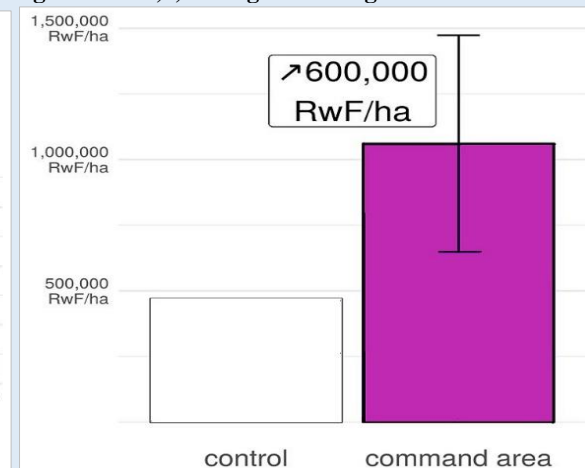


Figure B3.8.1,2, Change in average income



The shift to horticulture is not the only way to raise agricultural revenues and profits. The total impact of irrigation is equivalent to a 20 percent increase in annual household income. Based on all farmers with access to irrigation, profits increase by an estimated 135,000 Rwf per hectare—16 percent of annual income per median landholding. Subsistence farmers near the irrigation schemes benefit from the investment in the form of jobs. Overall, 100 ha of land fully decided to horticulture creates the equivalent of about 138 full-time agricultural jobs.

Reducing frictions in land and labor markets is a promising way to maximize the impact and sustainability of investment in irrigation infrastructure. In the early years of its operation, subsistence farmers are less likely to adopt dry-season irrigation and are therefore less likely to pay water usage fees. However, they do benefit indirectly through land and labor markets—demand for which stems from the increased productivity and the switch to horticulture of more commercialized farmers.

Source: Development Impact Evaluation (DIME), World Bank Research Group.

148. Poor quality is due to very low spending (less than 0.5 percent of the development budget) on infrastructure repair and maintenance by districts containing secondary cities. This is an order of magnitude lower than it should be, based on international comparisons relevant to Rwanda. Since its establishment in 1998, the Rwanda Road Maintenance Fund (RMF) has made significant progress in funding road maintenance, in spite of the limited resources currently available. RMF is now being restructured to build up its technical and financial capacity for allocating in road maintenance funds, managing road maintenance contracts, and crafting strategies to expand the domains of revenue collected for the Road Fund to be able to meet all national road maintenance needs (see Box 3.9).

149. High-quality public transport is also a priority if Rwanda is to improve connectivity and mobility. In recent decades the government has been incremental improving public transport. In 2013, the City of Kigali franchised public transport routes that bundled minibuses into four zones and expanded bus capacities. However, there is now evidence of overcrowding and deteriorating quality of service. A public transport restructuring study and a city-wide origin-destination survey

will help to identify priority areas for public transport interventions. This will also help to sustainably transition to the Bus Rapid Transit model that the authorities are now designing. In general, bringing in private operators for transport and mobility services for both freight and passengers in rural and urban areas is important to improve access and connectivity.

Box 3.9: The role of rural roads in poverty reduction

There is solid evidence in Rwanda from road network data, collected as part of the DIME's impact evaluation of the impact of feeder roads on households and markets near newly constructed roads, on large positive differences in the presence of businesses, jobs, the incidence of land transactions, the value of land, and night-light luminosity for villages within a 1 km buffer around the main roads (*more connected*), relative to those outside the buffer (*less connected*). Similarly, for level there are large differences in expenditure, income and access to services between living in a village near a major road (*more connected*), relative to those living in a village accessible only through a feeder road (*less connected*). As road construction progresses, DIME continues to work with the government to generate evidence of the medium and long-term impacts of access to roads and increased connectivity on households, markets, and villages near the new roads.

Figure B3.9.1 Difference of being connected, area level

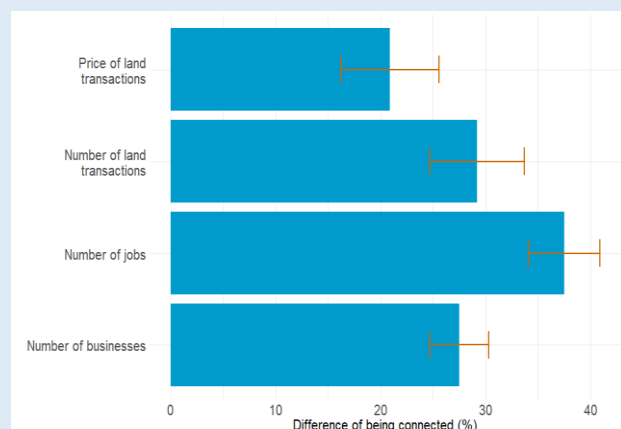
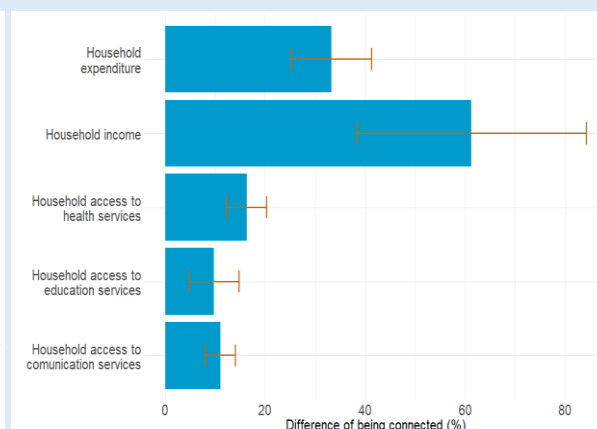


Figure B3.9.2 Difference in being connected, household level



Cross-country regressions also predict that addressing the poor connectivity of rural areas with markets is an important policy priority (Moller and Wacker 2015). Road investments can accelerate poverty reduction for the poorest households, who carry the largest burden of remoteness. For example, Ethiopia's experience shows that the impact of growth in agricultural output on poverty reduction varies significantly with the degree of market access. From 2005 to 2011 agricultural growth caused poverty to fall by only 4 percent for those far from urban centers compared to 26 percent for those living closer to cities. In general, poverty increased by 7 percent with every 10 kilometers from a market town. A study on the impact on accessibility on rural livelihood ("Heterogeneous Impacts of Main and Feeder Road Improvements: Evidence from Ethiopia") looked at corridor improvement and feeder road rehabilitation. It found that crop production went up with both major and feeder road accessibility, with significant synergy between them. Access of farmers to input markets, especially fertilizer, was improved mainly by improvement in major corridors improvement, but access to output markets was improved by feeder road improvement, though less so than for inputs.

Sources: Development Impact Evaluation (DIME), World Bank Research Group, Ethiopia SCD, the World Bank 2015, and World Bank Policy Research working Paper "Heterogeneous Impacts of Main and Feeder Road Improvements: Evidence from Ethiopia", 2018

Prudent approach to investing in spatial development

150. Among other public investments in rural areas, Rwanda has pursued a policy of grouped villages (*imidugudu*), with the goals of improving access to health and education services as well as greater infrastructure and preserving agricultural land. This requires considerable investments in

many highly scattered rural settlements. As shown in the Growth study, some of these investments could become redundant with a higher-growth strategy characterized by rapid growth in urban areas, driven by investments in higher-demand locations, improvements in rural-urban connectivity, and more rapid rural-urban migration. Rural areas could benefit from less expensive investments in off-grid rural infrastructure—for example, maintenance of rural roads and bridges—which would deliver services while anticipating small amounts of future economic activity in each location. Moreover, settlements could be located in places more closely connected to urban areas, which would improve the access of rural residents to services, product markets, and employment in small towns, secondary cities, and Kigali—and in turn raise demand for the clustered settlements

151. The government has also actively promoted development of six ‘secondary cities’ to reduce the pressure on Kigali. While Kigali’s size and growth may worry policy-makers concerned with regional disparities, it would be counterproductive to try to resist market forces and slow the growth of Kigali, dispersing people and businesses to secondary cities, since there are no suitable substitutes elsewhere in Rwanda for Kigali. Rwanda’s small towns, secondary cities, and Kigali should be performing complementary functions, each differentiated by the scale and agglomeration economy they can deliver. There is great uncertainty about what kinds of economic activities will eventually settle in which locations. International experience shows that such investments should center on increasing external connectivity and laying urban grids to plan for future expansion. Thus, a more calibrated approach to developing complementary secondary cities and small towns is needed.

Strengthening public financial management and public investment management

152. Rwanda’s fiscal discipline and financial accountability are robust, and the budget preparation process is orderly, as evidenced by the 2016 Public Expenditure and Financial Accountability assessment and optimization of the use of the Rwanda public financial management (PFM) system, ASA. Addressing remaining gaps in PFM system is critical for maintaining fiscal sustainability and delivering services better. The quality of financial reporting is undermined by inconsistent application of accounting standards. Lack of continuous monitoring of payment arrears—monitoring is annual only—and lack of performance information on service delivery may be undermining value for money. The elements of the medium-term expenditure framework (MTEF) are in place but linking performance information to budget allocations has not yet been achieved. The government’s focus on annual budgeting without a stronger medium-term macro-fiscal outlook undermines strategic planning and the ability of spending agencies to align their medium-term objectives and plans with the resources available. Local service delivery suffers from lack of predictable funding, inadequate PFM capacity, and lack of control over resources received and spent by service delivery units. The Integrated Financial Management Information System (IFMIS) has not been able to track revenue and expenditure to the level of end users (individual schools and health facilities), and district spending reports do not capture resources received in kind by non-budget agencies. Also, the data are not used to prepare aggregated expenditure reports by type of service unit and geographical distribution for tracking analysis (as repeatedly reported by the Office of Auditor General). While more responsibility for delivery is being transferred to lower administrative levels, lack of a critical mass of staff skilled in PFM at decentralized levels limits the efficiency and effectiveness of public service delivery.

153. The main reform priority is to better align spending with government strategy and service delivery objectives while carefully controlling expenditures to increase value for money. The government’s 2018 PFM Sector Strategic Plan is designed to (1) improve and expand the coverage of IFMIS and other PFM ICT systems; (2) build, develop, and retain appropriate skills and partnerships for effective PFM; (3) improve compliance with current PFM systems; (4) enhance

subnational government PFM capabilities; (5) enhance value for money and support sound investment decisions; (6) enhance the governance of GBEs; and (7) enhance resource mobilization for the National Strategy for Transformation (NST1).

154. Rwanda needs to build up the public investment planning process to better prioritize public infrastructure spending, select appropriate structures and financing sources, and manage multiyear fiscal commitments and financial effects that might materialize in the medium to long term. Coverage of public investment management (PIM) to include public nonbudgetary investments needs to broaden. The investments funded by the central government budget do not include all public sector investments in infrastructure; other public agencies (special investment vehicles are an example) are also engaged in similar activities. The strengths of Rwanda's public sector strengths in many areas of PIM may not necessarily extend beyond budgetary agencies; this creates risks to be addressed. Ex post evaluation and external audit should be prioritized, as should building up the cost management framework is.

Sustainably engaging the private sector for infrastructure development

155. Rwanda has used the potential of the foreign private sector to expand its infrastructure base. The increase in generation capacity in recent years, for example, has largely been driven by the foreign private sector. The airport currently under construction is also being developed with substantial private participation. This commendable approach has generated tangible outcomes in terms of achieving government infrastructure targets.

156. Because of planning issues, however, investments in the power sector may have been excessive in relation to the demand for electricity. Fiscal risks in a scenario of low growth in demand are estimated to be quite high. Worse, because of the high-cost tariffs in some power purchase agreements, high electricity costs have been locked in for the years to come. Recognizing these difficulties, the government is preparing to institutionalize least-cost planning and competitive procurement, together with reliable demand forecasts. As part of least-cost planning, the government should also consider accelerating its preparations for importing electricity from neighboring countries. Competitive procurement by power purchasing agreements (PPAs) would also be critical. Beyond the power sector, the government has attracted private investors into a joint venture to develop the new airport in Bugesera. Making sure that the project does not undermine Rwanda's fiscal stability and limit government's investment potential in critical areas is very important.

157. The government needs to ensure that engagement with private investors is cautious and sustainable. Ambitious targets for investing in infrastructure in partnership with foreign investments need to be better balanced, taking into account the fiscal risks.

Reorienting investment promotion to export sectors

158. Rwanda has undertaken a large, multi-component industrial policy program to promote investments. The current system has several issues: First, the incentives appear to equally prioritize export promotion and import substitution. Second, as part of industrial policy, tax incentives are granted to a range of sectors rather than built around performance criteria to target successful firms. A tighter focus on firm productivity, scale, and export promotion in areas aligned with the country's comparative advantages would be a more rewarding approach for Rwanda, as it was for the high-growth East Asian economies.

159. Assessment has demonstrated that the tax incentives are expansive, with no clear benchmarks or sunset clauses in the Investment Code. As a result, only about a third of the spending goes to firms whose investment decisions are likely to have been influenced by the incentives—firms whose rates

of return on investment without the incentives were 10 to 20 percent (Steenbergen and Von Uexkull, 2018). Meanwhile, 28 percent of all incentives went to firms that would have achieved more than a 20 percent return on investment even without the incentives. Similarly, 38 percent of the incentives went to firms that achieved returns below 10 percent even after benefiting from the incentives. 43 percent of all incentives to domestic firms are going to low-return ones. These failing firms, about half of which had negative returns, are unlikely to survive under normal market conditions, with or without tax incentives.

Promoting domestic savings

160. In recent years Rwanda's domestic savings have fluctuated from 6 to 10 percent.²³ Although this largely tracks the global regression line, Rwanda's saving rate is low considering its current relatively high investment rate and the need to scale up investments in the medium to long term. In addition, the steady decline in grant financing has pushed Rwanda's national savings down. After an initial increase, private savings have been relatively stagnant. There is evidence that households as a group do not save, and Rwanda may now be stuck at a new, low equilibrium because private savings are minimal. International experience suggests that it will be very difficult for Rwanda to maintain its high rate of investments and growth without higher domestic savings. Low domestic savings combined with declining national savings have made financing Rwanda's investments more difficult, raising questions of external and debt sustainability. Policies should focus on supporting a more virtuous circle:

- First, enhancing current pension schemes for promoting household savings is a priority. The Rwanda Social Security Board only covers 10 percent of Rwanda's workforce, mainly public and private sector salaried employees. The long-term savings scheme introduced recently by the government offers pension and savings opportunities for private sector salaried and self-employed business owners and people involved in the informal sectors whose earned income is irregular and low. Although the evidence on government-mandated savings schemes is mixed, this may be useful for substituting nonfinancial for financial savings—many households in Rwanda reported nonfinancial savings.
- Second, it might be useful to develop an incentive compatibility framework that would encourage households of various income groups to exert maximum efforts to save before gaining access to borrowing for a house, car, or consumer durables. In 2014, more than 70 percent of the population had an outstanding loan or a loan repaid within the past 12 months. Of these loans, only one-third were used for investment and education-related expenses, such as buying agriculture equipment or inputs, or expanding businesses; two-thirds were used for consumption.²⁴ A balanced approach should be applied for housing finance mechanisms currently being rolled out with government support. The regulator should be mindful of the negative implications of overborrowing.
- Third, as saving may be adversely affected when public investment fails to generate fast growth, improving the efficiency of public investments by ensuring high and demonstrable economic returns is important for the savings agenda.²⁵

²³ NISR and WBG staff calculations

²⁴ NISR's EICV-4, WBG staff calculations

²⁵ Determinants of Savings in Ethiopia, Moges Abu Girma, June 2004.

- Fourth, an environment that encourages citizen engagement in productive investment and growth-promoting activities can strengthen household incentives to save. There may have been a weakening in private entrepreneurship in Rwanda in recent years, evidenced by the number of jobs created in private formal firms and the decline of independent nonfarm workers, mostly informal micro-entrepreneurs, that could have affected household incentives to save for investing in individual business ventures. Unleashing private sector potential as discussed in the previous section may help to stimulate more saving.

E. Environmental Sustainability and Building Resilience to Climate Change

Overview: Impacts of climate change and environmental degradation

161. The impacts of climate change are expected to be numerous. All aspects of the agricultural value chain—irrigation, crop production and land management, livestock, rural transport, storage and processing—are sensitive to climate variability.²⁶ Temperature rises may negatively affect the yields of important food crops such as plantains, cassava, potatoes, sweet potatoes, maize and beans (Republic of Rwanda Ministry of Environment 2017). Eighty percent of farm households in Rwanda are engaged in small-scale rain-fed subsistence farming using traditional technologies that are susceptible to landslides, increasingly so as a result of climate change, and lower crop yields and food insecurity. Rising temperatures affect crop and livestock productivity through crop failure and heightened diseases, old pests, and new pests previously unable to survive at the higher altitude (Republic of Rwanda Ministry of Environment 2017). Yields are also affected by excessive rainfall in a short period. Moreover, 90 percent of cropland is on slopes, which are particularly susceptible to soil erosion and degradation because agriculture in Rwanda is rain-fed (World Bank; CIAT; 2015); for example, erratic rainfall in 2008 caused maize yield losses of 37 percent in the eastern provinces and 26 percent in the southern provinces (Republic of Rwanda Ministry of Environment 2017) (Box 3.10).

162. Climate change is likely to stimulate increased migration from rural to urban areas thus accentuating the already heightened sensitivity of urban areas to climate change. Based on a WBG flagship report (Groundswell 2018), southern Rwanda has been identified as a future hotspot for internal out-migration by 2030. People are expected to leave the area due to deteriorating water availability and crop yields. This would create pressure on other parts of Rwanda, in terms of employment and basic infrastructure needs, which need to be considered in policy and planning (Groundswell 2018). Urbanization, in turn, has resulted in competing claims on land use and the heightening of urban heat island effects (Cervigni, Losos, Chinowsky, and Neumann 2015). It has also led already to unsustainable and unsafe land use practices, such as settlements on steep slopes and in floodplains, deforestation, overcrowded urban areas, and poor waste management. That is why it is critical for Rwanda to immediately begin incorporating sustainability and climate change adaptation measures into land use and tenure policies.

163. Infrastructure systems that support road transport are also vulnerable to climate variability and change. Extreme climatic events push up the costs of design, construction, and the maintenance necessary to preserve the integrity of the road infrastructure for its originally designed lifespan. For paved roads, high temperature threatens surface integrity, accelerating binder aging, rutting of asphalt, and bleeding and flushing of seals. Heavy rainfall affects the subgrade layers and reduces load-

²⁶ FAO. Rwanda at a glance. <http://www.fao.org/rwanda/fao-in-rwanda/rwanda-at-a-glance/en/>

carrying capacity of both paved and unpaved roads, and flooding can wash away the entire road system.²⁷

Box 3.10: Economic costs related to climate change

Climate change-related losses in Rwanda could account for over 1 percent of GDP annually by 2030, and an even greater proportion thereafter—without even factoring in losses due to floods. For example, the economic costs of droughts due to crop losses alone could be about Rwf8.8 billion. The economic costs of the damage to houses due to landslides (which would be affected by climate change) are estimated at about Rwf9.2 billion, to national paved roads Rwf54.5 billion, and to health facilities Rwf2.7 billion (Republic of Rwanda Ministry of Environment 2017). Although local data related to flood damage is limited, the economic costs of floods are expected to be high. For example, it is estimated that 1.4 million tons of soil are lost annually, mostly in mountainous terrain, accounting for a loss of US\$320,000. It is estimated that Rwanda will need more than Rwf527 billion in the next 15 years to come up with climate change mitigation initiatives (World Bank 2017b). When there are climate-induced disasters (heavy floods, prolonged droughts, storms, etc.) the authorities must also spend more on immediate rehabilitation, reconstruction, and emergency relief, reducing spending on productive economic and social programs that are necessary for economic growth; job creation and longer-term measures to improve service delivery systems; infrastructure; and governance mechanisms.

Source: World Bank.

164. Tea and coffee may also be affected by temperature increases and rainfall variability that depress production. Hospitable climates for growing tea may shift to higher altitudes due to rising temperatures, reducing the land available for production. While crop substitution on land previously used for tea is possible, the export value of substitute crops would be lower than tea.²⁸ Both the livestock sector and the dairy value chain will be affected when water and feed are less available due to droughts, particularly in the East and parts of the South (World Bank; CIAT 2015). Drought cuts milk production about 60 percent (World Bank; CIAT 2015).

165. Rwanda's energy supply is also sensitive to the effects of climate change and climate-related disasters, especially flooding. About half of Rwanda's electricity is generated from hydropower and 80 percent of the population depends on fuel wood to meet their energy needs (NISR). Flooding from heavy rainfall can affect the power system in three ways: (1) the construction cost of protecting power plants against flooding within a particular period, (2) the insurance cost related to the expected cost of repairing damage; and (3) forced outage rates that simulate the expected disruption of normal operation due to facilities being flooded. Power generation capacity and electricity demand are also affected by changes in temperature.

166. The implications of climate change for water, energy, and food are thus interwoven. Water is required for generating electricity from a variety of sources. And access to energy is essential for water treatment, production, and distribution, so any disruption of access to energy also has direct implications for water security. Similarly, interruptions to water and energy supply put food security at critical risk. For example, severe droughts and fluctuations in energy prices can affect the availability, affordability and accessibility of food (MIDIMAR. 2015). Since the impacts of and responses to climate change tend to be cross-sectoral, a coordinated approach to climate change across these three highly exposed sectors is crucial.

167. Heavy rains in the Northern and Western provinces in Rwanda can have massive economic costs. For instance, the according to Rwanda Environment Management Authority (REMA), the

²⁷ World Bank Climate Change Knowledge Portal: Rwanda

²⁸ Ibid.

estimated economic loss during 2012 flooding totaled over Rwf58 billion --about 1.4 percent of GDP. That one destructive season illustrates just how very vulnerable Rwanda is to climate variability and the very real economic costs when there are no controls for floods and landslides.

168. Rwanda has been identified as particularly at risk from the health effects of climate change, such as heat stress due to rising temperatures; injuries in extreme weather events' and increased risks of vector and water-borne diseases, such as malaria and schistosomiasis, due to heavy rainfall and climate variability (World Bank 2013). Heavy floods and severe weather events can damage health infrastructure (hospitals, health centers, etc.), reducing access to essential health care services. With the climate changing, malaria is already spreading into the previously malaria-free highlands of Rwanda (Ministry of Environment 2017). The increase in water-related epidemics due to climate change could range from 12 to 27 percent for malaria and from 11 to 17 percent for schistosomiasis; significant climate change in this century will affect some pathogens, exposing humans and livestock to new disease risks (Ministry of Environment 2017). Prolonged droughts would also reduce the availability of clean water for drinking, cooking, and hygiene; affect food security and access to a balanced diet; diminish farm incomes and macroeconomic performance due to crop failure; and disrupt water supply and power production, reducing the availability of water and power to health centers (Ministry of Environment 2017).

169. Climate change can have particularly serious effects, direct and indirect, on the health outcomes of such vulnerable groups as children, pregnant women, elderly people, and the poor. Since women are primarily responsible for household water and food security, climate change will enlarge their burdens disproportionately. They tend to have less knowledge about imminent disasters and how to protect themselves through emergency preparedness, since they are often left out of the disaster planning processes (Ministry of Environment 2017). Other groups, such as children, the elderly, youth, people with disabilities, groups affected by conflict and post-conflict, ethnic minorities, and people with HIV/AIDS, are also at particularly high risk from climate change (MIDIMAR. 2015). Children under 20, elderly people over 64 (14 percent of the population), and more than 1.6 million poor Rwandans (about 15 percent of the population) are also exposed to landslides (World Bank. 2017b).

170. Household air pollution (HAP) from cooking, a major source of black carbon (soot), is a particular threat to health—99.5 percent of Rwandan households are exposed to HAP. Black carbon is linked to a number of preventable diseases, among them pneumonia, lung cancer, cardiovascular disease, stroke, and chronic obstructive pulmonary diseases, such as emphysema and bronchitis. Soot is also a short-lived but powerful greenhouse gas that contributes to climate change. Welfare losses due to air pollution in 2013 were equivalent to 3 percent of Rwanda's GDP.

171. As a result of government prioritization, the climate policy and planning environment is fairly strong. Rwanda has a number of policies related climate change adaptation and mitigation, as well as its NDC activities. These strategies include its Economic Development and Poverty Reduction Strategy (EDRPS), the Green Growth and Climate Resilience Strategy (GGCRS), the National Strategy for Climate Change and Low Carbon Development Strategy, and the National Adaptation Programmes of Action for Climate Change (NAPA). These strategies have typically been identified through country-led, highly participatory and consultative processes. The programs reflect the broader resilience vision of the government and aim to move the country to a low-carbon and resilient growth path. In terms of economic, governance, and social readiness to leverage investments and convert them to adaptation actions, Rwanda ranks 94th globally and compares well with a number of

middle-income countries, including South Africa.²⁹ From an investment perspective, the Strategic Program for Climate Resilience (SPCR), is a US\$534 million investment plan of the government to enhance integrated, economy-wide, multi-sectoral climate resilience and to drive climate-responsive investment in Rwanda. The following policy areas are important to support resilience and environment sustainability:

Climate-compatible, sustainable urban development

172. Rwanda is characterized by rapid urban growth, and the government actively encourages the transition into secondary cities. The country's near-term vision sets an ambitious target of having over 35 percent of citizens in urban areas by 2020. Rapid urbanization could make the Rwanda's economy move vulnerable to the impacts of climate change and susceptible to accelerated environmental degradation. Key priorities are:

- *Undertake climate-sensitive, integrated land use planning.* Cities and towns can build climate resilience by ensuring that future climate change considerations are mainstreamed into land use planning. Integrated land use and spatial planning can shape Rwanda's development in more climate-compatible ways and embed climate change resilience into the country's evolving built environment.
- *Enhance resilience through flood control and urban sub-catchment management.* Adaptations can range from nature-based to infrastructure-based solutions. Nature-based solutions include, for example, vegetal cover expansion, urban wetland management, and upstream water catchment management. Infrastructure-based solutions comprise climate-proofing infrastructure, improved storm drainage systems, rainwater harvesting, water supply and treatment plants, and effective solid waste disposal facilities.
- *Improve waste management systems,* and increase the ability of human settlements to reduce, re-use, and treat solid waste and wastewater to minimize environmental impacts—thereby improving resource efficiency generally (making settlements more adaptable in the medium-to-long term)—diminishing the contaminants spread by runoff or waterlogging during heavy rainfall.
- *Restore urban wetlands to recover essential ecosystem functions* (flood control, water purification, biodiversity, space for recreation). While the functional values of wetlands have been seriously compromised in Kigali, integrated wetland restoration to service the ecosystem is increasingly important.

Investing in stable and sustainable landscapes

173. Rwanda is extremely vulnerable to climate-related disasters: its topography makes it particularly prone to flash floods and landslides. With climate change projections suggesting ever-more-frequent intense rainfall events, the risk of these disasters is expected to rise. Rwanda needs to build resilience to such expected impacts by ensuring that its landscapes remain stable when confronted by climatic shocks and stresses, and by building its capacity to better understand, interpret, and disseminate actionable climate information nationwide. Climate services improve landscape resilience by keeping decision-makers informed.

174. Improving Rwanda's capacity to adapt to climatic risks and hazards requires strengthening landscape-based resilience, building technical and managerial capacity throughout the complete value-chain of climate services, and supporting community efforts to reduce landscape degradation and instability, thereby reducing disaster risk and vulnerability.

²⁹ <https://gain.nd.edu/our-work/country-index/rankings/>.

175. Sustainable landscape management needs to focus on strategic priorities to manage flood and landslide risk through ecosystem-based approaches (biophysical interventions), improved technical capacity for flood forecasting (information systems and climate services), supplementary physical structural approaches (infrastructure), and community-based approaches.

176. Human activity and unsustainable land use practices exacerbate the risks arising from natural climate variability and anthropogenic climate change. Thus, an important component of climate resilience against floods and landslides is enabling and empowering local communities to adopt more sustainable practices.

177. In Rwanda, heavy reliance on fuelwood for domestic cooking and heating) contributes to both slope destabilization and erosion in many areas and HAP. Firewood is the main source of energy for an estimated 98 percent of rural households. Increasing the efforts to provide reliable access to more sustainable, low-carbon fuels is imperative.

178. Anthropogenic land use change is exacerbating soil erosion, particularly in sloped areas. Soil erosion is evident in both the east and the west. Soil conservation practices, including terraced cultivation method, are paramount to preserve the soil and prevent further land degradation.

179. Attention should also be paid to sectors less vulnerable to climate change, such as tourism. In rural settings, biodiversity makes a substantial direct contribution to the economy through tourism. Leisure tourism is almost exclusively nature-based. The stronger this sector is, the more it can cushion the impact of climate shocks.

Strengthening resilience through effective water management

180. Over the last three decades, Rwanda's water resources have been severely degraded, resulting in heavy sediment in rivers and pollution from agriculture, industrial effluents, and municipal waste. The flow of large quantities of sediment into rivers leads to high turbidity levels, often rendering water physically unsuitable to be supplied untreated for consumption hydropower generation, or irrigation. Population growth, increased urbanization, industrial development, and environmental degradation are accelerating the depletion and degradation of water resources.

181. Integrated water resource management and effective institutions are necessary to promote water security given socioeconomic development and climate change. One major challenge is how to meet the increasing demand for multiple uses even as water availability is declining due to ecosystem degradation, pollution, and climate change. The country's capacity is limited in terms of human resources, institutional systems, and infrastructure. Coordinated internal use and enhancing trans-boundary water cooperation are essential.

182. In Rwanda, most catchments are poorly managed, resulting in soil compaction, loss of soil water retention capacity, surface water run-off, soil erosion and soil fertility loss. Catchment restoration can be advanced through a wide spectrum of activities including climate-smart agricultural practices, tree-planting, terracing, and physical reinforcements. Among catchment areas requiring restoration are Upper Nyabarongo, Lower Nyabarongo, and Kivu.

Developing financing instruments for resilience and green growth

183. Investing in resilient infrastructure makes economic sense but is often difficult to realize. Resilience typically requires additional upfront costs but is perceived to deliver uncertain long-run economic benefits. Making such decisions can be challenging when there is a shortage of fiscal space and difficulties in accessing private finance.

184. Private sector participation in climate-change responses is central to mobilizing funds. It is also critical to identify adaptation needs, build technical capabilities, and scale up the efforts of government and the donor community. It is essential to increase the interest of businesses and private financial institutions in reducing climate risk and building climate resilience. Private sector participation can be considered in different degrees:

- Investments that are critical to adaptation, such as design and location of infrastructure investments, buildings, and agricultural production systems;
- Provision of adaptation services, such as climate information technology, early warning systems; and drought-resistant crops; and
- Provision of financial instruments: e.g. weather insurance and other risk management instruments.

185. Equally important is developing policies that will spark private investment in low-carbon infrastructure and technology. Domestic financial institutions can play a greater role by providing concessional financing or credit guarantee schemes that leverage funding from donor governments or multilateral stakeholders.

F. Good Governance: Foundational requirement and main comparative advantage

186. Good governance is a foundational requirement for Rwanda's agenda for inclusive and sustained growth. The country's strong overall governance has been a driver of its rapid growth and gives it a useful comparative advantage over most peers in the region. The institutions of governance have been significantly reinforced, earning the government a reputation for efficiency and probity. Governance is clearly the foundation on which Rwanda's future prosperity will be built.

187. But the agenda of good governance is far from complete. The Growth study has identified several areas where improvements are needed to maximize growth of the economy. These findings also relevant for making growth more inclusive over the medium term—the focus of the SCD. Among several areas in governance discussed, the SCD identifies two priority areas for strengthening Rwanda's governance and institutions to achieve more inclusive growth:

- First, Rwanda still faces barriers to building a well-structured, high-capacity government that arises from a centralized, top-down decision-making approach that hampers innovation by bureaucrats and local governments. It also weakens coordination between different government entities and limits capacity in key agencies because of inadequate career management, poor incentives, and insufficient training.
- Second, the governance system in Rwanda needs to become much more responsive to citizen concerns by improving the state's accountability to its citizens and ensuring that policies and programs are aligned with the needs and aspirations of the people.

188. For the first policy area, achieving sustained and inclusive growth will require well-structured, capable, and empowered civil service and local governments, with resources and other incentives to be innovative, even entrepreneurial, to (1) inform decision-makers with evidence and analysis; (2) share information and coordinate actions within and beyond the administration; and (3) take informed risks, experiment, scale up successes, and learn from failures. Creating such institutions may require modifying the *imihigo* to increase the autonomy of civil servants and local government, building up capacity and coordination within the government, and making progress on decentralization to encourage local initiative and eliminate responsibility overlaps.

189. For the second priority area, the state must be more citizen-centered, supported by a more effective feedback loop between civil society and local governments and service providers through stronger citizen engagement. The capacity and motivation of citizens to aggregate and voice their concerns, and to participate with state actors in assessing service delivery and its problems, is critical for Rwanda's emergence as a strong, successful middle-income economy. Reform measures can seek to reinforce checks and balances to improve the accountability of executive and local officials and service providers. Giving watchdog agencies (the Public Accounts Committee, the Office of the Auditor General, the Office of the Ombudsman, and the Rwanda Governance Board) independent sources of budget and control over staffing decisions could make government more accountable. Greater involvement of associations of citizens in local decision making, such as setting *imihigo* objectives, greater local flexibility, and reliance on more qualitative information in monitoring performance, would strengthen support for local government and improve service quality.

4. PRIORITIZATION OF POLICY AREAS

Prioritization process and results

190. The analysis in this SCD has yielded 24 priority areas in five pathways for Rwanda's progress toward the twin goals of reducing extreme poverty and increasing prosperity (Figure 4.1).

Figure 4.1: Proposed pathways and priority areas for achieving the twin goals in Rwanda

<p>Pathway 1: Investing in Human Capital</p> <ul style="list-style-type: none"> • Prioritizing learning by investing in education and skill development • Prioritizing people's health and well-being • Accelerating the demographic trajectory • Improving social protection to reduce vulnerability and expanding inclusion • Building on Rwanda's success in gender equality 	<p>Pathway 2: Market and private sector development</p> <ul style="list-style-type: none"> • Balancing the roles of the state and the domestic private sector • Building up the institutions for competition and contract enforcement • Giving the market and the private sector a larger role in agriculture • Addressing cross-cutting constraints on private sector development • Promoting SMEs to energize private entrepreneurship • Promoting FDI • Promoting market-driven agglomeration
<p>Pathway 3: Investing sustainably</p> <ul style="list-style-type: none"> • Prioritizing debt sustainability and macroeconomic stability • Reorienting public investments for higher social returns and better livelihoods • Strengthening public investment and public financial management • Engaging the private sector in sustainable infrastructure development • Reorienting investment promotion to export sectors • Promoting domestic savings 	<p>Pathway 4: Building resilience</p> <ul style="list-style-type: none"> • Ensuring climate-compatible, sustainable urban development • Investing in stable and sustainable landscapes • Strengthening resilience through effective environmental management of the water sector • Developing financing instruments for resilience and green growth
<p>Pathway 5: Strengthening state efficiency and accountability</p> <ul style="list-style-type: none"> • Building a well-structured and high-capacity government • Strengthening State openness and accountability to citizens 	

191. Not all actions to address these constraints will forward the twin goals to the same extent. Based on the analysis underpinning it, the SCD outlines a prioritization process and proposes a shorter list of priority policy actions (see Box 4.1 for methodology).

Box 4.1: Prioritization process and methodology

The SCD prioritization relies on a process of team discussion and scoring, consultations with the government and other stakeholders in Rwanda, and a thorough review of the evidence.

For scoring by the extended WBG Rwanda SCD team (sector experts and team leaders with extensive country experience), three criteria were used to identify those policy proposals:

1. *Five-year impact on the twin goals:* To what extent is tackling a constraint is likely to yield results, directly or indirectly as pre-conditions for tackling other constraints, within the five-year term of the, CPF time frame?
2. *Complementarity:* To what extent will a particular intervention positively influence other interventions and objectives?
3. *Long-term sustainability:* Since development is a long-term endeavor, how sustainable are actions to address a constraint over the longer term, especially the environmental impact?

Each criterion has equal weight. The expected result of tackling each constraint is scored against each filter or criterion as high (value 3), medium (2), or low (1). The scores are then multiplicatively rather than simply added. This methodology was applied to each policy area to prioritize policy interventions. Prioritization was also informed by insights from consultations, which supplemented the analysis, evidence, and scoring. Consultations were held with World Bank Group stakeholders, government counterparts, and academic, private, and civil society representatives.

The prioritization process thus identifying the policy actions most likely to have very high impact on achievement of the twin goals within five years.

192. The prioritization exercise identified and ranked 14 main priority areas out of the 25 with the highest impact on the twin goals based their five-year impact, complementarity and long-term sustainability (Table 4.1).

Table 4.1: Priority areas with the highest impact on the twin goals

Investing in human capital
<ul style="list-style-type: none"> • Prioritizing learning by investing in education and skill development • Prioritizing individual health and well-being • Improving social protection to reduce vulnerability and strengthen inclusion • Building on success in gender equality
Market and private sector development
<ul style="list-style-type: none"> • Balancing the role of the state and the domestic private sector • Strengthening the role of the market and the private sector in agriculture • Addressing cross-cutting constraints on private sector development • Promoting market-driven agglomeration
Investing sustainably
<ul style="list-style-type: none"> • Prioritizing debt sustainability and macroeconomic stability • Reorienting public investments for higher social returns and improved rural livelihoods • Engaging the private sector in infrastructure in a sustainable manner
Building resilience
<ul style="list-style-type: none"> • Investing in a stable and sustainable landscape • Strengthening resilience by effective environmental management of the water sector
Governance
<ul style="list-style-type: none"> • Building a well-structured and high-capacity government.

The priorities

193. This section concludes the SCD by summarizing priority areas and highlighting the actions areas identified after systematic review of evidence and consultations as most important.

194. **Prioritizing learning by investing in education and skill development:** Rwanda needs to substantially improve access to and the quality of education. In basic education, transitions from primary to lower secondary education and the secondary gross enrollment rate should be the main policy focus, especially in rural areas that are significantly behind Kigali. Teacher training for improved pedagogy and improved proficiency of language of instruction will be critical. Rwanda will also need to strengthen the provision of technical and vocational training and invest in improving tertiary education; enrollment in both is below many of its SSA peers.

195. **Prioritizing individual health and well-being:** Despite great strides in health and well-being Rwanda's agenda for dealing with both communicable diseases (HIV/AIDS, TB, malaria) and maternal and child health and an emerging NCD burden. Improving access to and utilization of antenatal and prenatal care for women, addressing food security and economic vulnerabilities to reduce stunting, and tackling the shortage of skilled professionals are all critical. Improving water and sanitation is integral to health and well-being. Road safety has also emerged as a major issue especially affecting the youth.

196. **Improving social protection to reduce vulnerability and strengthen inclusion:** To solidify the gains made in recent years in social protection. Rwanda needs to focus on several reform areas. First, reforming *Ubudehe* is necessary to improve the mechanism for targeting social protection needs. As targeting improves, increasing financing for social protection will be important. Greater selectivity in social protection focusing on interventions for which there is strong evidence for achieving high impacts will be necessary, as will enhancing and expanding public works schemes that have proved to be most pro-poor. Improving implementation readiness throughout the social protection administration will be critical to ensure that public spending is efficient.

197. **Building on Rwanda's success in gender equality:** Though Rwanda is widely recognized for its commitment to gender equality, there are still blocks to everyone's full participation in society and the economy. Here, priorities should be to promote women's participation in tertiary and technical and vocational education; promote entrepreneurship and access to finance by women; involve women more in subnational democratic and governance bodies; expand response and prevention services to address GBV in all districts and sectors; and support awareness and behavior change.

198. **Balancing the roles of the state and the domestic private sector:** With formal private entities absent in the aftermath of the Genocide, the strong role of the state and SOEs was essential for recovery and reconstruction, preparing an environment that allowed private firms to achieve the efficient market-led outcomes that are essential for sustaining high growth. Now it is appropriate for the government to gradually withdraw from productive activity, encourage competition, and advance SOE corporate governance reforms in order to achieve more market efficiency, transparency, and healthier functioning in general.

199. **Strengthening the role of the market and the private sector in agriculture:** To maintain high growth and serve as an engine of poverty reduction, agriculture must continue to modernize, become more responsive to market signals, and more effectively integrate with regional and global markets. This implies creation of an institutional, infrastructural, and policy environment where the market decides where, when, and how agriculture produces and trades, and a gradual shift in the public sector's role to facilitate fair realization of those private sector decisions. This will require a

greater role for markets in identifying crops to be planted; reforming price-setting and use of tariffs; reforming cooperatives; relying increasingly on private provision of agriculture inputs; addressing cross-cutting constraints in agriculture and agribusiness such as land degradation and climate change through interventions for better soil quality and water retention; strengthening research and regulatory institutions; promoting vertical coordination, and building skills for agribusiness.

200. **Addressing cross-cutting constraints on private sector development:** Rwanda's private sector must deal with a multitude of constraints that compress economic activity and reduce returns on investments. Policy interventions need to focus on improving access to finance by making the financial system more efficient, with special attention to access to finance in agriculture, energy sector reforms to reduce the costs and raise the reliability of electricity, improving connectivity domestically and regionally, promoting the digital economy and ICT, and opening up private sector access to land.

201. **Promoting market-driven urbanization and agglomeration:** Rwanda needs dynamic agglomeration economies of the kind only seen in large cities. While it is imperative to maintain Kigali's distinctive reputation to support high value and promising industries like those related to MICE, a better balance between long-term strategic bets and current market opportunities will be necessary to maximize nonfarm job creation and shared prosperity. Reviewing the master plans of Kigali and secondary cities as part of national economic planning that maximizes economic and social outcomes and improving their implementation capacity and efficiency is important to tap Rwanda's full potential for job creation through urbanization.

202. **Prioritizing debt sustainability and macroeconomic stability:** A sound macroeconomic environment and manageable public debt are preconditions for ensuring investment sustainability, especially in economies where the public sector has such a prominent role in investment decisions and resource allocation. This will require a commitment to debt sustainability through fiscal prudence and carefully selected public and publicly supported investments, maintaining an equilibrium exchange rate to prevent excessive macroeconomic volatilities, and mobilizing more domestic revenue.

203. **Reorienting public investments for higher social returns and improved livelihoods:** Rwanda may need to strike a better balance between investments in long-term strategic priorities and investments that are currently pressing because of clear signals of scarcity and have potentially larger medium-term economic and social returns, especially irrigation and other rural infrastructure to reduce farmers' transaction costs and increase sector resilience, domestic connectivity, rural-urban links, and access to markets, such as feeder roads and quality public transport.

204. **Engaging the private sector for infrastructure sustainably:** Rwanda has used the potential of the foreign private sector to mobilize resources for addressing infrastructure bottlenecks. The government now needs to engage with private investors in cautious and sustainable way to reduce possible fiscal risks from public-private partnerships and better balance ambitious infrastructure targets with considerations of fiscal risks.

205. **Investing in a stable and sustainable landscape:** Rwanda is extremely vulnerable to floods, landslides, and other climate-related disasters. With climate change projections suggesting far more frequent intense rainfall events, the disaster risk is expected to increase. Improving Rwanda's capacity to adapt to climatic risks and hazards requires strengthening landscape-based resilience, building technical and managerial capacity throughout the value-chain of climate services, and supporting community efforts to reduce landscape degradation and instability, and thus reduce overall disaster risk and vulnerability.

206. **Strengthening resilience through effective environmental management of the water sector:** Rwanda's water resources have been severely degraded by population growth, increased urbanization, industrial development, and environmental degradation. Integrated water resource management and effective institutions are necessary to promote water security in the face of socio-economic development and climate change. One major challenge is to meet the increasing demand for multiple uses despite declining water availability. The country has limited capacity in terms of human resources, institutional systems, and infrastructure. Coordinated internal use and enhancing trans-boundary water cooperation are essential.

207. **Building a well-structured and high-capacity government:** Strong governance has been a driving force behind Rwanda's rapid growth and is a comparative advantage over most SSA peers. To maintain its progressive trajectory in governance, Rwanda will need to continue creating a well-structured, capable, and empowered civil service and local governments that will inform decision-makers; share information and coordinate actions within and beyond the administration; take informed risks, and experiment by scaling up successes and learning from failures. Creating such institutions may require modifying the *imihigo* to increase the autonomy of civil servants and local government, strengthen capacity and coordination within the government, and make progress on decentralization to encourage local initiative and eliminate overlapping responsibilities.

5. KNOWLEDGE GAPS

208. Rwanda has established itself as a leader in development data among African nations. Over the past decade, the National Institute of Statistics has published a wide range of social, demographic, and economic statistics.

209. For instance, its strong poverty monitoring system is the foundation for understanding progress toward poverty reduction and monitoring the impact of government programs and policies. The National Institute for Statistics in Rwanda has undertaken five household surveys since 2000 with the objective of fielding a survey every three years. In 2013-14 the survey for the first time included a panel component to better track changes in livelihoods. The final round of the latest survey was completed in October 2017, but the results were only published in December 2018. Delays in releasing data undermines timely analysis. A major knowledge gap in poverty and inequality measurement also arises from a discrepancy between private consumption captured by the household surveys and by national accounts. The results of the three latest surveys show that per capita consumption has grown by 0.8 percent annually between 2011 and 2017, but national accounts show 4 percent growth.

210. This SCD emphasizes the importance of the nonfarm sector in Rwanda's growth and poverty reduction. New surveys, such as the Labor Force Survey (LFS), Establishment Census, and Integrated Business Enterprise Survey, have advanced both the quality of business statistics and the administrative data available to research institutions upon request. In terms of data gaps, more disaggregated subnational data and monthly producer price indices are needed, and efforts to improve survey coverage, frequency, and granularity must continue.

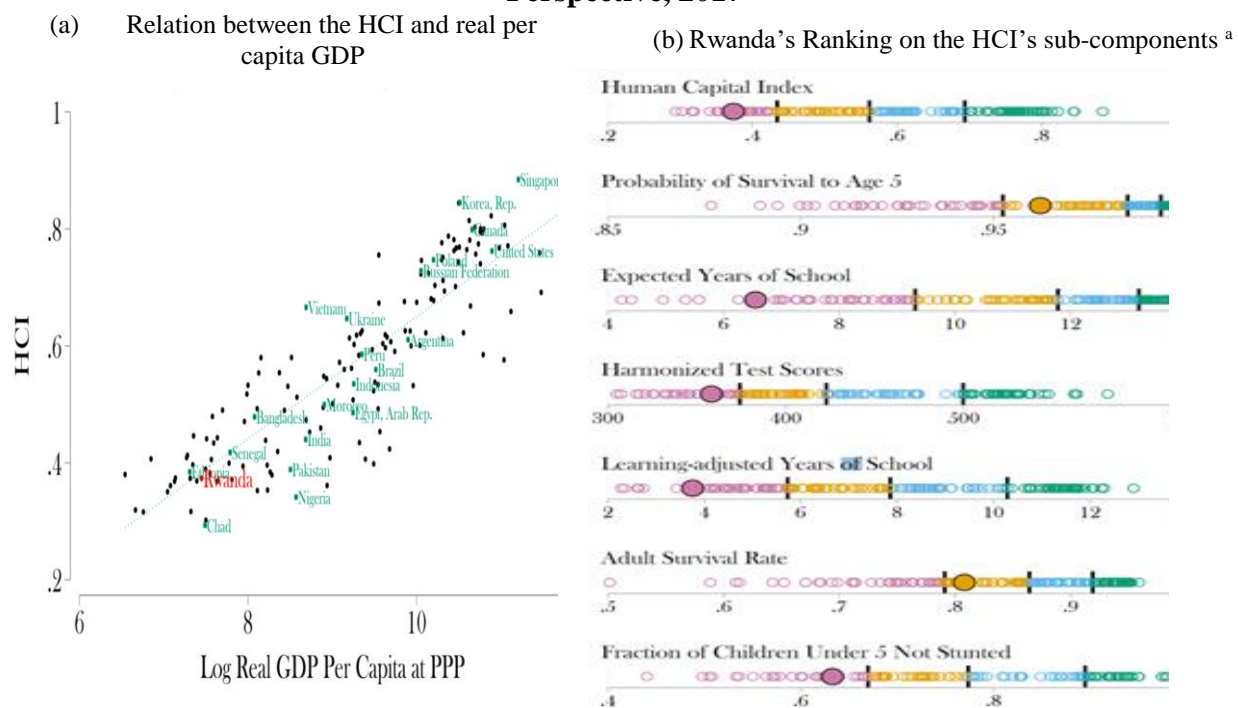
211. The agricultural sector also needs more data, such as frequent livestock surveys, and farmgate price data will be useful to get a more complete picture of agriculture, properly monitor prices received by farmers, and understand the effects of price regulation. Statistics for cross-cutting policy areas (e.g. environment, gender) are often overlooked, particularly in the areas of earnings, access to productive resources, and finance, where data beyond the basics are lacking. Rwanda will also benefit from assessment of the quality of public spending and its alignment with its strategic priorities.

ANNEXES

Annex 1: Rwanda Human Capital Index

The World Bank’s newly-launched Human Capital Project (HCP) provides a comparative perspective that reinforces Rwanda’s need to prioritize investment in basic schooling for learning.³⁰ The Human Capital Index (HCI)—developed as part of the HCP—measures for 157 countries the amount of human capital that “a child born today can expect to attain by age 18 [and thus] conveys the productivity of the next generation of workers compared to a benchmark of complete education and full health.” While Rwanda’s overall HCI in 2017 is lower than the average for Sub-Saharan Africa, it is broadly in line with expectations for a country with its income level (Figure 1, panel a). Detailed information on the underlying components show, however, that the education-related indicators—especially expected years of school and learning-adjusted years of school—put the country in the bottom 25 percent of countries globally (Figure 6, panel b). Children in Rwanda can expect to complete 6.5 years of pre-primary and basic education by age 18. However, when adjusted for learning, this translates to only about 3.8 years, implying a learning gap of 2.7 years.

Figure 1: Rwanda’s Human Capital Index and Underlying Components in Comparative Perspective, 2017



Source: World Bank 2018b, accessed 10/16/2018 at http://databank.worldbank.org/data/download/hci/HCI_2pager_RWA.pdf

a. Large circles denote Rwanda, small ones, other countries; thick vertical lines and color of circles denote quartiles of the distribution.

³⁰ In-depth study on “Analysis of value chain for intensified crops and market price in Rwanda; the Case study: Irish potatoes, maize and rice” commissioned by the Rwanda Civil Society Platform

Annex 2: Drought and recent pause in poverty decline in Rwanda

The recent household survey was conducted from October 2016 to October 2017, which overlapped with the 2016 drought in Rwanda. The irregular rainfall pattern was followed by a severe drought in the last quarter of 2016, which was far below 35-year average rainfall in most parts of the country, especially in the Eastern and Southern Provinces. The growth rate of agriculture started to plummet from the second quarter of 2016 and remained below 3 percent between the third quarter of 2016 and the first quarter of 2017, compared with around 5 percent historic growth in agriculture. All trends started to show a recovery around the second quarter of 2017 (NISR, 2018).

The reduction in crop production because of the extreme weather conditions resulted in unusual high prices in food and vegetables regionally. The products most affected by the droughts include staple foods that are usually consumed by poor households, such as potatoes and beans. The drop-in household consumption in Rwanda as a whole was mainly driven by urban areas of the Western and Eastern provinces. City of Kigali is the only province that reports an increase in consumption per adult equivalent of two digits.

Buying less food was one of the main responses of household to the shocks experienced during 2016/2017 (including farm shocks, high food prices and health shocks). For example, more than 60 percent of the households reduced their food consumption in poor households due to the rise in prices (table 1). This reduction in food consumption for poor households was reflected in the poverty dynamics that contributed to the pause of the decline of the poverty rate.

Box Table 1 Responses to main specific shocks (as percentage of households reporting shocks)

	Farm shock		High food prices		Health shock	
	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor
Selling assets	21.2	24.8	19.2	15.0	32.7	37.1
Buying less food	40.2	42.3	61.0	77.3	25.7	23.2
Using savings, and/or borrowing	20.3	28.0	26.8	24.8	38.6	47.4
Migrating	3.6	2.0	4.5	1.9	1.6	1.4
Begging or doing demeaning work	10.4	6.3	7.3	3.6	7.2	5.1
Other	7.1	4.6	23.6	16.7	29.6	21.8

Source: NISR (2018)

Source: World Bank and NISR

However, the exact impact of the droughts on poverty reduction was ambiguous at the time of preparation of SCD as net food-producers not impacted by crop failure benefited from the droughts because of higher food prices in Rwanda and the region overall. The upcoming 2020 Poverty Assessment will examine the impact of the drought on poverty reduction.

Annex 3: SOE reforms agenda

Background

SOEs occupy a prominent position in Rwanda's enterprise sector, and include four categories of firms: (i) enterprises in which the Ministry of Economy and Finance (MINECOFIN) has a majority or minority stake, including in air transport, financial services, agriculture, utilities, real estate, cement, services, and diversified holdings; (ii) Rwanda Patriotic Front (RPF) holdings (e.g. building materials, security, coffee, and dairy) organized into one holding company; (iii) public-private investment groups (e.g., energy, cement, metals, dairy, and tea holdings) in which other SOEs have invested along with private investors; and (iv) Rwanda Defense Force (RDF) holdings, although most of these have been transferred to MINECOFIN.

A proposed approach to SOE ownership strategy

Public-private boundaries can shift as the private sector gains strength. Government should consider short-term competitiveness, long-term economic development goals, and social stability needs. Rwanda's economy can be categorized by four sector types: 1) sectors in which SOEs will retain a monopoly; 2) sectors in which SOEs will remain present but compete with private firms; 3) sectors from which SOEs will withdraw when efforts to build up private sector capacity prove successful; and 4) sectors from which SOEs will withdraw immediately (for example, through a well-planned and well-supported privation program) because the private sector is already sufficiently capable.

For type 2–4 sectors in which private firms are generally competitive with SOEs, state support for enterprises could be based on common sector goals, such as demonstrated market-based achievements in export promotion; any such privileges should be time bound and revocable. For type 2–4 sectors in which private firms cannot generally compete with SOEs, the Government could give private firms some opportunities to catch up. This could involve, for example, lower performance thresholds for certain incentives, some private sector set-asides for government procurement contracts, or partial credit guarantees for private SMEs. Such privileges should be time bound and revocable.

An agenda for corporate governance reforms³¹

Effective corporate governance achieves a necessary balance between *autonomy* for enterprise “agents” and *oversight* by enterprise owners (principals). The OECD's guidelines for the corporate governance of SOEs could usefully be adopted—with any necessary modifications—for Rwanda's SOEs. Although Rwanda's SOEs are already following at least some of the OECD guidelines, further alignment would improve domestic clarity and strengthen Rwanda's international reputation among investors. MINECOFIN's *Financial Risk Review* highlights corporate governance issues for the board's attention; tracks the disposition of issues previously identified; analyzes financial performance and position for each state-owned enterprise; summarizes key financial risks for the government (MINECOFIN 2017); and represents an excellent foundation on which the government could build an SOE ownership policy. Key areas for further reforms can include:

- Allowing full operational autonomy to SOEs to achieve their commercial objectives. Ownership rights should be exercised only periodically (for example at shareholder meetings) and through normal mechanisms (for example, voting of shares). The state should not be involved in day-to-day operations of an SOE or its board of directors (OECD 2015, ch. II). But autonomy has to be granted while ensuring that the SOE has the necessary competencies and accountability.

³¹ Based on Background paper on SOEs by William Mako for the joint report on Future Drivers of Growth

- Transactions between the Government and SOEs or between SOEs should take place on market terms. If an SOE is required to pursue a public policy objective, information on this requirement should be available to all shareholders (OECD 2015, ch. IV).
- All SOEs should regularly issue audited financial statements to the public because 1) the government needs reliable financial information to guide economic policy, regulation, and investment decisions; 2) leading international private investors who might provide additional equity or debt financing require such information; and 3) Rwandan citizens are all SOE stakeholders, and regular and reliable financial reporting would serve to maintain the public's trust.
- All SOE financial statements should follow International Financial Reporting Standards (IFRS), as doing so would be useful preparation for any SOCE potentially interested in accessing international capital; either debt or equity investments. The Government currently requires full IFRS for all domestic companies whose securities trade in a public market. In addition, "companies with public accountability (banks or other financial institutions) must use full IFRS."³² Given SOEs' importance, extending the scope of "public accountability" to require them to report according to full IFRS seems reasonable.
- In addition to financial reporting, SOEs should publicly disclose other important information such as: (a) governance, ownership, and voting structures of the SOE; (b) remuneration of board members and key executives; (c) board member qualifications, selection process, roles of other company boards, and whether these other boards are considered as independent by the SOE board; (d) any material foreseeable risk factors and risk mitigation measures; (e) any financial assistance, including guarantees, received from the government and SOE commitments arising from public-private partnerships; (f) any material transactions with the government or government-related entities; and (g) any material issues relating to SOE employees or other stakeholders (OECD 2015, ch. VI).

³² According to the World Bank, Doing Business 2018, Rwanda scores reasonably well with regard to creditors' legal rights and credit information as well as speed of contract enforcement (World Bank 2017). But the credit bureau covers only 20 percent of adults, contract administration costs, on average, 83 percent of claim value, and the creditor can expect to spend 2.5 years on an insolvency case and recover just 19 percent of its loan. Fixing these issues could facilitate SME access to credit. Judicial reform can take a long time.

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