Rwanda Economic Update

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Rethinking Urbanization in Rwanda: from Demographic Transition to Economic Transformation

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Rwanda Economic Update

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December 2017

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS

BNR	National Bank of Rwanda
DSA	Debt Sustainability Analysis
EDPRS	Economic Development and Poverty Reduction Strategy
EICV	Integrated Household Living Conditions Survey
FY	Fiscal Year
GDP	Gross Domestic Product
ICT	Information and Communication Technology
IMF	International Monetary Fund
LTR	Land Tenure Regularization
MAI	Market Accessibility Index
MINECOFIN	Ministry of Finance and Economic Planning
MPFSS	Monetary Policy and Financial Stability Statement
MPI	Multidimensional Poverty Index
NISR	National Institute of Statistics of Rwanda
NPLs	Nonperforming Loans
NST	National Strategy for Transformation
NUP	National Urbanization Policy
OECD	Organization for Economic Cooperation and Development
REU	Rwanda Economic Update
Rwf	Rwanda Franc
SSA	Sub-Saharan Africa
TFP	Total Factor Productivity
US$	United States Dollar
WDI	World Development Indicators

FOREWORD

The Rwanda Economic Update (REU) reports on and synthesizes recent economic developments; places them in a medium-term, regional, and global context; and analyzes the implications of these developments and policies for the outlook of the economy. These reports attempt to make an analytical contribution to the implementation of Rwanda's national development strategy. Each edition has a special feature analyzing more deeply a selected topic. The report is intended for a wide audience of policy makers, business leaders, other market participants, the community of analysts engaged in Rwanda's economy, and civil society.

The eleventh edition of the REU was jointly prepared by the World Bank Rwanda Macroeconomics and Fiscal Management Global Practice team and the Social, Urban, Rural and Resilience Practice team. The teams were led by Aghassi Mkrtchyan (Senior Economist) and Narae Choi (Urban Specialist). Peace Aimee Niyibizi (consultant) contributed to the analysis of recent macroeconomic developments. Somik Lall (Lead Urban Economist) provided guidance to the team for the special topic. The report was prepared under the overall guidance of Diarietou Gaye (Country Director), Abebe Adugna (Practice Manager), Bernice Van Bronkhorst (Practice Manager for Urban and Disaster Risk Management) and Yasser El-Gammal (Country Manager). Sylvie Ingabire and Karima Ladjo (Team Assistants) supported the team. Naoko Kojo (Senior Economist), Ruslan Piontkivsky (Senior Economist), and Mark Roberts (Senior Urban Economist) were peer reviewers.

Although this report does not represent the official views of the Rwandan authorities, the macroeconomic unit of the Ministry of Finance and Economic Planning (MINECOFIN) and the National Bank of Rwanda (BNR) were engaged in its formulation and provided valuable comments. The World Bank team appreciates their contributions.

EXECUTIVE SUMMARY

Recent Economic Developments

Developments in the Rwandan economy as of the first half of 2017 have been mixed. On the upside, Rwanda's external imbalances have eased on account of improvements in global commodity prices, global and regional strengthening of growth recovery, and the external adjustment the government undertook in 2016. Inflation pressures have also eased as Rwanda and the region recover from droughts; and after depreciations in 2015 and 2016, the currency has stabilized. On the other hand, economic activity has continued to be subdued, with an annualized growth of just 3.4 percent in the first half of 2017, on account of weak domestic demand.

Growth decelerated across the board. Despite recovering from the droughts, growth in agriculture remained low, and a contraction in construction put the brakes on industrial activity. Growth in services decelerated driven by weak retail and wholesale trade. Mirroring these developments, both private consumption and investments had declined in real terms by mid-year. Exports, however, saw healthy growth as export prices rose and the exchange rate became more competitive, while a substantial contraction in imports markedly improved the trade balance.

Inflationary pressures subsided significantly in the first nine months of 2017, while exchange rate was relatively stable. From its recent peak of 8.1 percent in February 2017, headline inflation declined to 3.8 percent by September largely due to reductions in food price inflation which fell to 8.3 percent from the February peak of 17.6 percent. Exchange rate depreciation continued in 2017, albeit at much slower rate than in 2015 and 2016.

The banking system remains well capitalized but risks intensified. This is evidenced by increased non-performing loans, higher rejection rate of new applications, and approval of fewer new loans. Growth in deposits was affected by an increase in the government's issuance of T-bills. These factors have held back credit to the economy.

Despite an increase in the headline budget deficit the overall fiscal stance was not expansionary because of unchanged fiscal deficit excluding grants. With spending higher than projected, the headline fiscal deficit widened in FY2016/17 to 4.9 percent of GDP, up from the 3.5 percent deficit in FY2015/16. At 9.5 percent of GDP, the fiscal deficit excluding grants was unchanged from the previous fiscal year due to a decline in spending under grant-financed projects. Revenue collection is still subdued, and external grants continue to decline. Compared to previous year, total public spending was lower by 0.2 percentage points of GDP, and total revenues were lower by 1.7 percentage points. The decline in total revenues was largely due to the 1.3 percentage points decline in grants.

The larger deficits and public guarantees for investment projects of recent years have meant higher public debt. According to the joint IMF and World Bank debt sustainability assessment Rwanda's risk of debt distress remains low. However, public debt has grown steadily, and is expected to reach 46 percent of GDP by year-end 2017. This has substantially narrowed Rwanda's fiscal space.

To sustain growth and maintain the necessary fiscal space, public investments must be better targeted. Total factor productivity slowed down substantially during the investments push by the government in 2013-2015 which may suggest that economic returns on recent public investments may have been lower than expected. This can undermine Rwanda's growth prospects and raise concerns about fiscal sustainability.

Now needed is a balanced approach to address investment needs in areas that have potential for higher economic returns and for crowding in private investments.

Addressing fiscal contingencies is important for debt sustainability. The reform program recently adopted by the authorities to address fiscal risks in the energy sector is an important step forward. It aims at fiscally sustainable expansion of electricity services by containing fiscal impact of the electricity sector and improving the operational efficiency, affordability, and accountability of electricity services.

In the short to medium term, the growth outlook is positive. It is estimated that by mid-2017 economic growth had already bottomed out and is now likely to recover to 5.2 percent by yearend and will accelerate in 2018 as agriculture and investment, both public and private, pick up. Economic activity will also benefit from the expected recovery of prices of such traditional exports as minerals, tea, and coffee. A more competitive exchange rate is already supporting non-traditional exports, which may become an important source of growth. As the region recovers from drought, the agriculture outlook for the medium term is positive. The government's renewed commitments to scale up investments in agriculture, especially irrigation, will reinforce the medium-term outlook.

The main risks to the growth outlook are associated with possible weak external environment, persisting external imbalances, continued debt accumulation, and a weak private sector. If global prices of minerals, coffee, and tea continue to be low, they will subdue production and exports. The pace of economic transformation will largely depend on the extent to which government expectations for its major tourism and connectivity investments materialize. Continued lack of private sector response to the improved investment climate is another risk.

The special topic of this update examines the role of urbanization as one of the important factors that may facilitate growth and poverty reduction in the long term. Long term economic growth will depend on Rwanda's ability to improve productivity through better use of capital and human resources. Among other important determinants such as improved business environment, skills, good governance and infrastructure, well-managed urbanization can greatly contribute to productivity through agglomeration, density and improved connectivity. There is evidence that urbanization in Rwanda is already positively associated with jobs and poverty reduction. This highlights the importance of policy discourse on urbanization as part of formulating country's growth agenda.

Rethinking Urbanization in Rwanda: From Demographic Transition to Economic Transformation

In its vision to become a middle-income country by 2020, the Government of Rwanda has identified off-farm job creation and urbanization as drivers of economic growth and national development. To realize this vision, a key objective of the country's economic development and poverty reduction strategy (EDPRS) II (2013–18) is to transform Rwanda's economic geography by facilitating urbanization and supporting secondary cities as poles of growth. The transformation would require transitioning 50 percent of the population from farm to off-farm jobs. Specific targets for 2020 also include a 35 percent urban population and creation on 1.8 million new off-farm jobs.

The 2012 Census found that 16.5 percent of Rwandans were living in urban areas – but Rwanda has been urbanizing rapidly. Between the 2002 and 2012 censuses, the degree of urbanization did not differ much, despite observable changes that suggested greater urbanization. The apparent stability was

a result of a change in the census definition of urban areas that made it difficult to compare the figures directly. An alternative analysis using a simple definition (minimum population of 5,000 and a population density greater than 1,000) demonstrates that between 2002 and 2015 Rwanda's urban population increased from 1.49 million to 3.46 million—by almost 2 million people or 132 percent—at an average rate of 6.7 percent per year.

The increase in the urban population has been accompanied by the physical expansion of cities, notably in the periphery of Kigali and around secondary cities, mostly at low levels of density. Rwanda's zoning system contributes to low-density development in urban peripheries by strict building standards regulating, for example, minimum plot sizes and maximum plot coverage ratios. This is likely to lead some investors and household to areas where zoning has not yet been completed or planning codes are less rigidly enforced. The trend is reflected in move of population toward the fringes of Kigali City. Of all recent migrants to sectors[1] bordering Kigali City, 43 percent came from the city itself.

Rwanda's urban system is dominated by Kigali, which is also the economic center of Rwanda. Nightlights-based estimation of district-level GDP[2] concluded that the three districts of Kigali,[3] which represent 11 percent of total population and less than 3 percent of total land area, accounted in 2012 for 40 percent of total GDP and 61 percent of total nonagricultural GDP. Kigali's primacy is even more evident in comparison to what other cities contribute to the national economy. The six secondary cities together account for 19 percent of total nonagricultural GDP (13 percent of total GDP), and the three fast-growing towns[4] contribute an additional 8 percent (5 percent of total GDP). Kigali also accounts for 27 percent of all nonfarm jobs created between 2011 and 2014 and more than 50 percent of all formal private sector firms and employment in them.

Outside Kigali, the urban corridor between Rubavu and Musanze has emerged as the largest concentration of economic activity. They benefit from proximity to Goma in the Democratic Republic of Congo (DRC) as well as densely populated fertile agricultural land and the presence and investment from relatively large formal firms and tourism. Together, the two cities account for 7 percent of nonagricultural GDP, 4 percent of jobs, and 5 percent of firms. They also have a higher than average concentration of formal firms and jobs—an indication of more productive economic activity. The economic performance of other secondary cities varies, but all have a relatively small share in job creation. Some secondary cities have not reached a sufficient size in population or density of firms to create agglomeration economies.

Urbanization has been accompanied by poverty reduction primarily in areas with high density and good connectivity, but its potential has not been fully realized. The changes in population and poverty in Rwanda's 416 sectors between 2002 and 2012 demonstrate that a 10 percent increase in population density was associated with a drop in the multidimensional poverty index (MPI) of 1.2 percent. Despite the general contribution of urbanization to poverty reduction, it is mainly areas with higher population density that have successfully translated increasing density to poverty reduction. In other words, an increase in density does not necessarily reduce poverty in areas with low-density and little access to

[1] Sector is an administrative unit in Rwanda; there are 416 of them. Unless specified they should not be confused with economic sectors.
[2] GDP estimates use satellite imagery from the National Oceanic and Atmospheric Administration (NOAA) and employment and firm data from Establishment Census 2014.
[3] Kigali City consists of three districts: Gasabo, Kicukiro, and Nyarugenge.
[4] Nyamata, Gicumbi, and Rwamagana/Kayonza are included in the analysis because their urban population has grown fast, although from a low base, and they demonstrate economic potential.

markets: except for areas within Greater Kigali or close to secondary cities, agglomeration effects on poverty reduction are minimal. Given the low-density expansion of these cities, current urban planning and practice should be revised not only to increase economic density but also improve welfare.

Policy Recommendations

Rwanda's towns and cities should be managed as a portfolio. Kigali will continue to be the leading economy, with other cities having different roles. Concerns over Kigali's size and growth have led policymakers to promote secondary cities as substitutes for Kigali. However, as observed, businesses are more likely to locate in Kigali, where they benefit from a range of financial and related services and a diversity of product and labor market, not available elsewhere in the country. Concerns for Kigali becoming a congested and ill-managed city can be addressed through better urban management. For other cities, they should be part of the economic strategy, not of a demographic strategy (i.e. becoming distributors of the population away from Kigali). This requires assessing and defining their roles in the economic transformation based on their economic performance and potentials.

Policy should focus on strengthening the linkages between rural and urban economies rather than on simply creating more nonfarm jobs. Rwanda is one of most land-scarce economies in Africa yet has the region's highest population density; the expanding rural population will encroach on land available for agriculture and thus continue to shrink farm sizes. A large share of employment and nonfarm income opportunities will depend on linking rural and urban economies, including through trade and migration. The government's role is to facilitate this process by creating an enabling environment wherever market potential has emerged, rather than directing the spatial allocation of resources by predetermining where place-specific investments will be made.

Densification is critical given that the link between urbanization, poverty reduction, and job creation quickly tapers off with distance from a city's core. The interaction between urbanization, poverty reduction, and job creation in secondary city centers declines steeply in areas 5–10 kilometers (km) away from the city cores. Yet opportunities for leveraging the benefit of urbanization can be found in these peri-urban areas if they were better connected to the city cores both physically and economically, as well as to their rural hinterlands. Current planning and zoning guidelines in these cities can be applied in ways that increase their economic density and connectivity, factoring in future as well as current and future demands of their citizens.

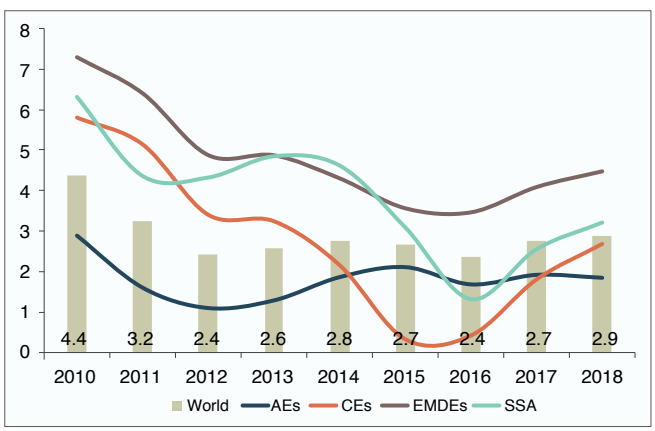
PART ONE

RECENT ECONOMIC DEVELOPMENTS

1.1 The Global and Regional Context

After slowing in 2016, global growth is projected to strengthen to 2.7 percent in 2017 (Figure 1). Since the beginning of the year, the global economy has recovered well, particularly in advanced economies. In these economies, strengthened investments and exports are reviving economic activity. Higher demand for imports is contributing to a recovery in the global goods trade, an uptick in commodity prices, and boosting the recovery for commodity exporters. The slowdown in growth appears to be bottoming out for commodity exporters and is projected to reach just 1.8 percent for the year. More promisingly, growth in emerging markets and developing economies is projected to recover from 3.6 percent in 2016 to 4.1 percent.

Figure 1: Global and regional economic growth
(Percent)



Source: World Bank, Global Economic Prospects
Notes: AEs: Advanced economies. EMDEs: Emerging markets and developing economies. CEs: Commodity exporters; SSA: Sub-Saharan Africa.

Sub-Saharan Africa (SSA) is recovering from the sharp slowdown of the past two years. SSA growth is projected to double from last year's 1.3 percent to 2.6 percent this year. Most of the rebound will come from major oil exporters such as Nigeria and Angola. The upturn is supported by rising commodity prices, stronger external demand, and better weather conditions in some sub-regions. However, growth is projected to be uneven across the region, and for the second consecutive year, regional per capita output growth is expected to be negative.

1.2 The Real Sector

As of June 30, Rwanda's economy had grown at an annualized 3.4 percent—a considerable drop from the 5.9 percent at the end of 2017. The slowdown, which appears to track the economic slowdown caused by the aid crisis in 2013 (Figure 2), began in 2016 and was driven by drought and the completion of large investment projects. The fiscal consolidation in FY 2015/2016, which was designed to reduce external vulnerabilities, had temporarily reduced the growth of domestic demand until fiscal policies became expansionary again in the second half of FY2016/2017.

In addition to these temporary factors, growth has also been slowed by such long-term structural factors as anaemic productivity growth and low returns on investments . Total factor productivity (TFP) has been decelerating in Rwanda since 2011; the main driver of growth in

Key Points:

- ✓ *Rwanda's economy continued to slow in the second quarter of 2017 but now appears to have bottomed out and growth is projected to rebound.*
- ✓ *On the supply side: Agriculture is recovering, though slowly, but construction continues to decelerate, while the growth in services remained below the average of past three years.*
- ✓ *On the demand side: Government consumption combined with the recovery in net export were the main sources of growth, while domestic demand took a hit, with negative growth in private consumption and investments.*

recent years has been a government investment push. With external grants declining and borrowing space for expanding public investment now limited due to higher public and publicly guaranteed debt, that economic model might have reached its limits. The growth slowdown underscores how dependent the economy is on government-led investment; and the minimal growth in productivity highlights how important it is to allocate production factors more efficiently if higher and sustained economic growth is to be achieved. Vision 2050, which the government is currently drafting, focuses on stimulating growth and reducing poverty by building up private sector and market institutions to encourage the most productive use of Rwanda's resources and talent.

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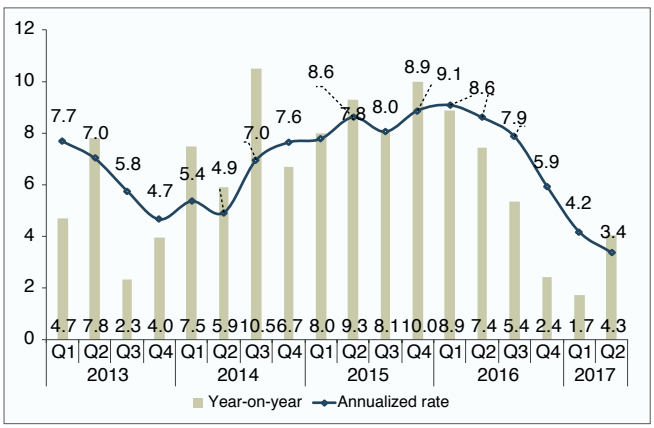
In addition to these temporary factors, growth has also been slowed by such long-term structural factors as anaemic productivity growth and low returns on investments[5]. Total factor productivity (TFP) has been decelerating in Rwanda since 2011; the main driver of growth in recent years has been a government investment push. With external grants declining and borrowing space for expanding public investment now limited due to higher public and publicly guaranteed debt, that economic model might have reached its limits. The growth slowdown underscores how dependent the economy is on government-led investment; and the minimal growth in productivity highlights how important it is to allocate production factors more efficiently if higher and sustained economic growth is to be achieved. Vision 2050, which the government is currently drafting, focuses on stimulating growth and reducing poverty by building up private sector and market institutions to encourage the most productive use of Rwanda's resources and talent.

Figure 2: GDP growth, 2013–17
(Percent)

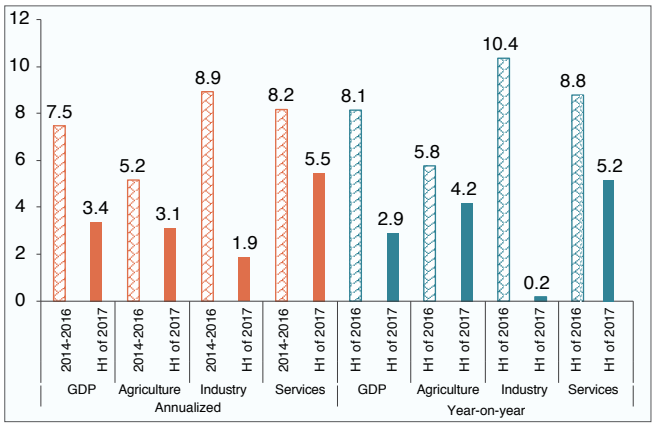


Source: Data from the National Institute of Statistics of Rwanda (NISR),

In the first half of 2017, growth slowed in all main sectors of the economy (Figure 3). As of June 2017, industrial growth had retreated to an annualized rate of 1.9 percent, largely due to a contraction in construction. In 2014–16, construction and the government's investment push had fuelled the industrial growth that averaged 8.9 percent. Growth in domestic trade had averaged 8.2 percent for the preceding three years, but by June 2017 a falloff had slowed growth in services to 5.5 percent. Although by June agriculture had begun to recover from the droughts of 2016, having risen by an annualized 3.1 percent, it was nevertheless still far below the 5.1 percent growth it had averaged in the preceding three years.

[1] The 10th Rwanda Economic Update.

Figure 3: Output growth by sector, 2014–17
(Percent)



Source: NISR data.

The recovery in agriculture has varied by crop. Food crop production drove the 4.2 percent expansion in output in the first half of 2017 in year-on-year (y-o-y) terms (Figure 3); and food crops, which account for more than 65 percent of agricultural output, grew by 3.8 percent (Table 1). The recent Seasonal Agricultural Survey[6] found production up by 3.5 percent in Season A of 2017 after falling by 8.7 percent the year before. Production volumes of tubers, roots, and fruits increased substantially, but those of cereals, pulses, and bananas dropped. Cereals in particular suffered from a disease that attacked maize. Both coffee and tea were hit by second-round effects of the 2016 droughts.[7] Overall, crop exports fell by 3.9 percent.

Industrial output growth was only 0.2 percent y-o-y (Figure 3), the lowest semi-annual growth since 2009, largely because of a 5.5 percent contraction in construction. Growth in manufacturing was relatively strong at 6 percent, although that was less than the average for the past three years (Table 1). Beverages and tobacco, the second biggest manufacturing categories in Rwanda, went down 6 percent y-o-y—another drag on manufacturing growth. Growth in mining and quarrying decelerated to 1.4 percent in the first half of 2017, led downward by coltan and wolfram (Rwanda's traditional mineral products). Although higher export prices helped the wolfram sector, export volumes have contracted. Meanwhile, production of coltan was somewhat higher but export prices were low.

Services grew 5.2 percent in the first half of 2017, down from a three-year average of 8.8 percent (Figure 3). The slow growth in the services sector was caused by limited domestic demand and private consumption. Wholesale and retail trade activities declined by 9.4 percent compared to the same period in 2016 (Table 1). Transport, ICT, and financial services also underperformed. Growth in financial services went down from 6.9 percent in the first half of 2016 to 2.2 percent, mainly because of slower credit growth. Hotels and restaurants, fortunately, grew 12.5 percent in the first half of 2017, capitalizing on large investments there in recent years.

The growth slowdown was mainly caused by slack domestic demand, though that was partly offset by higher external demand. Domestic demand (the sum of consumption and investments) contracted by 3.5 percent y-o-y in the first half of 2017 (Table 1): private consumption fell by 5.5 percent and investments by 5.1 percent. These drops were partly offset by a 12 percent growth in government consumption. As for external demand, exports in real terms grew by 21.8 percent y-o-y as imports dropped by 10.2 percent. As a result, the negative trade balance[8] was reduced by 26.8 percent, thus contributing to the first-half economic growth.

[6] After every harvest, to estimate agricultural production by district the National Institute of Statistics of Rwanda (NISR) carries out a farm survey covering areas under cultivation, plot size, cropping system, production and yield, inputs (seeds, fertilizers. and pesticides) and production activities (e.g., irrigation and anti-erosion practices). http://statistics.gov.rw/datasource/seasonal-agricultural-survey-2017.

[7] According to the National Agricultural Export Development Board, the severe dry season in the second half of 2016 depressed production of coffee and reduced rainfall in the first half eroded production of tea. National Agricultural Export Development Board Reports are available at http://www.naeb.gov.rw/index.php?id=174

[8] Exports minus imports.

Table 1: Growth Rates, Percent

	2013	2014	2015	2016	H1-2017 year-on-year
GDP growth	4.7	7.6	8.9	5.9	2.9
Production side					
Agriculture	3.6	6.4	5.0	3.9	4.1
Food crops	3.7	8.6	3.6	3.1	3.8
Export crops	–3.5	–2.7	14.0	1.6	–3.9
Industry	9.3	11.1	8.9	6.5	0.2
Mining	20.4	24.6	–4.8	10.0	1.4
Manufacturing	4.6	7.7	8.4	7.2	6.0
Construction	10.9	10.1	15.3	4.9	–5.5
Services	5.4	7.2	10.3	7.2	5.2
Trade & transport	6.2	6.8	11.2	6.9	–4.6
Wholesale & retail trade	5.6	8.5	12.9	6.0	–9.4
Other services	5.1	7.3	9.9	7.3	8.6
Net taxes	–3.3	7.7	14.4	4.7	–10.8
Demand side					
Domestic demand	4.4	9.5	13.1	5.6	–3.5
Government consumption	–0.3	20.8	5.1	9.1	12.0
Household consumption	4.0	8.9	13.2	4.0	–5.5
Investment	8.2	5.4	17.9	8.5	–5.1
Net exports	2.5	21.2	36.6	4.3	–26.8

Source: NISR data.
Note: A negative sign of net exports symbolizes a reduction in the trade deficit, positively affecting GDP growth.

1.3 The External Sector

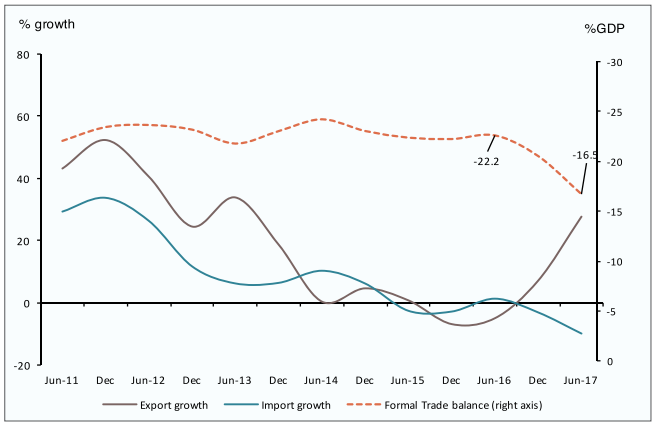
Rwanda's formal trade imbalance[9] has eased substantially (Figure 4). In the first half of 2017, export values expanded by 39.8 percent and imports contracted by 10.6 percent (Table 2), narrowing the trade deficit from US$902 million in the first half of 2016 to US$671 million in the same period of 2017. The trade deficit fell from 20.2 percent of GDP as of December 2016 to 16.5 percent for the year ending in June 2017, demonstrating how much external adjustment that Rwanda has undergone in 2017. Exports were driven by solid growth in non-traditional exports, recovery in the prices of some traditional exports, and the more competitive exchange rate after more than 20 percent nominal depreciation in 2015-2017.

Key Points:

- ✓ *Strong exports and fewer imports narrowed Rwanda's trade deficit in the first half of 2017.*
- ✓ *Solid growth in non-traditional exports and a more competitive exchange rate spurred growth in exports.*
- ✓ *Imports contracted as domestic demand weakened.*

[9] Given that data on current account and balance of payments are published only annually basis, the REU-11 uses only formal trade data for Rwanda's traditional and nontraditional exports and re-exports, and for imports of consumer, capital, and intermediary goods, energy, and lubricants.

Figure 4: Formal trade, percent change



Source: NISR and BNR data.

The solid growth in non-traditional exports was led by minerals. Exports of such minerals as beryllium, unwrought lead, iron ore, and gemstones almost tripled in the first half of 2017, accounting for 19.2 percent of total goods exports. After declining by 17.4 percent in 2016, the value of traditional export products went up 20.1 percent (Table 2). Nevertheless, their share in total goods exports continued to decline, dropping from 34.5 percent in 2016 to 30 percent. High prices pushed up the value of tea exports by about 31 percent, and tin exports went up 55 percent because of both higher prices and higher export volumes. The value of coffee exports remained almost unchanged, while that of wolfram and coltan declined.

The contraction of imports by 10.6 percent in the first half of 2017 was largely driven by lower demand for capital and intermediary goods (Table 2). Capital goods, which account for about 29 percent of formal goods imports (CIF) declined by 25 percent in the first half of 2017, while intermediary goods which account for 26 percent of formal goods imports contracted by 6 percent during the same period. The decline in intermediary imports was mostly due to a 27 percent drop in imports of construction

Table 2: Rwanda: Major export (exports and reexports) and import products, percent change

	2011	2012	2013	2014	2015	2016	H1 of 2017
Export growth	52.4	24.5	18.7	4.7	−6.8	7.1	39.8
Domestic exports	60.3	6.9	16.9	−0.8	−12.3	−1.7	47.9
Traditional products	63.5	−5.1	24.2	−7.1	−19.8	−17.4	17.9
Coffee	33.0	−18.4	−9.8	8.7	4.0	−5.7	0.2
Tea	14.7	2.9	−15.6	−6.7	40.0	−12.5	30.7
Minerals	123.4	−10.1	65.9	−9.9	−42.1	−26.6	18.5
Cassiterite	129.4	−45.4	15.5	17.8	−52.4	1.6	54.9
Coltan	108.8	47.5	136.5	−22.1	−36.8	−40.0	−1.4
Wolfram	125.7	63.9	14.4	−11.5	−34.8	−31.5	−13.0
Other products	43.0	82.0	−6.9	26.5	11.7	34.2	95.2
Other Minerals	113.3	−96.3	78.5	1,543.4	288.8	156.0	172.3
Reexports	3.8	189.8	25.0	22.5	7.6	26.1	27.6
Import growth	33.8	11.7	6.4	6.2	−2.8	−3.1	−10.6
Consumer goods	24.0	8.7	5.4	3.6	5.8	4.9	−3.2
Capital goods	27.3	21.6	5.4	7.7	1.6	9.3	−25.0
Intermediary goods	35.1	13.5	5.9	13.8	−5.2	−16.6	−6.1
o/w construction materials	24.5	1.5	4.5	4.8	4.9	−27.4	−26.6
Energy and lubricants	63.0	0.4	10.8	−4.2	−21.1	−18.3	6.1

Source: BNR data.

materials. Imports of consumer goods, which represent the largest share of imports, declined by 3.2 percent. The value of energy imports, in contrast, went up by 6percent, despite the 0.8 percent decline in volume.

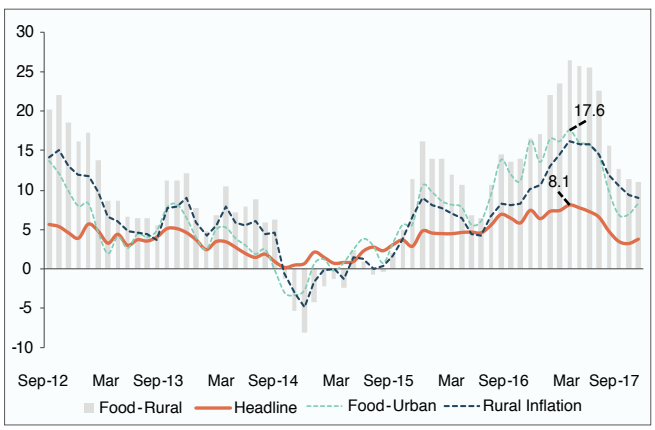
1.4 Monetary and Financial Sectors

Inflationary pressures subsided significantly in the first nine months of 2017. From its recent peak of 8.1 percent in February 2017, headline inflation declined to 3.8 percent by September (Figure 5) largely due to reductions in food price inflation which fell to 8.3 percent from the February peak of 17.6 percent. Even though rural food price inflation plunged from 26percentin February to 11 percent in September, it still remained several percentage points higher than headline inflation.[10]

The exchange rate has stabilized after depreciating for about two years. Following a 10 percent depreciation against the US dollar in 2016, the Rwandan franc (Rwf) depreciation had slowed to 2.5 percent in the first 9 months of 2017 (Figure 6) and was holding steady against other regional currencies. By September 2017, Rwanda's real effective exchange rate has depreciated by 5.5 percent mirroring the movements of the nominal effective exchange rate. According to the most recent IMF assessment, the real effective exchange rate is largely in line with macroeconomic fundamentals.

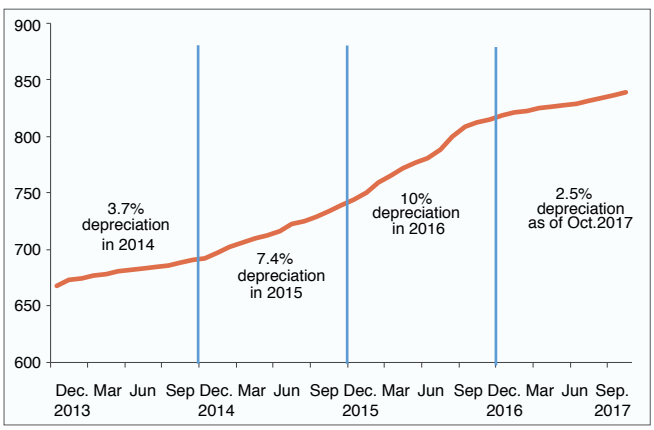
Although the National Bank of Rwanda has cut its policy rate, credit growth remains subdued. In response to a steep decline in credit growth and the easing of inflationary and exchange rate pressures, the National Bank of Rwanda (BNR) cut its key policy rate by 50 basis points, to 6 percent between December 2016 and May 2017. Meeting in September, the BNR's Monetary Policy Committee decided to keep the rate unchanged for the rest of 2017[11]. Nevertheless, credit growth has been subdued,

Figure 5: Inflation, percent change



Source: NISR data.

Figure 6: Rwf : US$ exchange rate, 2013–17



Source: BNR data.

Key Points:

- ✓ *Inflation has returned to the low single digits.*
- ✓ *Exchange rate pressures have eased as external imbalances narrow.*
- ✓ *Higher risks and government crowding out are delaying the recovery of credit growth.*

[10] Urban inflation is used for headline inflation.

[11] https://www.bnr.rw/fileadmin/AllDepartment/services/Public_notices/doc01560320170927111322.pdf

reaching only 7.2 percent in August. To control excess liquidity, the BNR has been intervening in the money market through repo operations which went up to Rwf 795 billion in the first half of 2017, 16 percent higher than for all of 2016.

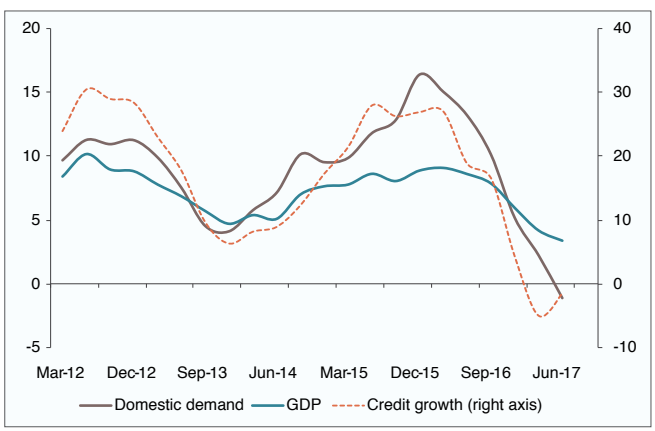
Banks have remained cautious in extending new loans amid increased risks. NPLs increased from 6.2 percent in December 2015 to 8.2 percent in June 2017. New loans contracted by 2.4 percent y-o-y in the first half of 2017. Most affected were commerce and hospitality (restaurants and hotels), for which new loans approved declined by 21.6 percent y-o-y. According to the MPFSS, the bank loan rejection rate was 17 percent in the first half of 2017—5 percentage points higher than in the first half of 2016. Historically close relationship between credit growth and domestic demand in Rwanda may indicate that the banks are becoming risk averse during the slump in domestic demand (Figure 7).

The slowdown in credit and deposit growth coincided with the rise in government issuance of domestic debt. The issuance of T-bills increased 22 percent as of September 2017. Since 2016 interest rates on T-bills have exceeded bank deposit rates (Figure 8), making investments in government bonds more attractive. There is evidence that the nonbank investors, especially large institutional investors, are drawing down their bank deposits to invest more in government securities. The growth rate in deposits was 11 percent (as of June 2017), the slowest since 2014.[12]

Rwanda's banking sector remains well capitalized. The capital adequacy ratio (total capital to risk weighted assets) of the banking sector stood at 21 percent in June 2016, slightly lower than 22 percent as of December 2016 but still well above the regulatory minimum of 15 percent. Most recent round of stress-testing conducted by the BNR found that, even after applying consecutive credit default shocks, the large majority of banks would remain safely above the regulatory minimum capital adequacy requirement. The system is resilient to liquidity and exchange rate shocks.

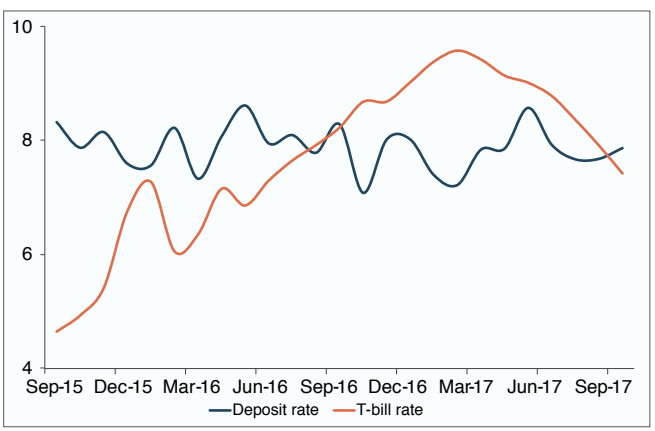
The banking sector's liquidity, efficiency and profitability indicators, however, have weakened over the last two years. The slowdown

Figure 7: Credit and GDP growth, percent change



Source: BNR and NISR data.
Note: Credit growth is adjusted to the GDP deflator.

Figure 8: Deposit and T-bill interest rates, 2015–17
(Percent)



Source: BNR data

[10] According to the August 2017 Monetary Policy and Financial Stability Statement, the total investment in government securities by the non-bank sector (individuals and non-bank institutions) has increased by more than 65 percent, leading to 20 percent decline in their deposits in the banking sector. https://www.bnr.rw/fileadmin/AllDepartment/MonetaryPolicy/upload/FinancialStatement/AnnualFinancialStatements/MPFSS_2017_4_Print_Final.pdf

in economic activity, rising problems in certain asset classes (real estate/tourism/hotels) and increased banking sector competition through entrants of new players are likely contributing factors. The liquid assets[13] to total deposits ratio stood at 39 percent by June 2017, still comfortably above the regulatory minimum ratio of 20 percent, but significantly lower compared to 51 percent in December 2014. The loan to deposit ratio has been on the rise as well, reaching 97 percent in March 2017. Indicators of banking sector efficiency (such as cost to income ratio; overhead to income) and profitability have been on a stagnating or declining trend over the last two years, which may indicate the limitations of efficiency gains through scale in the context of a small economy, a slowdown in economic growth and increased competition through new market entrants.

1.5 Fiscal Sector Developments

Recent Fiscal Developments and the Outlook for FY2017/18

The overall fiscal stance measured by the deficit excluding grants was almost unchanged compared to FY2015/16. Rwanda's headline fiscal deficit widened in FY2016/17 to 4.9 percent of GDP (Rwf 310 billion), up from the 3.5 percent deficit in FY2015/16[14]. Total public spending was lower by 0.2 percentage points of GDP, and total revenues were lower by 1.7 percentage points. The decline in total revenues was largely due to the 1.3 percentage points decline in grants, to 4.6 percent of GDP. At 9.5 percent of GDP, the fiscal deficit excluding grants was unchanged from the previous fiscal year (Table 3).

Revenue performance in FY2016/17 remained weak. Overall, domestic revenue came in at 18 percent of GDP compared to 18.4 percent in the previous year (Table 3). Tax revenues were 15.5 percent of GDP, slightly down from 15.8 percent. Taxes on goods and services fell from 8.1 percent of GDP in FY 2015-16 to 7.6 percent. The Budget Execution Report of 2016/17[15] attributes the problem to lower private consumption, especially of beer, soft drinks, and petroleum products. Taxes from international trade and non-tax collections remained unchanged from the previous fiscal year, but collection of direct taxes went up by 0.2 percentage points of GDP, to 6.6 percent.

Recurrent expenditures and net lending were both slightly higher in FY2016/17. While the overall spending was lower than in the previous fiscal year (Table 3), recurrent spending was higher at 15 percent of GDP, up from 14.7 percent in FY2015/16. Capital expenditures dropped from 11.4 percent of GDP to 10.7 percent while net lending, at 1.6 percent, was slightly higher than the previous year's 1.4 percent. Almost 70 percent of total net lending for the year was for Rwandair.

Key Points:

- ✓ *Although the headline deficit in FY2016/17 was higher than in the previous year, the decline in grant financing kept the overall fiscal stance unchanged.*
- ✓ *Measured as a percent of GDP domestic revenues were almost unchanged.*
- ✓ *Rwanda's fiscal space narrowed significantly as grant financing declined and public debt rose, which underscores the importance of focusing public investments on programs with the highest economic returns and addressing fiscal contingencies through reform such as the ongoing energy sector reforms.*

[13] Liquid assets consist of cash, balances held with the BNR, balances due from financial institutions, and trading and other securities.

[14] Based on cash accounting.

[15] http://www.minecofin.gov.rw/fileadmin/templates/documents/BUdget_Management_and_Reporting_Unit/Budget_Execution_Reports/2016-2017_Budget_Execution_Report/2016-2017_Budget_Execution_Report.pdf

The fiscal deficit is projected to decline to 4.2 percent of GDP in FY2017/18. Domestic revenues are expected to come in at 15.7 percent of GDP, 0.2 percentage points higher than in FY2016/17. Sluggish revenue momentum is mostly explained by the introduction of the new investment code and the Made in Rwanda campaign. Tax revenues are expected to fall short of the 2015-18 Revenue Mobilisation Strategy target by an estimated 0.3 percentage points. On the expenditure side, total public spending is budgeted at an estimated 26.8 percent of GDP (Rwf 2092.4 billion).[16] Recurrent expenditures are projected at 14.7 percent of GDP, capital expenditures at 9.9 percent, and net lending at 2.3 percent of GDP.

Table 3: Rwanda's public finances, 2015/16 to 2017/18

	2015/16 % of GDP	2016/17			2017/18 Proj. % of GDP
		Revised budget Rwf billion	Actuals		
			Rwf billion 2014	% of GDP	
Revenue and grants	**24.4**	**1,567.1**	**1,615.8**	**22.7**	**22.6**
Total revenue	18.4	1,240.5	1,285.6	18.0	18.1
Tax revenue	15.8	1,101.4	1,104.2	15.5	15.7
Direct taxes	6.4	448.6	468.4	6.6	6.6
Taxes on goods and services	8.1	560.3	544.6	7.6	7.7
Taxes on international trade	1.3	92.5	91.2	1.3	1.4
Non–tax revenue	2.6	139.1	181.4	2.5	2.4
Total grants	5.9	326.6	330.2	4.6	4.5
Budgetary grants	3.2	180.6	184.2	2.6	2.3
Capital grants	2.7	146.0	146.0	2.0	2.2
Total expenditure and net lending	**27.5**	**1,897.8**	**1,945.6**	**27.3**	**26.8**
Current expenditure	14.7	1,040.0	1,069.7	15.0	14.7
Wages and salaries	3.8	258.3	295.8	4.2	3.9
Purchases of goods and services	2.9	207.4	194.1	2.7	2.8
Interest payments	0.9	78.6	72.2	1.0	1.2
Transfers	4.9	360.3	348.2	4.9	5.2
Exceptional social expenditure	2.2	135.4	159.4	2.2	1.2
Capital expenditure	11.4	741.9	759.5	10.7	9.9
Domestic	7.1	398.0	418.2	5.9	6.0
Foreign	4.3	343.9	341.3	4.8	3.9
Net lending	1.4	115.8	116.4	1.6	2.0
Overall deficit					
Including grants	–3.5	–350.7	–349.8	–4.9	-4.5
Excluding grants	–9.5	–677.3	–680.0	–9.5	–9.0
Financing	3.5	350.7	349.8	4.9	4.5
Foreign financing (net)	3.6	356.9	322.6	4.5	4.2
Domestic financing	0.7	–6.1	48.9	0.7	0.3
Errors and omissions	–0.7	0.0	–21.7	–0.3	0.0

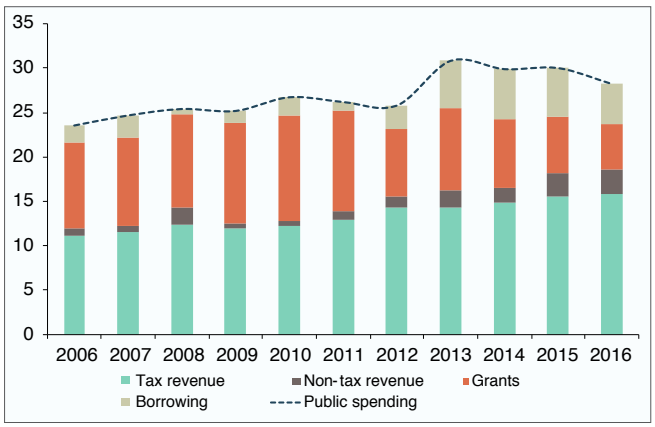
Source: MINECOFIN.

[16] The IMF report (CR17/117)noted that some tax incentives, through eliminating VAT on inputs, were offered to stimulate domestic production of imported goods (textiles and leather products, cement, computers and other office accessories).

Long-term Fiscal Trends

Public spending has grown as a share of Rwanda's GDP in the past decade.[17] It went up from 22 percent of GDP in 2006 to 30.3 percent in 2014, though it declined to 27.1 in 2016. The increase was supported by growth in revenue, which went up by 6.6 percentage points of GDP between 2006 and 2016. Because external grants were declining, in recent years the government has had to borrow more to fund public spending (Figure 9).

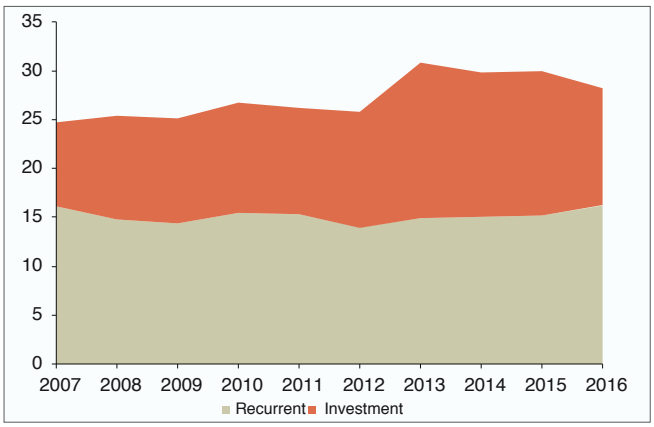
Figure 9: Sources of public spending, 2006–16
(Percent of GDP)



Source: MINECOFIN and NISR data.

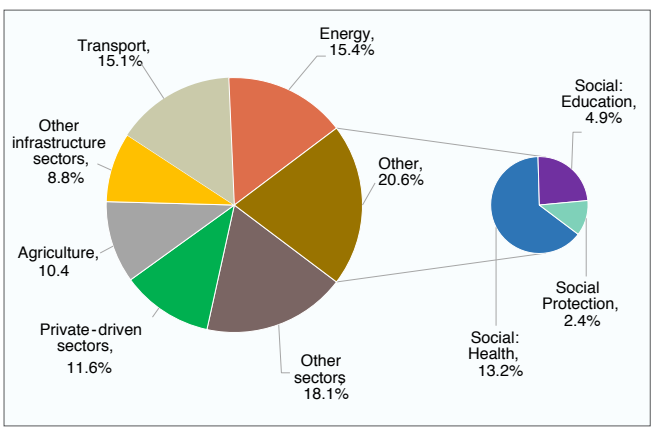
The increase in total public spending has been exclusively for capital expenditures and net lending as recurrent expenditures have held steady (Figure 10). This reflects Rwanda's public-investment-led growth model in recent years, which gave priority to investments in order to drive growth. In 2013, capital spending peaked at 13.2 percent of GDP which is very high by international standards. Public investment projects were instrumental in improving Rwanda's infrastructure, as evidenced by the Global Competitiveness Report and the World Bank Logistics Performance Index.[18] The largest proportion of public investment for the period of 2008–16 went to energy with an average of 15.4 percent. The other key areas for public investment were transport which received 15.1 percent, health which received 13.2 percent and agriculture which received 10.4 percent on average during this period (Figure 11).

Figure 10: Composition of public spending, 2007–16
(Percent of GDP)



Source: MINECOFIN and NISR data

Figure 11: Public investment by sector, average for 2008–16
(Percent)



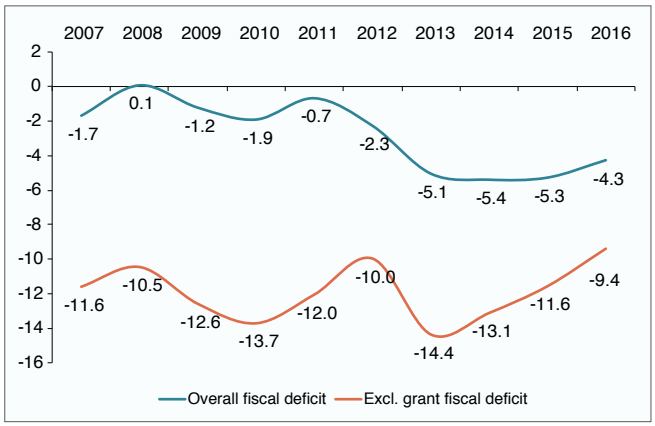
Source: MINECOFIN data.

The headline fiscal deficit has widened since 2012 as external grants declined. For the last four years, the headline fiscal deficit has been relatively stable at about 5 percent of GDP (Figure 12). The deficit exclusive of external grants, however, declined from 14.4 percent of GDP in 2013 to 9.4 percent in 2016, highlighting the risks that the government is facing in maintaining spending programs at historical levels amid declining external grants.

[17] Fiscal data are on a calendar-year-basis in the Macro-Framework public dataset, December 2016; (data were obtained from MINECOFIN).

[18] Africa Competitiveness Report 2017 (http://www3.weforum.org/docs/WEF_ACR_2017.pdf) &International LPI (https://lpi.worldbank.org/international).

Figure 12: Fiscal deficit, 2007–16
(Percent of GDP)



Source: MINECOFIN and NISR data.

The larger deficits and public guarantees for various investment projects have meant higher public debt. Although Rwanda's debt remains sustainable—according to the joint IMF and World Bank's most recent debt sustainability assessment the risk of debt distress remains low[19]—public debt has grown steadily, more than tripling from US$1.2 billion (20.5 percent of GDP) in 2010 to US$3.6 billion (44.4 percent) in 2016 (Figure 14). It is expected that at year-end 2017 the ratio of public and publicly guaranteed debt in GDP will reach 46 percent. At year-end 2016 external borrowing accounted for about 80 percent of public debt, 35.8 percent of GDP. Concessional loans accounted for 60 percent of total public debt but the share of commercial debt has been growing. Domestic debt rose from 4.7 percent of GDP in 2011 to 8.6 percent in 2016. Although the stock of domestic debt is much lower than external, interest payments on domestic debt accounted for almost half of total interest payments in 2016 because of higher interest rates.

Box 1: Rebasing Rwanda's national accounts

Since 2006 Rwanda has enjoyed large aid inflows but they have been trending down in recent years (Figure B4.1.1). Official aid flows went up from US$605 million (19.2 percent of GDP) in 2006 to a peak of US$1,262 million (about 19.5 percent of GDP) in 2011, but then reversed direction,sliding to US$1,081 million (13 percent of GDP) in 2015. From 2006 through 2015 foreign aid inflows averaged 16.4 percent of GDP. As a percentage of public spending, aid peaked at 46 percent in 2009 before declining steadily to 19 percent in 2016. Between 2006 and 2015 per capita aid almost doubled, from US$66 to US$120, before falling to US$93 in 2015. For 2006–15, it averaged US$92, nearly double the average for all low-income countries (Figure B5.1.2).

The official aid was mostly channelled through the public sector, with the bulk of it going to social sectors (Figure B5.1.3). According to OECD data, almost 70 percent of the official aid was channelled through the public sector during 2007-15, up from 10.5 percent in 2002-06. This reflects increasing donor confidence in Rwanda's management of its finances—the progress of which is documented in the 2016 Public Expenditure Framework Assessment (PEFA). The PEFA report concluded that "most aspects of the Public Financial Management system are functioning at a satisfactory level – one that should allow the government to attain its fiscal and budgetary objectives." [a]

Grants played an important role in funding public spending but they have been declining recently. Total grants averaged 9.2 percent of GDP 2006–16. In 2016, total grants were 5.1 percent of GDP, of which capital grants amounted to 2.2 percent of GDP.

[19] Staff Report for the 2017 Article IV Consultation, Seventh Review Under the Policy Support Instrument, and Second Review Under the Standby Credit Facility- Press Release; Staff Report; and Statement by the Executive Director for Rwanda, IMF 2017.

[a] https://pefa.org/sites/default/files/RW-May17-PFMPR-Public%20with%20PEFA%20Check%282016%20Framework%29.pdf

Figure B4.1.1: Share of official aid in GDP/budget

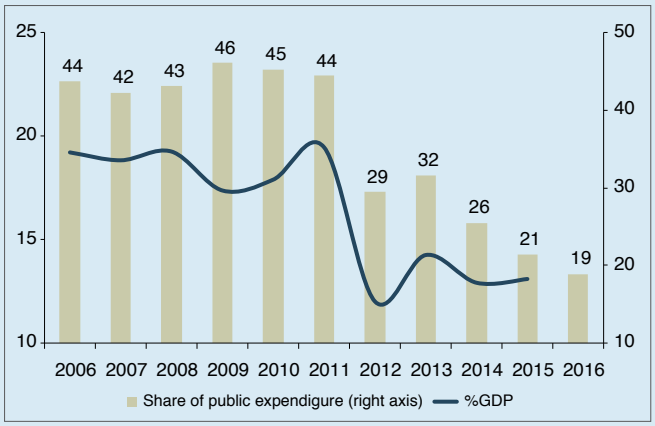


Figure B4.1.2: Aid flows for Rwanda, 2006–15

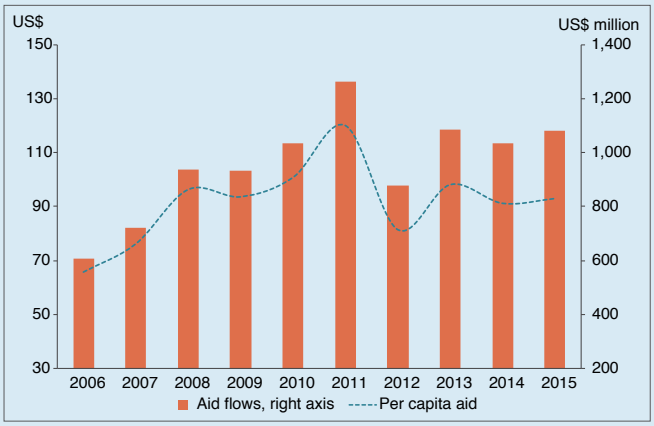
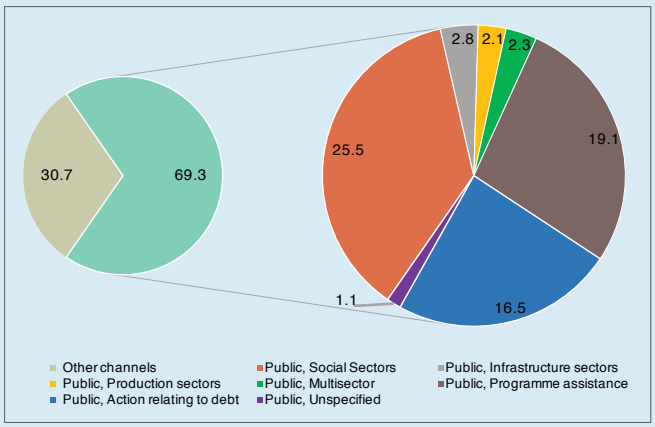
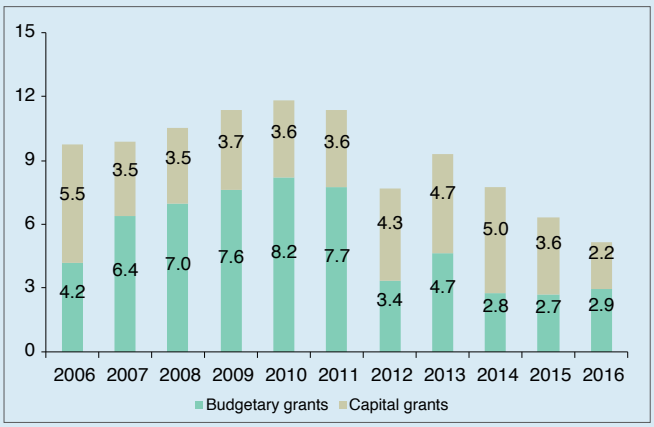


Figure B4.1.3: Sectoral distribution of aid
(Percent)



Source: MINECOFIN, NISR, OECD and WDI data'

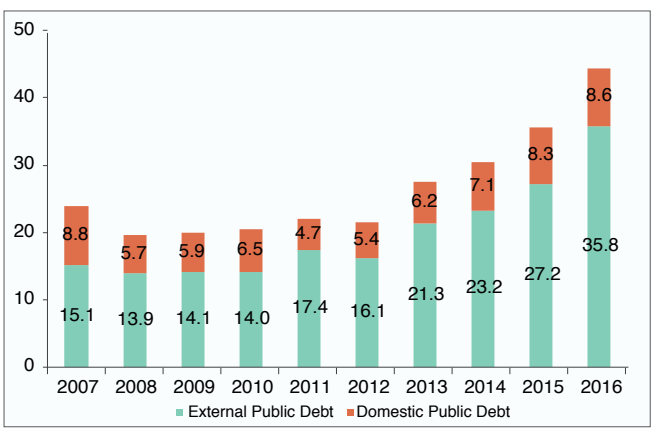
Figure 13: Grant classification
(Percent of GDP)



Source:

As Rwanda's indebtedness has risen, its fiscal space has narrowed. Fiscal space is defined as the "room in a government's budget that allows it to provide resources for the desired purpose without jeopardizing the sustainability of its financial position or the stability of the economy."[20] It can be measured in "tax years" as the ratio of the public debt stock to the tax base.[21] For Rwanda, the number of tax years went up from 1.7 in 2012 to 3 in 2016, clearly signalling a narrowing of the fiscal space (Figure 15).

Figure 14: Public debt, 2007–16
(Percent of GDP)

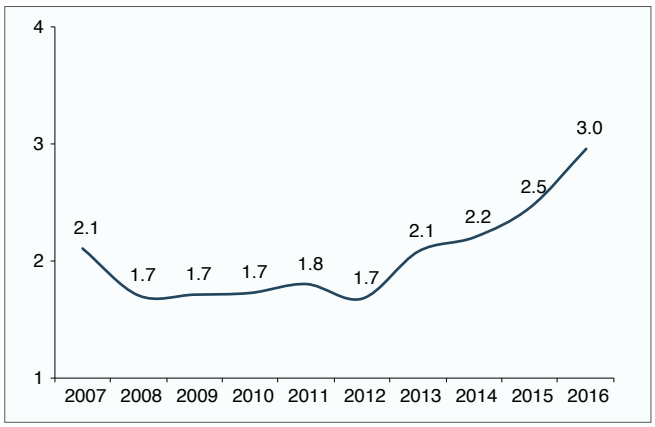


Source: MINECOFIN and DSA data.

[20] Heller, P. S., (2005). "Understanding Fiscal Space." IMF Policy Discussion Paper PDP/05/4, International Monetary Fund, Washington, DC.

[21] Aizenman, J., and Y. Jinjarak, (2010). "De Facto Fiscal Space and Fiscal Stimulus: Definition and Assessment." NBER Working Paper No.16539, National Bureau of Economic Research, Cambridge, MA.

Figure 15: Tax years needed to repay public debt, 2007–16



Source: MINECOFIN and WDI data.

The recent investment push has narrowed the fiscal space. Contracting debt for well-designed public investments can in the long term be debt-neutral because investments heighten the potential for growth, expanding the capacity to service debt. The large public investments of recent years have not yet achieved the desired impact on Rwanda's growth potential. The slowdown in total factor productivity[22] during the period of the government's investment push of 2012-2015 suggest that the economic returns on recent investments may be lower than expected. This may undermine Rwanda's growth prospects and raise concerns for fiscal sustainability. The narrowing fiscal space in turn points to the importance of adopting a balanced approach for public policy, ensuring that public investment is focused in areas with high economic returns while also crowding-in private investments. This is important for sustaining growth and maintaining the necessary fiscal space, over the near-term as well as over Rwanda's ambitious Vision 2050.

Fiscal contingencies may also undermine Rwanda's fiscal space and debt sustainability. Fiscal contingencies may arise from weak financial performance of publicly owned enterprises (such as utilities) as well as from various forms of public private partnerships and may lead to higher indebtedness. It is important to monitor such risks and take necessary reform actions to address them. In this context, the reform program in the energy sector recently adopted by the authorities is an important step forward for Rwanda. The program, which is supported by a Development Policy Operation of the World Bank, aims at fiscally sustainable expansion of electricity services by containing fiscal impact of the electricity sector and improving the operational efficiency, affordability, and accountability of electricity services.[23] If fully implemented by 2019, this multi-year program will reduce the fiscal risks of energy sector expansion.

1.6 Outlook

In 2017 growth, at about 5 percent, will be well below the historical average for Rwanda but is projected to accelerate in 2018 to 5.9 percent and return to a growth trajectory close to 7 percent in 2019 as investment activity, both public and private, accelerates and agriculture becomes more productive (Table 4). Economic activity will also benefit from the expected recovery of prices of such traditional exports as minerals, tea, and coffee. A more competitive exchange rate is already supporting non-traditional exports, which may become an important source of growth. As the region recovers from drought, the agriculture outlook for the medium term is positive. The government's renewed commitments to scale up investments in agriculture, especially irrigation, will reinforce the medium-term outlook. Construction of the new airport will boost construction in 2018–19.

The main risks to the growth outlook are associated with possible weak external environment, persisting external imbalances, continued debt accumulation, and a weak private sector. If global prices of minerals, coffee, and tea continue to be low, they will

[22] 10th Rwanda Economic Update.

[23] Rwanda Energy Sector Development Policy Loan. http://projects.worldbank.org/P162671?lang=en

Table 4: Rwanda's medium term macroeconomic projections

	2014	2015	2016	2017 f	2018 f	2019 f
Real GDP growth, at constant prices	7.6	8.9	5.9	5.2	5.9	6.8
Agriculture	6.7	5.0	3.9	5.1	5.0	5.0
Industry	11.0	8.8	6.7	4.8	5.0	6.0
Services	6.9	10.5	7.1	5.1	6.4	8.0
Inflation (Consumer Price Index)	1.8	2.5	5.7	5.7	5.0	5.0
Current Account Balance (% of GDP)	-12.0	-13.4	-14.4	-11.7	-12.4	-11.7
Fiscal Balance (% of GDP)	-5.3	-5.2	-4.6	-4.9	-5.0	-5.2
Debt (% of GDP)	38.7	36.4	44.5	45.7	47.1	48.7
Primary Balance (% of GDP)	-4.2	-3.9	-3.4	-3.5	-3.6	-4.7

Sources: World Bank, Macroeconomics and Fiscal Management Global Practice, and Poverty Global Practice.

Notes: e = estimate, f = forecast.
(a) Calculations based on 2009-UNHS and 2012-UNHS.
(b) Projection using point-to-point elasticity (2009-2012) with pass-through = 1 based on GDP per capita in constant LCU. "
(c) Actual data: 2012. Nowcast: 2013 - 2016. Forecast are from 2017 to 2019

subdue production and exports. Any delayed exchange rate adjustment may also affect incentives to invest in the nascent non-traditional export sector. The pace of economic transformation will largely depend on the extent to which government expectations for its major tourism and connectivity investments materialize. Continued lack of private sector response to the improved investment climate is another risk.

The special topic of this update examines the role of urbanization as one of the important factors facilitating growth and poverty reduction in the long term. Long term economic growth will depend on Rwanda's ability to improve productivity through better use of capital and human resources. Among other important determinants such as improved business environment, skills, good governance and infrastructure, well-managed urbanization can greatly contribute to productivity through agglomeration, density and improved connectivity. There is evidence that urbanization in Rwanda is already positively associated with jobs and poverty reduction. This highlights the importance of policy discourse on urbanization as part of formulating country's growth agenda.

PART TWO

RETHINKING URBANIZATION IN RWANDA: FROM DEMOGRAPHIC TRANSITION TO ECONOMIC TRANSFORMATION[24]

[24] Findings and analyses presented in this special topic draw from the analytical work conducted by the urban and poverty teams at the World Bank (2017), *Reshaping Urbanization in Rwanda: Economic and Spatial Trends and Proposals*. It consists of four notes: (i) Urbanization and the Evolution of Rwanda's Urban Landscape; (ii) Internal Migration in Rwanda; (iii) Urbanization, Job Creation, and Poverty Reduction in Rwanda; and (iv) Profiling Secondary Cities in Rwanda – Dynamics and Opportunities.

2.1 Introduction

For Rwanda, urbanization has been an explicit developmental strategy. In its vision to become a middle-income country by 2020, the Government of Rwanda has identified urbanization and creating off-farm jobs as central to economic growth and national development. Accordingly, the country's Economic Development and Poverty Reduction Strategy II (EDPRS) for 2013–18 has as a priority the transformation of Rwanda's economic geography, to be achieved by facilitating urbanization and promoting secondary cities as centers of nonagricultural economic activities. Among goals set were to transition 50 percent of the population from farm to off-farm jobs and reach an urbanization level of 35 percent. Those priorities are likely to continue into the next generation of development strategies, consisting of Vision 2050 and the National Strategy for Transformation I (NST) I for 2017–24.

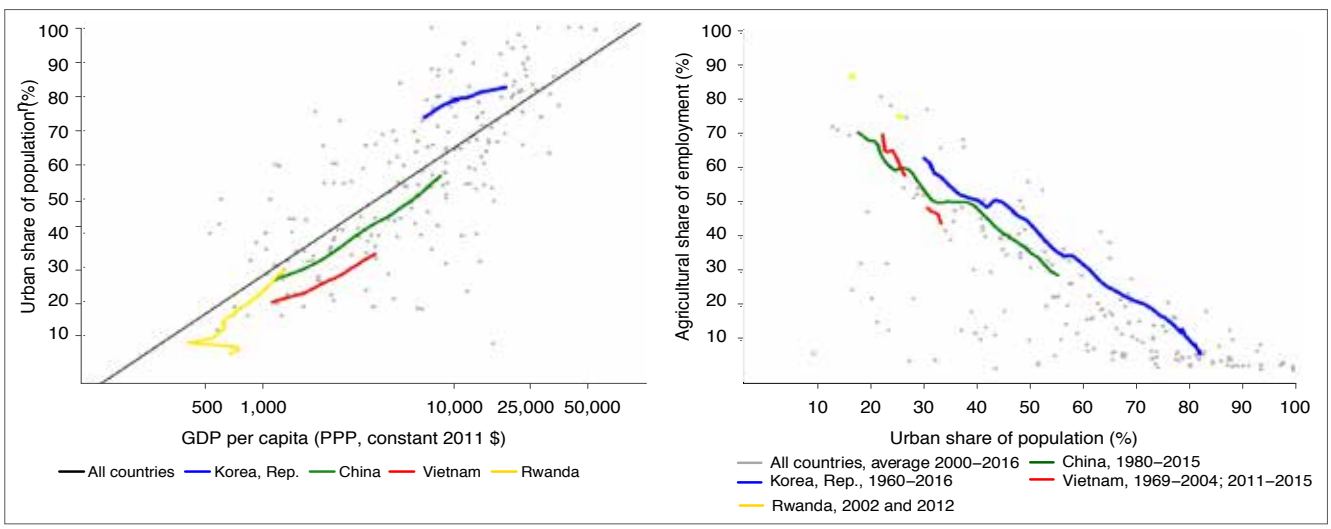
With the vision of embracing urbanization, Rwanda recognizes the positive relationship between urbanization and economic development that has been observed globally: the higher the urbanization rate, the higher per capita GDP. In fact, few countries have reached upper-middle-income status without substantial urbanization (Figure 16 (a)). Urbanization contributes to economic development by facilitating the process of structural transformation, whereby workers move out of agriculture to more productive sectors, thereby helping raise national average GDP per worker. Rwanda's economic development in is consistent with the international trends: its rapid GDP growth was accompanied by a shift away from agriculture, suggesting structural transformation is taking place in the country (Figure 16 (b)). Urbanization has played a positive role in this. Even under conservative assumptions that urban workers earn on average twice the rural wage for similar work in similar sectors of employment, urban areas are likely to have accounted for about a third of national structural change and almost a half of national economic growth over the past 15 years.[26]

In order to reap the benefits of urbanization, the government has made significant efforts in a concentrated period to lay a foundation for urban development. Beginning in the early 2000s, the necessary laws, policies, and institutions were improved or put in place;

Figure 16: Urbanization and per capita GDP (a) and agricultural employment (b) in benchmarked countries and Rwanda

A. Level of urbanization and income

B. Urbanization and agricultural share of employment



Source: Staff calculation based on World Development Indicators 2016.

[25] Background paper for the Urbanization Chapter of the ongoing Rwanda Future Drivers of Growth Study (jointly conducted by the Government of Rwanda and the World Bank).

[26] Huye, Muhanga, Musanze, Nyagatare, Rubavu, and Rusizi.

and investments were made, particularly in six designated secondary cities.[27] During the period under the EDPRS II alone, policies such as the National Urbanization Policy (2015), the National Housing Policy (2015) and the National Informal Urban Settlement Upgrading Strategy (2017) were adopted among others. Notably, the National Urbanization Policy (NUP) provides an overarching guidance on urban development through four pillars that are central to building productive and livable cities – Coordination, Densification, Conviviality and Economic Growth. In addition, the Rwanda Spatial Development Framework was prepared (currently under revision) to orient the implementation of the NUP, by offering an analysis of the real and desired spatial development situations, with focus on the specialization, spatial coordination and linkages between urban areas.

This special topic report examines the relationship between urbanization and nonfarm job creation, as a contributor to economic transformation, and poverty reduction, as a common outcome of urbanization. First, Rwanda's trends in terms of the changes in urban population, density, and built-up areas are analysed, as is how internal migration contributes to the urbanization process. Second, the urban system in Rwanda is described, with specific attention to understanding the economic performance of Kigali and six secondary cities and their potential for enhancing Rwanda's economic geography. Third, the discussion explores whether and to what extent urbanization—in the sense of increased density and enhanced connectivity—has resulted in job creation and poverty reduction. The report concludes with recommendations for how Rwanda might rethink and reshape its urban strategies.

2.2 Urbanization Trends and Forms

The share of urban population in Rwanda is increasing faster than official records suggest

According to official statistics, Rwanda is 16–17 percent urbanized. The 2012 census found urbanization in Rwanda—the share of the national population living in urban areas—to be 16.5 percent in 2012 Census; and the figure as measured by the fourth Integrated Household Living Conditions Survey (EICV4) in 2014 is 17.3 percent. Between the 2002 and 2012 censuses, the level of urbanization in Rwanda does not differ much despite the readily observable changes on the ground towards further urbanization. This is mainly because the two censuses define "urban areas" differently,[27] which makes it difficult to evaluate what is trending in the urban population.

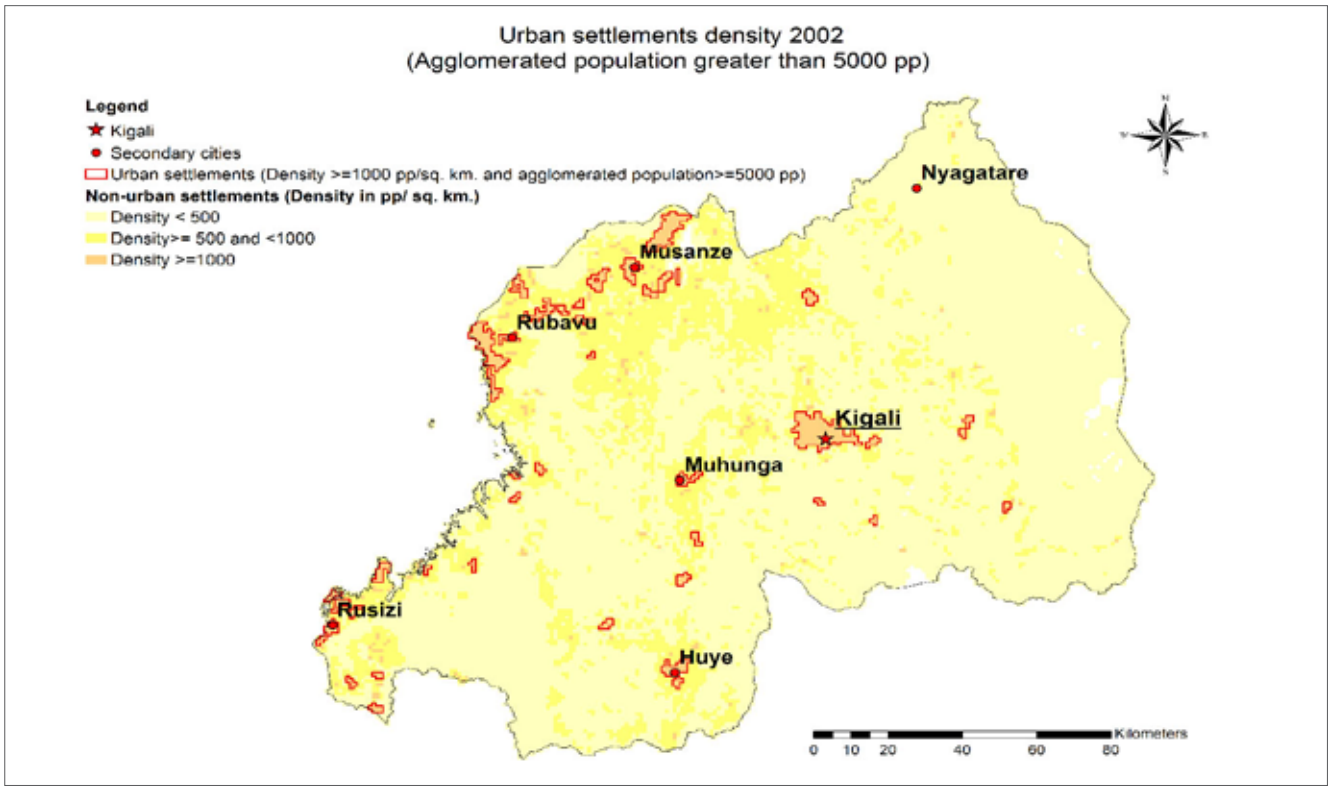
An analytical experiment using a definition of urban based on settlement population size and density demonstrates that large scale urbanization has already taken place in Rwanda. When a simple definition–a minimum population of 5,000 and a population density of greater than 1,000–is applied to a population map gridded by 1km^2 cells to identify urban settlements, the level of urbanization increased from 15.8 percent in 2002 to 26.5 percent in 2015 (Figure 17).[28] An analysis of geocoded population data using the same definition found that in the same period Rwanda's urban population increased by almost 2 million people—132 percent—from 1.49 million to 3.46 million for an average annual rate of 6.7 percent. The spatial analysis using this alternative definition also identifies rapid urban expansion surrounding the capital city of Kigali and along the emerging corridor between Rubavu and Musanze, which provides

[27] For the 2002 Census, 15 cities were delineated and all settlements within their catchment areas were considered urban, even those that previously would have been classified as rural. The 2012 Census defined urban-rural status based on the smallest administrative entity, the village. Villages that had significant infrastructure (e.g., schools, electricity, banks, and markets) were considered urban.

[28] The 2015 WorldPop datasets for Rwanda was used as the population map. The spatial distributions of population were estimated by applying a machine-learning method to the census data, land-cover images, and various other datasets. See http://www.worldpop.org.uk/data/summary/?doi=10.5258/SOTON/WP00223. This is the only place where the Worldpop data is used; other analyses are based on official NISR data.

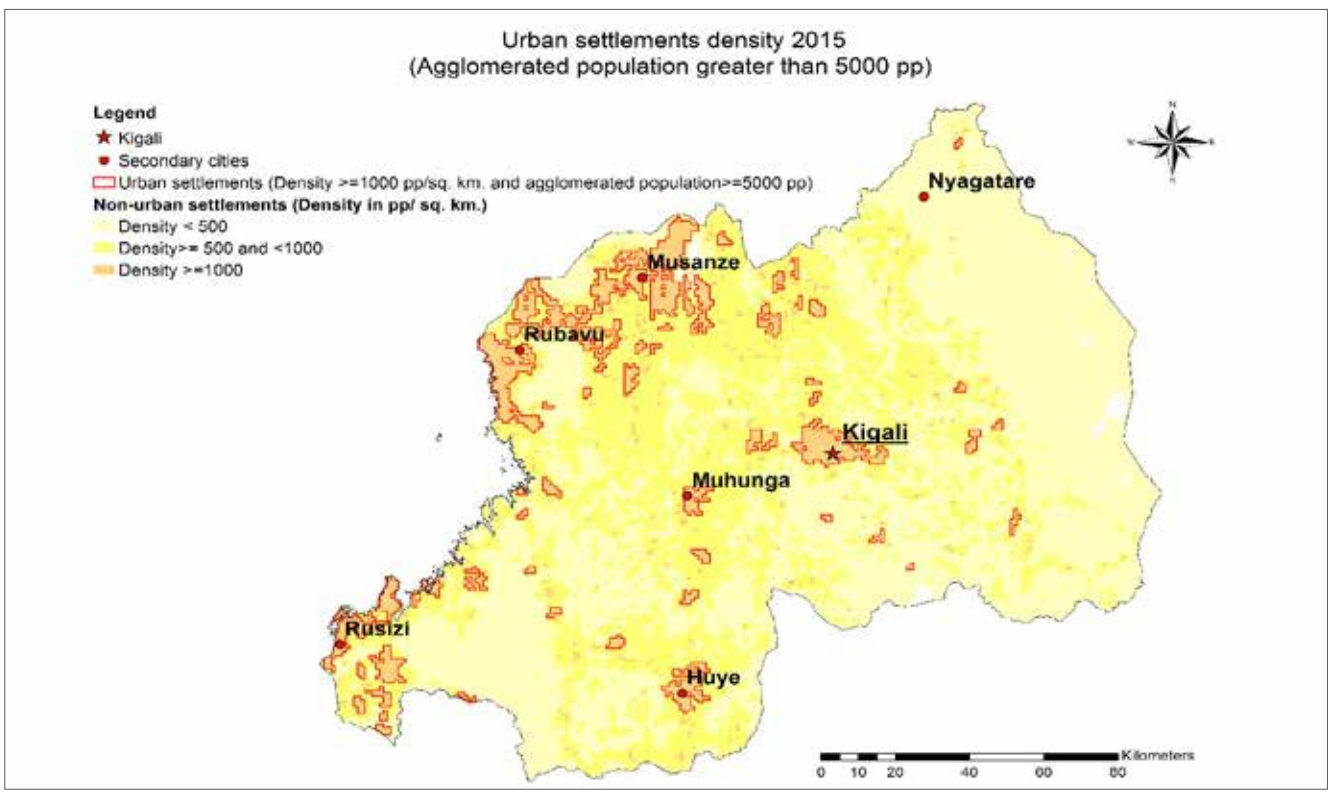
Figure 17: Evolution of urban settlements in Rwanda, 2002 to 2015

A. 2002



Source: Staff calculation based on WorldPop data

B. 2015



Source: Staff calculation based on WorldPop data

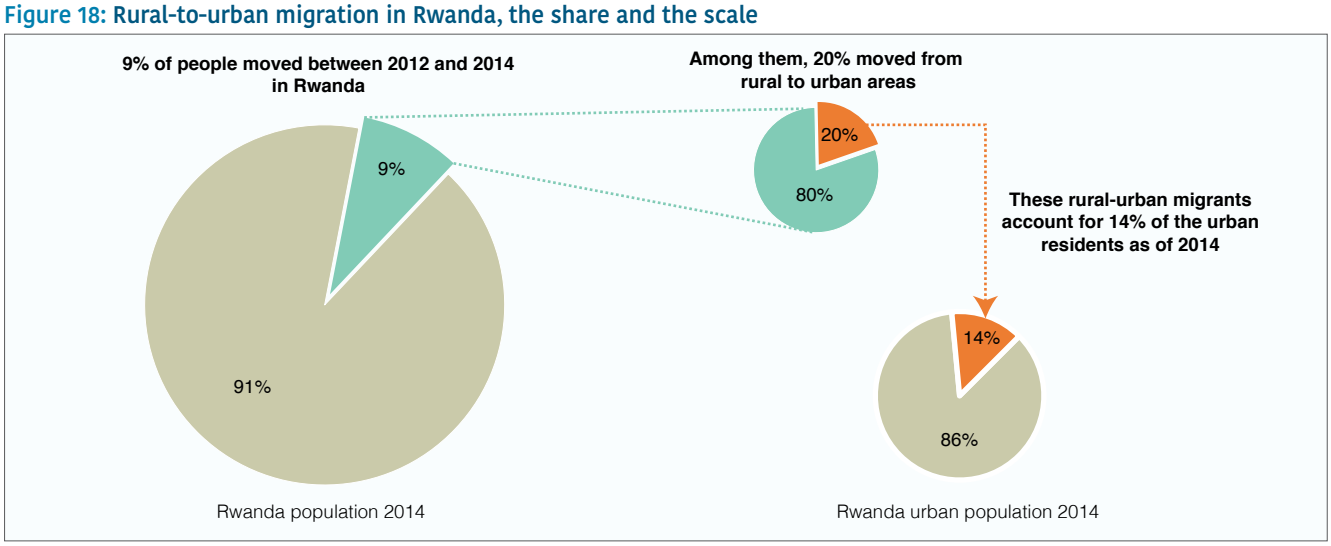
an empirical basis for the trends observed on the ground. Clearly, this analytical exercise intensifies the need to refine what is an urban area to better reflect the reality of density and population growth in Rwanda.

Rwandans have moved toward density for economic reasons as well as in search of land

The combination of natural growth and increased migration to urban areas has contributed to urbanization. In 2005–15 Rwanda experienced impressive declines in both infant mortality and fertility,[29] but rather unusually, between 2010 and 2015 urban fertility rates increased, indicating that relatively more children are being born in urban than in rural areas. Moreover, in 2014 about 27 percent of the population in Kigali and 14 percent in the secondary cities were recent migrants, compared to 7 percent in rural areas. Of all internal migration between 2011 and 2014, 20 percent went from rural to urban areas (Figure 18). However, rural-to-urban migration is not the most common type of migration; rural-to-rural migration remained the dominant form of internal population movements in 2011-2014 (34 percent). It is also important to note that currently, internal migration is defined as moving from one district to another; changes of residence within districts are not considered internal migration and captured in the data.[30]

The Districts of Kigali and the Eastern Province were the main destinations for recent internal migration, representing both a move toward economic density and a move in search for land, respectively. Nearly one third (29 percent) of recent migrants headed to Kigali; the districts of Gasabo and Kicukiro were especially popular destinations (EICV4).[31] Another 33 percent headed to the Eastern Province, mainly to the districts of Nyagatare, Gatsibo, Kayanoza, and Rwamagana. This represents a dual migration pattern in Rwanda: a move toward density, with districts of Kigali city attracting many migrants, and a parallel move away from density, with a high share of migrants flocking to the Eastern Province – the least densely populated province in Rwanda.

Figure 18: Rural-to-urban migration in Rwanda, the share and the scale



Source: Staff calculation based on EICV 2014.

[29] For instance, infant mortality rates (number of deaths of children under 1 year of age per 1,000 live births) decreased from 69 to 32 in urban areas and from 108 to 44 in rural areas.

[30] Both rural-to-urban migration and urban-to-rural migration within districts are not counted as part of the population movement. For details on methodology and results, see World Bank. 2017. "Rwanda Economic Geography and Urbanization. Note 2: Internal Migration in Rwanda."

[31] Among three districts in Kigali City, Kicukiro and Gasabo Districts, which still included significant peri-urban and rural areas with less expensive land, had more inflow than Nyarugenge District.

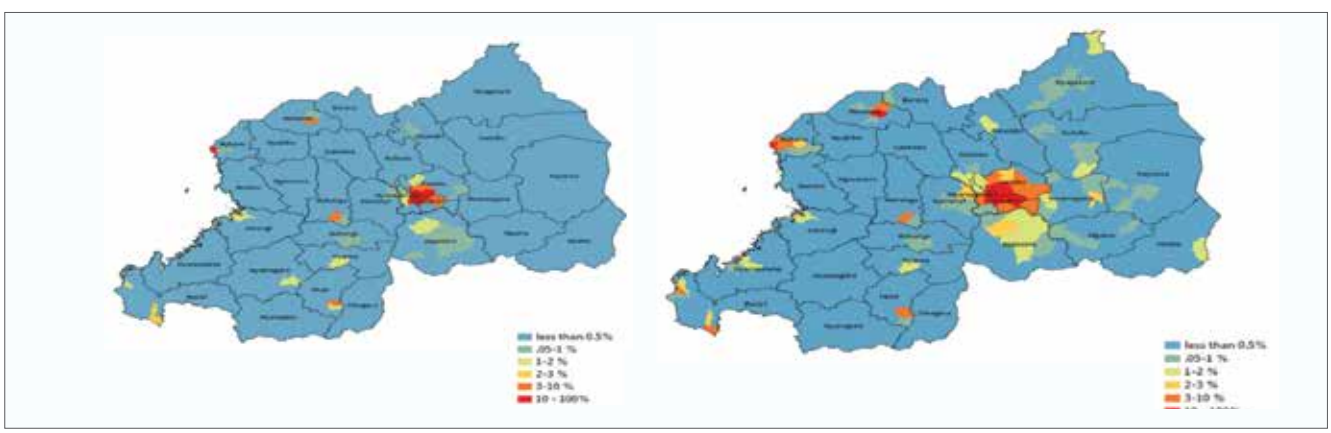
Migration to secondary city districts has been rather limited. People in Rwanda are far more likely to move to the capital than to a nearby secondary city district, except Rubavu District. Of secondary city districts,[33] only Nyagatare and Rubavu districts had positive net migration rates, indicating that more people came into than left between 2002 and 2012. Although current data do not capture migration from rural areas to secondary cities within the same districts, that other secondary city districts saw negative net migration rates explains slower than average population growth in those secondary cities (see Table 4). People arriving in the secondary cities are also mainly from within their provinces and from Kigali City.[34] For instance, of all recent migrants in Huye, 60 percent came from other places within the Southern Province and 12 percent from Kigali (EICV4). In contrast, Kigali attracts migrants from all over the country. Furthermore, calculations based on census data found that for 27 of the 30 districts, the share of migrants leaving the district to go to Kigali is higher, and often far higher, than the share going to a secondary city. The exception is Rubavu, which draws the bulk of migrants g from the neighboring districts of Rutsiro and Nyabihu. This confirms the status of Rubavu as the only urban center other than Kigali, which has significant appeal.

The current planning regime contributes to low-density expansion in urban peripheries

Urban population growth has been accompanied by rapid expansion of built-up areas, particularly in the periphery and fringe zones of Kigali. Because the definitions of urban area used in the 2002 and 2012 censuses differed, satellite imagery was used as an alternate source of data to evaluate changes in the amount of built-up land in Rwanda—land covered by man-made, impervious surfaces, such as roofs, roads, and other infrastructure. It produces a good proxy for urban expansion. Figure 19 shows that over the years the periphery and fringe zones of Kigali have experienced the most extensive expansion, with significant growth of built-up areas in the core city districts of Nyarugenge, Kicukiro, and Gasabo. In neighboring Rulindo, Kamonyi, and Rwamagana, built-up areas have also increased noticeably. While this suggests an urban expansion trend, some of these areas will still be predominantly rural in terms of settlement pattern and economic activities, with relatively low-density settlement and agriculture-based economies.

Spatial expansion can also be seen in secondary cities, and the rate is generally outpacing the observed population growth rates. Analysis of the multi-temporal spatial

Figure 19: Built-up areas, 2002 and 2012



Source: World Bank analysis of satellite images.

[32] Since the available data captures only inter-district migration, the report refers to the districts where secondary cities are located as 'secondary-city districts'.

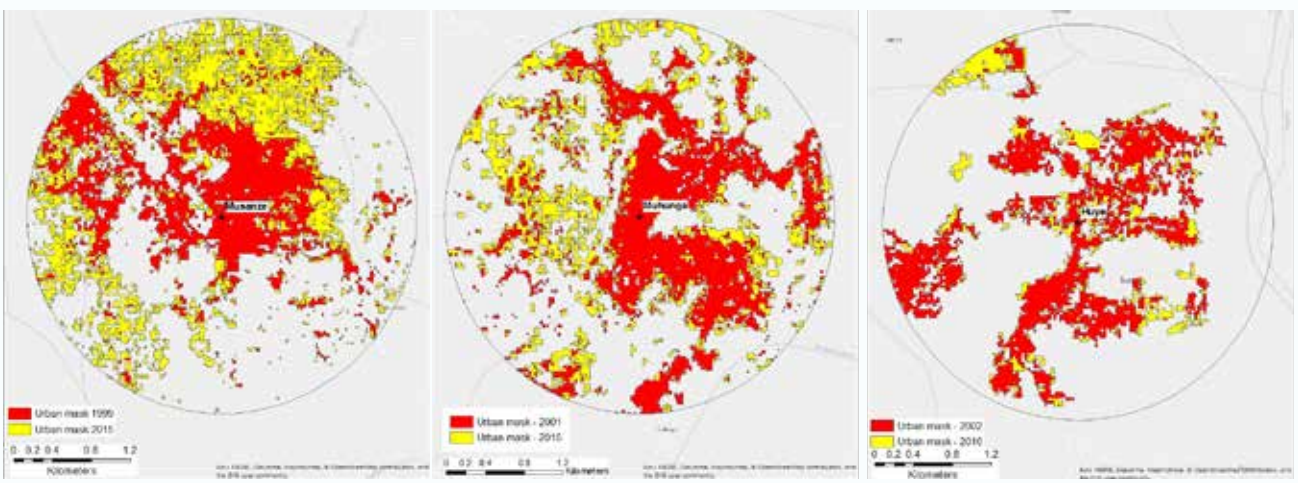
[33] In addition to being the main destination of internal migrants, Kigali is also the main source of migrants moving elsewhere. Of all recent internal migrants, 27 percent came from one of the three districts in Kigali (EICV4).

expansion of secondary cities and three fast-growing towns[34] revealed that all have expanded their urban footprint in the past decade.[35] In the more compact or spatially constrained cities, such as Rubavu and Muhanga, spatial expansion is more in line with population growth. The largest spatial expansions are in the cities more recently established, notably Nyagatare and Kayonza, and those unconstrained by physical barriers to growth, such as Huye. Figure 20 shows the results of the Landsat data multi-temporal analysis for Musanze, Muhanga, and Huye between two time points when imagery is available. Musanze, for instance, expanded over 120 percent between 1999 and 2015, at an annual average of 5.95 percent; between 2002 and 2012 the population growth rate was 3.3 percent.

People and infrastructure are concentrated in the core of secondary cities but dispersed outside the core. Using sector-level population density (the number of persons per square kilometer [km^2]), average density of the 416 sectors went up from 725 persons per km^2 in 2002 to 878 persons per km^2 in 2012. Population density is relatively high in Kigali and the six secondary cities and their surrounding areas. Around the secondary cities, however, density tapers off about 10 km from the center and increased only slightly in those sectors after 2002 (Figure 21). Similar patterns are observed for the built-up ratio—the percentage of area covered by manmade surfaces (that is, built-up area), such as roofs, roads, and other infrastructure. While the overall built-up ratio is rather low in any case, except in Rubavu and Musanze, it drops steeply beyond the 5 km-radius from the core of secondary cities (Figure 22). Combined with the level of sprawl, this raises the urgency of better managing development of peripheral settlements and increased density, without which it becomes difficult and expensive to provide a centralized network of infrastructure.

Figure 20: Urban development in Musanze, Muhanga and Huye: Base year (red), latest year (yellow)

A. Central Musanze, 1999 and 2015 B. Central Muhanga, 2001 and 2015 C. Central Huye, 2002 and 2015



Total expansion, 1999–2015: 120% Average annual expansion: 6%

Total expansion 2001–2015: 81% Average annual expansion: 4.4%

Total expansion 2001–2015: 81% Average annual expansion: 4.4%

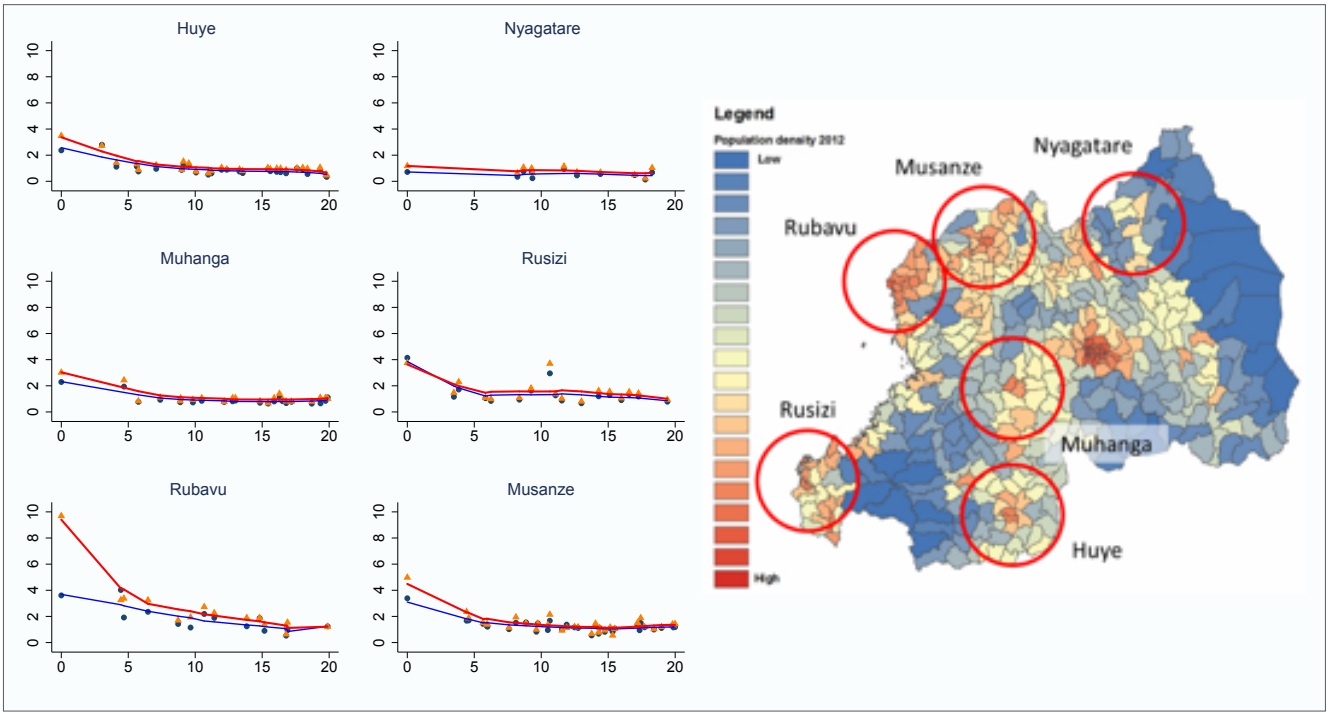
Source: World Bank. 2017. "Rwanda Economic Geography and Urbanization. Note 4: Profiling Secondary Cities in Rwanda – Dynamics and Opportunities.

[34] Nyamata, Gicumbi, and Rwamagana/Kayonza have grown quickly in recent years and thus are included in the analysis where relevant.

[35] For methodological details, see World Bank. 2017."Rwanda Economic Geography and Urbanization. Note 4: Profiling Secondary Cities in Rwanda – Dynamics and Opportunities."

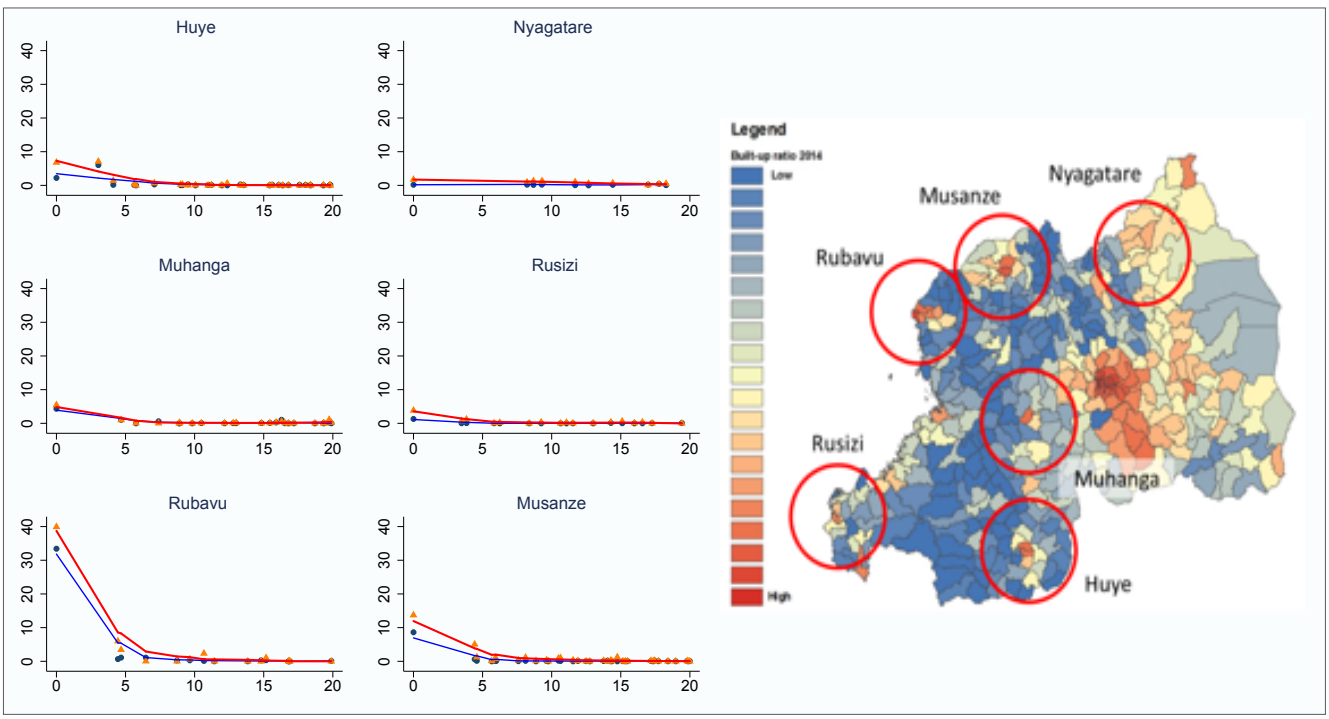
[36] In the analysis, the distance between two sectors is calculated either as Euclidian distance between their centroids or as generalized travel costs

Figure 21: Population density and distance to the city core in secondary cities



Source: Staff calculation based on 2002 and 2012 Census.
Note: In the left panel, the x-axis indicates distance from the center of the secondary city, and the y-axis indicates population density (hundred persons per km2). Blue dots indicate sectors in 2002 and red triangles sectors in 2012. Red lines and blue lines indicate smoothed trend lines in 2002 and 2012. In the right panel, a ring indicates a radius of 20 km from the center of the secondary city.

Figure 22: Built-up ratio and distance to the city core in secondary cities



Source: Staff calculation based on 2002 and 2012 Census
Note: On the left panel, the x-axis indicates distance from the center of the secondary city, and the y-axis indicates built-up ratio (%). Blue dots and red triangles indicate sectors in 2002 and 2012, respectively. Red lines and blue lines indicate smoothed trend lines in 2002 and 2012, respectively. On the right panel, a ring indicates a radius of 20 km from the center of the secondary city.

The system of zoning in Rwanda may contribute to low-density development in urban peripheries. Urban areas that are under new local plans become subject to both zoning requirements and new forms of property taxation. Both these factors function as incentives to develop property just outside formal urban areas. As the zoning standards limit both residential settlement and commercial activity through building regulations, minimum plot sizes, and maximum plot coverage ratios, this is likely to lead some investors, and thus economic activity more generally, to areas where zoning has not yet been completed or codes are less rigidly enforced. The trend is visible in some districts surrounding Kigali where rapid urbanization and urban expansion are occurring; it is also reflected in the movement of population toward the fringes of Kigali City. Of all the recent migrants in sectors bordering Kigali City, 43 percent came from the city itself. Considering that education is one common element in all migration patterns, in which the more educated people are, the less likely they are to move out of urban areas, this implies that people without the education and skills to afford living in a city are pushed to the primarily rural fringes.

Furthermore, zoning regulations can in some cases function as a deterrent to inclusive and efficient urban development. Most land in Rwanda, at least in theory, is individually owned since the Land Tenure Regularization (LTR) program began. However, much is being zoned after the LTR process, which means that it can depend on luck of whether the zoning applied to a plot suits the needs and capacities of the owner. The disconnect between zoning and current land use may also require resettlement and redevelopment and may increase the risk of pushing marginalized groups further out of the urban core. There are indications that this could have been a problem in Kigali, in terms of creating both uncertainty among investors and insecurity among urban residents. It may also be a concern in other urbanizing areas to which master planning and zoning are applied. In some of these areas, most people work in agriculture and live in informal housing, but zoning regulations applied in the context of master planning will likely insist on formal urban developed plots. In that case existing buildings may be formalized only if they conform to building regulations, which is unlikely or may take time and resources for the majority of urban dwellings.

2.3 Rwanda's Urban System and Economic Geography

Rwanda's urban system is dominated by Kigali, though part of the urban population is clustered in the six official secondary cities. According to the 2012 Census, Kigali accommodates nearly half of the country's urban population and is seven times larger than the next urban centre, Rubavu. The six secondary cities account for just 22 percent of the total urban population (Table 5). The three fast-growing towns account for 5 percent of the total urban population and their growth rates are generally higher than those of secondary cities, although from a very low base. This leaves 24 percent of the urban population resident in small settlements of fewer than about 15,000 people. Rwanda's cities are also growing at substantially different rates. With an average annual growth rate of 3.3 percent, the six secondary cities are growing more slowly than the national urbanization rate of 4.1 percent, which is largely influenced by the rate of urbanization in Kigali (4.2 percent).

Kigali is also the economic center of Rwanda. Nightlights-based estimation suggests that the three districts of Kigali City, which represent 11 percent of the total population and less than 3 percent of Rwanda's total land area, in 2012 accounted for 40 percent of the country's total GDP and 61 percent of total nonagricultural

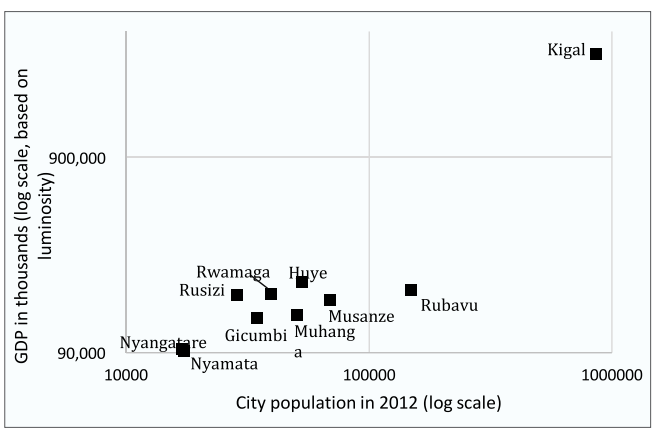
Table 5: Rwanda's urban system

	Population	Share of Total Urban Population	Growth Rate 2002-12
Kigali	859,332	49%	4.2
Rubavu	**149,209**	**9%**	**3.7**
Musanze	**68,930**	**4%**	**3.3**
Huye	**52,768**	**3%**	**1.9**
Muhanga	**50,608**	**3%**	**2.1**
Rwamagana-Kayonza	39,491	2%	5.6
Gicumbi (Byumba)	34,544	2%	4.1
Rusizi	**28,488**	**2%**	**1.1**
Nyagatare	**17,274**	**1%**	**7.9**
Nyamata	17,076	1%	6.3
Other centers	419,964	24%	N/A
Total urban population	1,737,684	100%	4.1

Source: Census 2012. Note: Secondary cities in bold.

GDP (Figure 23).[37] Kigali's primacy is further illustrated further in comparison to what other cities contribute to the Rwandan economy. The six secondary cities together account for about a third of Kigali's contribution to the national economy, i.e. 19 percent of total nonagricultural GDP (13 percent of total GDP). The three fast-growing towns contribute an additional 8 percent (5 percent of total GDP). Kigali also accounts for 27 percent of all nonfarm jobs created between 2011 and 2014 and more than 50 percent of all formal private firms and employment in those firms (Table 6).

Figure 23: City population and GDP estimated from luminosity of lights at night, 2012



Source: Census 2012; GDP estimates based on night-time lights data from NOAA.

Infrastructure data shows the extent of investment in Kigali relative to the rest of the country, reflecting the priority of the capital city as a regional hub for Eastern and Central Africa. According to the census, in households in Kigali City, 73 percent use electricity, compared with 9-15 percent on average in other provinces; 89 percent have access to improved water sources; and 28 percent have members who have access to the Internet, which is at least seven times the national average. About 7 percent of city households have vehicles, compared to the nationwide average of 1 percent. However, 66 percent of the population still lives in dwellings

[37] In recent years, the intensity of night lights as measured from space has increasingly been used to estimate economic activity; based on the assumption that as almost all consumption and investment activities in the evening or night require lighting, the intensity of night lights can be used as a proxy for the intensity of economic activity. See Bundervoet, Maiyo, and Sanghi (2015) for details of the methodology; they show that the nightlight approach works in Sub-Saharan Africa, and that in Rwanda the trend of annual GDP and the nightlight-based GDP has been similar over the past 20 years.

[38] For the level of infrastructure and service provision in secondary cities, see World Bank 2017. Note 4 above.

[39] The three districts along the corridor (Musanze, Nyabihu, and Rubavu) account for one-third of non-Kigali urban population.

Table 6: Economic activity indicators for Rwandan cities, city and town data, 2014

City	Share of National Nonfarm GDP	Nonfarm Employment	Formal Nonfarm Employment	Nonfarm Firms	Formal Nonfarm Firms	Economic Density (Jobs per Population)
Huye	4.1%	9,141	1,713	2,854	232	0.17
Muhanga	2.8%	3,560	1,364	1,326	218	0.07
Musanze	3.3%	6,109	2,538	2,891	242	0.09
Nyagatare	1.8%	5,598	811	2,023	128	0.32
Rubavu	3.7%	12,855	2,993	5,163	341	0.09
Rusizi	3.5%	9,329	1,469	3,317	203	0.33
Gicumbi	2.7%	5,976	1,120	1,498	56	0.17
Rwamagana-Kayonza	3.6%	4,526	1,116	1,739	167	0.11
Bugesera	1.9%	2,769	488	1,155	69	0.16
Kigali	60.8%	113,093	57,260	31,831	4,654	0.13
Rwanda	100%	493,302	106,73	154,236	8,726	-

Source: Nighttime lights estimates using satellite imagery from NOAA; employment and firm data from Establishment Census 2014.

characterized as unplanned. Since access to infrastructure and services in secondary cities is generally adequate for their current size and growth rate,[38] the primacy of Kigali seems to arise from the unique economic opportunities it offers.

There is some evidence that other economic clusters are emerging outside Kigali, with the largest concentration of economic activity in the Rubavu-Musanze corridor.[39] Although Kigali is still central to the Rwandan economy, between 2002 and 2012 its share of national non-farm wage employment dropped from 50 to 39 percent, and the share of Kigali in total GDP declined from 50 to 40 percent. Outside Kigali, the cities of Rubavu and Musanze account for 7 percent of nonagricultural GDP, 4 percent of jobs, and 5 percent of firms. They also have a higher than average concentration of formal firms and jobs, an indicator of more productive economic activity. Of the 106,073 formal private-sector jobs accounted for by firms in the 2014 Establishment Census, 57,260 (54 percent) are located in Kigali, and the three districts of Rubavu, Nyabihu, and Musanze account for another 7,388 (7 percent). When jobs in the informal sector are also considered, the share of these districts rises to 11 percent.

Together, Rubavu and Musanze form a corridor of urban development in the northwest of the country; other transnational agglomerations have potential for vibrant cross-border trade, particularly in Rusizi. The distance between the secondary cities of Musanze and Rubavu is only about 50 km, and the sectors along the national road that connects both cities have experienced rapid urbanization since the early 2000s. The corridor merges with the city of Goma just inside the DRC border. The two Rwandan cities have also benefited from densely populated fertile agricultural land and the presence and investment of relatively large formal firms, as well as tourism. Elsewhere in Rwanda, the southwest is densely populated throughout, and certain sectors (Bugarama) have urbanized fast, although from a low base. This urban cluster could be developed as a trade and services hub serving the cities of Bukavu and Uvira in DRC and Bujumbura in Burundi. Gicumbi town is close to the Ugandan

border at Gatuna and to Kigali as well. The most noteworthy case is Rusizi, which forms part of a much larger contiguous transnational urban area with the city of Bukavu in DRC. Rusizi is home to around 800,000 and 44 percent of its workforce is employed in wholesale and retail trade—the highest share of any city.

Other secondary cities have not reached a sufficient population size or density of firms to create agglomeration economies. According to Establishment Censuses, between 2011 and 2014 11 percent of all firms and jobs (16 percent of formal firms and 12 percent of formal jobs) were created in the six secondary cities. Together, Rubavu and Musanze contributed half of the formal jobs created (6 percent). The majority of firms in secondary cities (89 percent) are micro enterprises with one to three employees—as is also the case nationally (90 percent). Analysis of land use also shows that these cities are primarily residential and depend heavily on the rural economy and thus agricultural productivity.[40] While this dependency may cause low-density expansion of some cities, it suggests that strengthening the rural-urban economic linkages around these cities can be one way to release their economic potential.

2.4 Urbanization, Job Creation, and Poverty Reduction

With the varying economic performance of the cities, to what extent has urbanization in Rwanda contributed to nonfarm job creation and poverty reduction since 2002? The country's 416 sectors in 2002 and 2012 Censuses are used to analyze the relationship between the changes in their population density, the share of nonfarm employment, and the MPI.[41,42] Although the census datasets do not include information about consumption, they have enough information to calculate the multidimensional poverty status for each person and, by aggregating individual scores, the MPI for each sector. As a measure of the degree of urbanization, population density and the rate of built-up areas at the sector level are used.

Urbanization – i.e. population density and built-up ratio – is closely associated with nonfarm job creation and poverty reduction at the sector level in 2002 and 2012. Sectors with higher nonfarm employment shares tend to have a lower MPI in each year (Figure 24). The relationship between nonfarm employment and population density (and built-up ratio) is not so linear. In sectors with a population density of less than 500 persons per km^2 the share of nonfarm employment is very low; it rises in tandem with population density for relatively dense geographic sectors, those with a population density of 500 to 1,500). The share of nonfarm employment reaches 80 percent or more in a few high-density geographic sectors, those with a population density greater than 1,500). Similar relationships are observed between urbanization and poverty reduction: the higher the population density or built-up ratio, the lower the MPI.

Increasing density is critical for creating nonfarm jobs and reducing poverty

Increasing density is related to a higher share of nonfarm employment and greater poverty reduction. Even after controlling for changes in educational levels, panel regression analysis hints at a positive link between changes in population density and the share of nonfarm employment.

[40] World Bank. 2017. "Rwanda Economic Geography and Urbanization. Note 4: Profiling Secondary Cities in Rwanda – Dynamics and Opportunities."

[41] Rwanda's MPI is a weighted average of nine indicators: years of schooling, child school attendance, child mortality, electricity, sanitation, drinking water, flooring, cooking fuel, and asset ownership. Households are 'poor' if their deprivation score is greater than 33 percent and 'in severe poverty' if over 50 percent.

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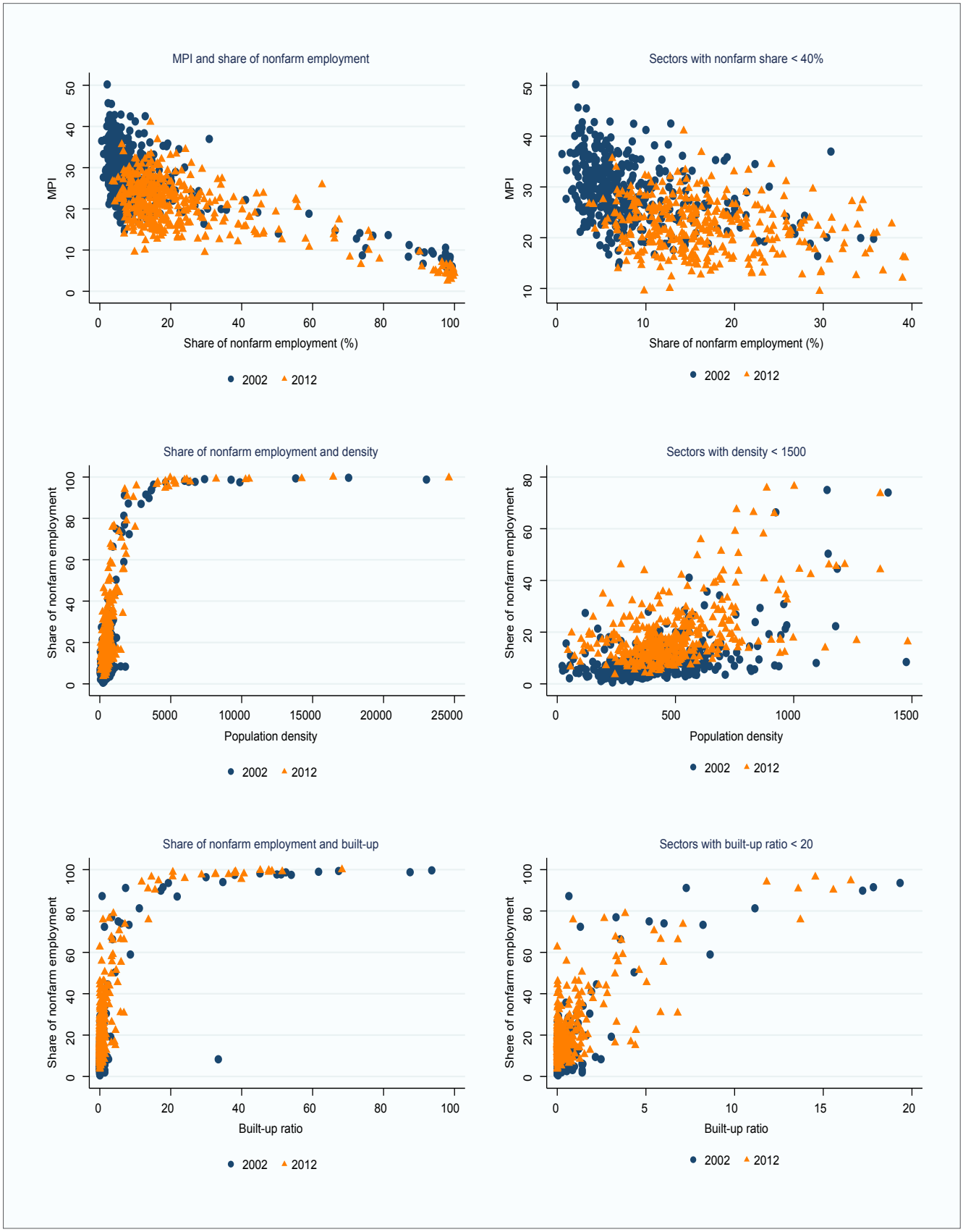
Figure 24: Link between share of nonfarm employment and MPI, population density, and built-up ratio, 2002 and 2012



Source: 2002 and 2012 Census data.
Note: Bars indicate the percentage change in share of nonfarm jobs corresponding to a 10 percent increase in population density at the geographic sector level. Error bars indicate 90 percent confidence intervals.

When sector-level time-invariant characteristics, observed and unobserved, are controlled for, a 10 percent change in population density is linked to a 1.4 point higher share of nonfarm employment (Figure 25 (a)). Similarly, increasing density relates to poverty reduction. When all sector characteristics are controlled, the estimation results of the base specification show that a 10 percent increase in population density was associated with a 1.2 percent lower moderate-poverty MPI and a 1.6 percent lower severe-poverty MPI.

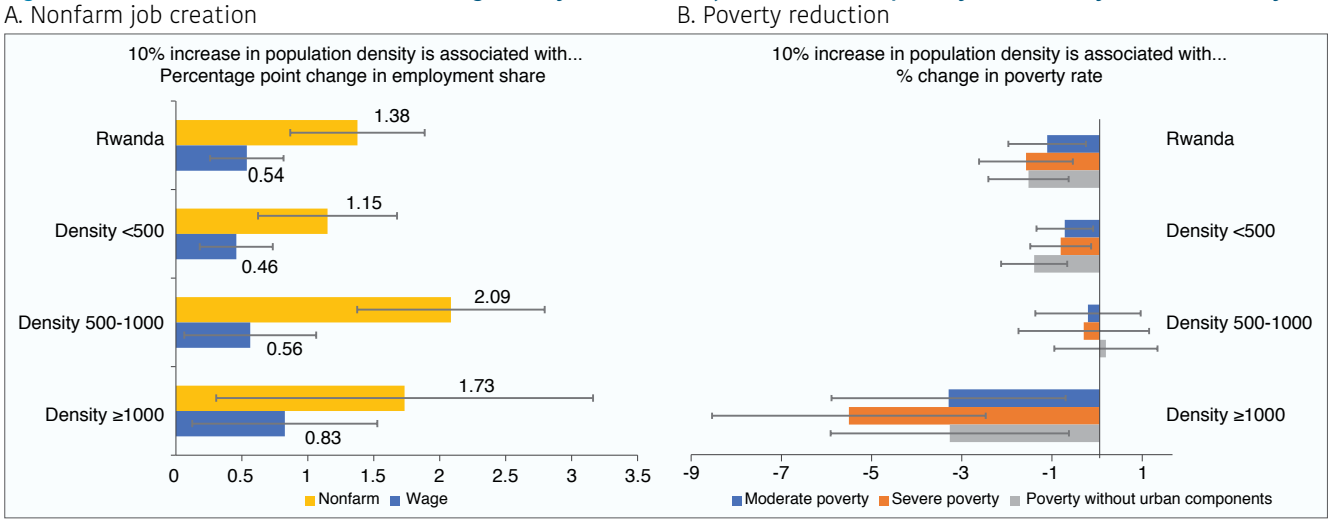
Importantly, the linkage is stronger in sectors with higher density at the baseline (i.e. density as of 2002). Sectors that were already dense at the baseline benefit more from increasing density in terms of nonfarm employment share: a 10 percent increase in population density was associated with higher shares of nonfarm employment of 1.2 points for sectors with a density of less than 500; 2.1 points for sectors with a density of 500 to 1,000; and 1.7 points for sectors with a density greater than 1,000 (Figure 25 A). Similarly, high density is closely associated with reductions in poverty. In 2002 for sectors with a density greater than 1,000, a 10 percent increase in population density leads to a 3.4 percent lower moderate poverty rate and a 5.6 percent lower severe poverty rate (Figure 25 B). Indeed, few sectors have kept poverty rates below 20 percent unless they had more than 1,000 persons per km^2.

The link between increasing density and nonfarm job creation is particularly strong in Greater Kigali and the cores of the six secondary cities. Figure 26 summarizes the regional variations in estimated density effects for nonfarm employment share. A 10 percent increase in density is associated with a 2.4 percentage point higher nonfarm employment share within 20 km from Kigali and a 4.6 percentage point higher share in areas within 5 km of secondary cities. In contrast, increasing density is less clearly related to nonfarm job creation in areas more than 10 km from secondary cities, indicating that those areas may not be fully integrated into the economy of the secondary cities—and that simply increasing population (or density) does not automatically lead to job creation.

Similarly, the estimated density effects for poverty reduction are particularly strong within the 5km radius of secondary cities. A 10 percent increase in density is associated with a 6.0 percent lower moderate poverty rate and a 6.5 percent lower severe poverty rate within 5 km from one of the six secondary cities. However,

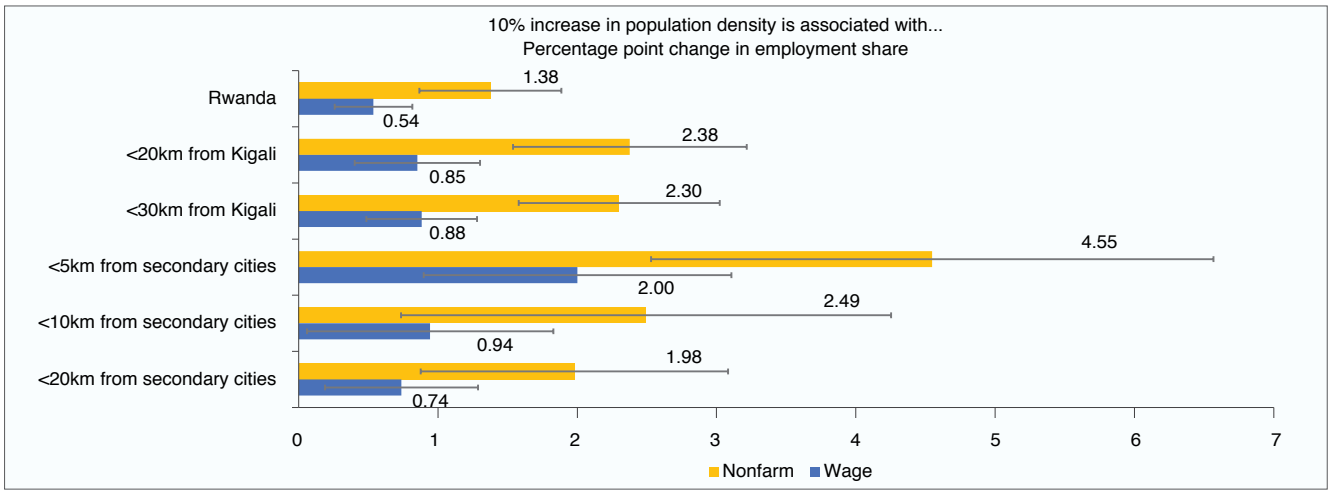
Figure 25: Estimated links between increasing density and nonfarm job creation and poverty reduction by baseline density

A. Nonfarm job creation B. Poverty reduction



Source: Staff calculation based on 2002 and 2012 Census.
Note: Bars indicate the percentage point change in share of nonfarm and wage jobs (panel A) and the percentage change in MPI (panel B) corresponding to a 10 percent increase in population density at the geographic sector. Error bars indicate 90 percent confidence intervals.

Figure 26: Estimated links between increasing density and nonfarm job creation by geography



Source: 2002 and 2012 Census data.
Note: Bars indicate the percentage change in share of nonfarm jobs corresponding to a 10 percent increase in population density at the geographic sector level. Error bars indicate 90 percent confidence intervals.

this density benefit does not reach areas beyond the 5 km radius. Once sectors within 10 km of one of the six secondary cities are included, the link between an increase in population density and poverty reduction become unclear (not statistically significant at the 10 percent level).[44]

Cities need to be better connected to their hinterlands and the regional market

The finding of the prominent density effect in Kigali is consistent with the recent analysis of the trend of nonfarm job creation in Rwanda. Between 2011 and 2014 about 30,000 nonfarm jobs were created annually in Rwanda, one-third of which were located in Kigali.[45] Larger new firms, particularly in the formal sector, have tended to locate in Kigali rather than the countryside, and firms already in Kigali have been growing and adding jobs. In more general terms, increasing density leads to nonfarm job creation in sectors closer to Kigali in terms of lower transport cost, and connected to larger populations (i.e., access to better markets).

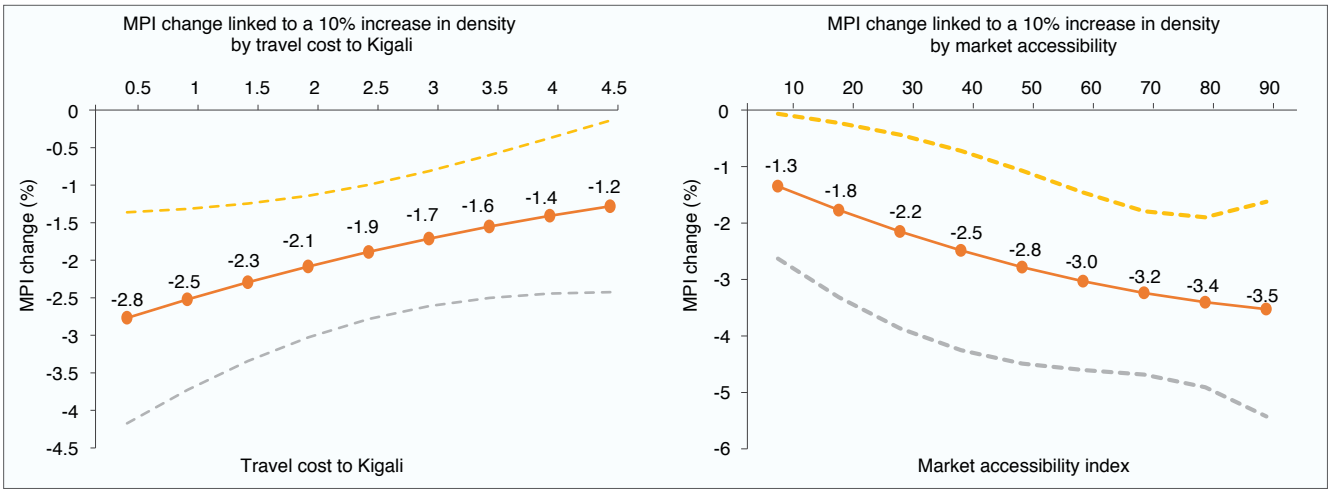
The link between increasing density and poverty reduction, as for job creation, is also a function of the cost to travel to Kigali and market accessibility. As illustrated in Figure 27, the estimated link between increasing density and poverty reduction becomes smaller as the cost to travel to Kigali becomes higher. Sector-level market accessibility is measured as the market accessibility index (MAI) which is the sum of the population accessible from the sector within a certain travel time. Calculated in this way, the MAI indicates how well the sector is connected with areas with large population base (that is, market size). As shown in Figure 27, a 10 percent increase in density was associated with a 1.8 percent lower MPI for the sectors with MAI being 20, whereas the sectors with the MAI being 70 would have the MPI reduced a lot more at about 3.2 percent. About 80 percent of the 416 sectors have a MAI of less than 20.

Access to markets is an important determinant of secondary city performance, particularly since none of the cities are large enough to produce a viable internal market for manufactured goods. At the urban core of the secondary cities, nonfarm employment accounted for 66 percent but fell with distance from the center, decreasing to 43 percent at 5 km from the city (Figure 28). Even in Greater Kigali,

[44] Among the four provinces, the Northern and Eastern Provinces have benefited from increasing density.

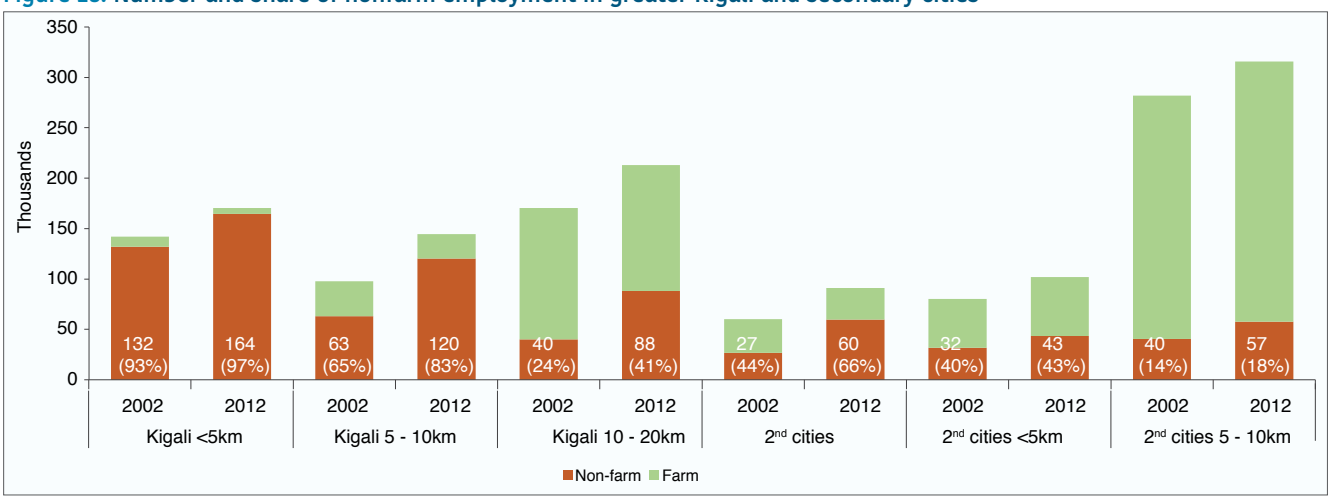
[45] World Bank. 2016. Rwanda: Firm Growth and Job Creation Study.

Figure 27: Link between increasing density and poverty reduction by cost of travel to Kigali and market accessibility



Source: 2002 and 2012 Census data.
Note: Y-axis indicates the expected percentage change in the Multidimensional Poverty Index (MPI) when population density increases by 10 percent. Dashed lines indicate 90 percent confidence intervals. The MPI is based on severe poverty.

Figure 28: Number and share of nonfarm employment in greater Kigali and secondary cities

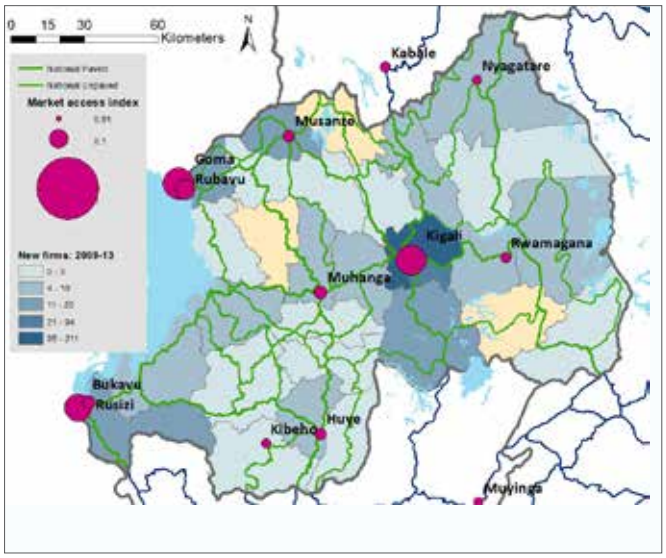


Source: 2002 and 2012 Census data.
Note: Bar labels indicate the number and share of nonfarm employment.
Note: Kigali includes geographic sectors within 30 km of the center of the City of Kigali; secondary cities include sectors within 20 km from the center of secondary cities (Huye, Muhanga, Musanze, Nyagatare, Rubavu, Rusizi).

in 2012 the nonfarm employment share was 83 percent within the 5 to 10 km radius, falling to 41 percent within the 10 to 20 km radius. This indicates that nonfarm and farm employment coexist within as well as around secondary cities, which can play a greater role in serving the local economy if the economic links between them and their rural surroundings can be strengthened.

Although the government has taken initiatives to improve transport connectivity, enhancing accessibility to national and regional markets is still a challenge for smaller cities. Kigali has the highest market access in the country, followed by the border cities of Rubavu and Rusizi. Accordingly, more firms have been established in Kigali, with Rubavu and Rusizi recording the highest number of new firms outside Kigali (Figure 29). In general, though, urban areas outside of Kigali are poorly connected to markets and will require investment in additional infrastructure, particularly in roads. Although some Rwandan cities located close to the borders are relatively well-connected to neighboring countries, such as

Figure 29: Market access index and establishment of new firms



Source: World Bank. "Rwanda: Transport Connectivity and Growth Potential."

DRC, Burundi, and Uganda, it will not be easy to create potential agglomeration economies with more distant cities in those countries. Relative connectivity, in terms of both time and costs, is still stronger to Kigali. For instance, Musanze and Rubavu are better connected to Kigali than to Ugandan cities. The distance from Rubavu to Kabale is 14 percent further than to Kigali, and the transport cost 38 percent higher.

The economic potential of cities may vary due to their location and endowment; but some recent research emphasizes the role of secondary cities as drivers of poverty reduction. While big cities function as the engines for economic growth, the absolute number of rural poor who can migrate to those cities tends to be limited. Further, the lack of manufacturing and formal jobs in African cities makes economic survival difficult for migrants, as reflected by higher unemployment and underemployment and by urban-to-rural migration patterns there. The rural poor may find secondary cities more accessible, with more opportunities to acquire nonfarm jobs and to diversify their economic activities. Recent research supports this in Tanzania (Christiaensen, de Weerdt, and Todo 2013) and India (Gibson, Datt, Murgai, and Ravallion 2017). Further research is needed to see if it applies to a geographically smaller country like Rwanda.[46]

2.5 Policy Discussions and Recommendations for Rethinking Rwanda's Urban Strategy

The main findings of this study are these:

- ***Rwanda has been urbanizing*** more rapidly than national statistics previously estimated. The increase in the urban population has been accompanied by the physical expansion of cities, notably in the periphery of Kigali and around secondary cities, though mostly at the low level of density.
- ***Rwanda's urban system is dominated, both demographically and economically, by Kigali.*** Other economic clusters have emerged, some with noticeable shares of job creation and employment share. The largest cluster one outside Kigali is along the corridor between Rubavu and Musanze.
- ***Although urbanization, measured in terms of increasing density and the built-up ratio, has been correlated to nonfarm job creation and poverty reduction, Rwanda has not yet fully realized its potential.*** The link is stronger in areas with higher population density but quickly tapers off with distance from the city cores. To translate density into job creation and poverty reduction, market accessibility and transport connectivity (in terms of travel time and cost) are equally important.

[46] Christiaensen, De Weerdt, and Todo (2013) analyzed a panel of 3,300 individuals in rural Kagera, Tanzania, from 1991 to 2010, and found that a majority of those who escaped from poverty diversified their economic activities in rural areas or moved to secondary rather than big cities. Another study by Christiaensen and Todo (2014) analyzed household surveys of 51 low- and middle-income countries between 1980 and 2014 and found that rural diversification and secondary towns played an important role in poverty reduction. People also migrate to secondary cities as both transit and destination places for jobs and other opportunities: http://blogs.worldbank.org/jobs/secondary-towns-migration-and-jobs-creating-action-space

As Rwanda prepares for a longer-term strategy to reach high-income status by 2050, its urbanization strategy should also be revised to align with its ambition.

Rwanda needs to focus on increasing the urban dividend rather than the urban population. Having a target for urbanization (35 percent in Vision 2020) as a policy goal is not alone the best guide for urbanization to facilitate economic development. For example, policies that improve basic service delivery in rural areas might reduce migration to cities. This is a positive outcome but would work against the target for urbanization. As Rwanda urbanizes further, its policies should be reoriented more toward maximizing what cities contribute to national growth and wellbeing rather than merely increasing the size or density of the urban population. To provide empirical support for such a policy shift, several methodological challenges must first be overcome. Introducing a refined and consistent definition of an urban area is critical; it is good that the government is currently revising the definition for the next census. To better understand the role of migration in urbanization, within-district migration should also be captured in the new census and household surveys.

The policy approach to internal migration needs reframing, with a view to better leveraging the gains from population movement, rather than simply controlling it. Agglomeration forces and economic opportunities will inevitably pull workers and families to cities, most likely to Kigali given its primacy in the Rwandan economy. Policy concerns about Kigali becoming a congested and ill-managed city may be legitimate but can be addressed through better urban management. Given the city's aspiration to drive growth for the country and in the region, the goal for policy should not be simply to keep people from moving to Kigali but to find best ways to accommodate the flow of people, while making the city more productive.

At the same time, challenges in places of both origin and destination should be addressed. As one of most land-scarce economies in Africa with the region's highest population density, for Rwanda the expanding rural population will further raise pressure on land available for agriculture and continue to lower farm sizes. The other side of the policy challenge is to keep people from moving for the wrong reasons – mainly being pushed out of their home areas by adverse circumstances here. To avoid migration for the wrong reasons, the government should work to eliminate or alleviate the push factors, such as agricultural decline due to pressures of population growth or environmental degradation, and lack of adequate public services. Migration due to push factors is unlikely to have agglomeration benefits but is likely to exacerbate the urban congestion that policy-makers strive to avoid.

Rwanda's towns and cities should be managed as a portfolio. Kigali will continue to be the leading economy, with other cities playing different roles in the national economic geography. Concerns over Kigali's size and growth have led policymakers to promote secondary cities as substitutes for Kigali. However, businesses are likely to continue to locate in Kigali, where they benefit from a range of diverse financial and related services and diverse product and labor markets, not available elsewhere in the country. For other cities to be part of the economic rather than a demographic strategy (i.e., becoming destinations for population moving away from Kigali), their roles should be defined based on their economic potential and performance. For towns at the lower end of the urban portfolio in terms of size, density, location, and economic vocation, improvements in the scale of agriculture and agro-processing may increase demand for their goods and services and thus help to strengthen rural-urban economic links.

Strengthening the linkages between rural and urban economies is one way to support both areas. The government's role should not be to direct spatial allocation of resources but to create an enabling environment for investment. There may be short-term potential for some enhancements to agricultural productivity, but nonfarm activities will certainly provide greater future growth prospects. While some rural areas will transform become more urbanized in their economies and their physical densities, a large share of employment and nonfarm income opportunities will depend on links between rural areas and urban economies, including trade and migration. One notable example of place- specific investments is the plan for building grouped villages as highly-serviced rural settlements every 5 to 10km in each sector. The Rwanda Housing Authority's current plans elaborate 2,235 grouped villages in 12 districts and proposes grouped villages for the remaining districts. While it is questionable if the level of services to be provided and the number of proposed settlements are adequate given the costs of building such villages, particularly when finite public resources will have to be divided (e.g., between urban and rural settlements), more fundamentally it is critical to revisit this plan from the perspective of the national economic transformation in terms of the role of these settlements in leveraging rural-urban links.

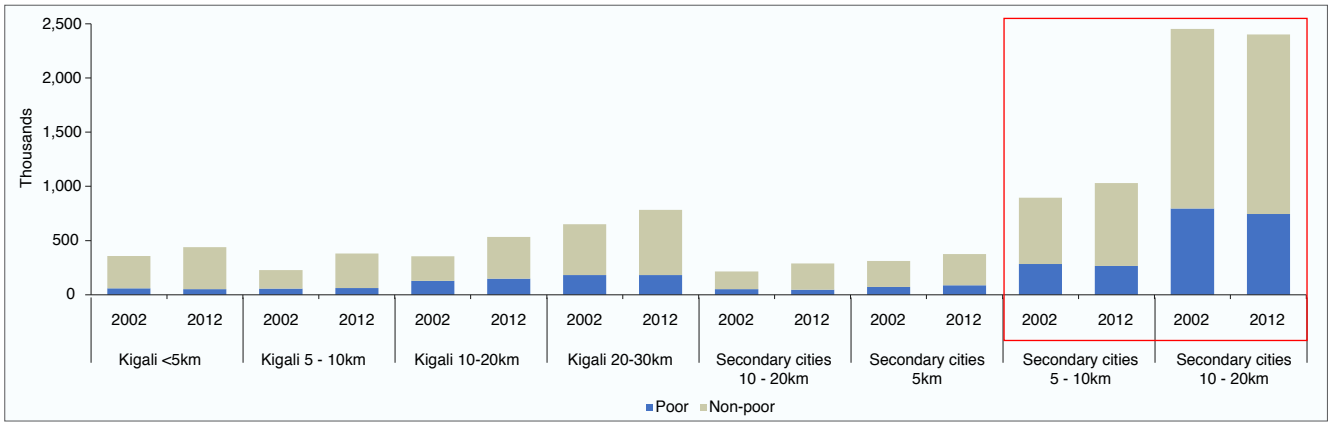
Investments should be targeted to emerging economic clusters with greatest potential to achieve the scale to meet the demand from domestic and regional markets. The emerging economic corridor along the districts of Musanze, Nyabihu, and Rubavu benefit from both fertile agricultural land and proximity to the border with the DRC and thus are naturally favored by market forces. In comparison, some cities and towns are too small to generate agglomeration economies, reflecting their uneven economic endowment and locational advantage. For the short to medium term, public investment in infrastructure and services should be directed to where endogenous forces are driving growth, which will tend to result in better returns on investment. Focusing investment initially on fewer cities that already have competitive advantages will deliver economic growth more efficiently.

Investment in other cities should focus on improving basic services and strengthening their links with surrounding rural areas. In other secondary cities, it is important is to maximize the utility of existing infrastructure through adequate operations, maintenance, and where relevant cost recovery, and to ensure that resources for infrastructure and service improvement are directed to maximize the return for both social and economic development.

Densification is critical given that the links between urbanization and poverty reduction and job creation quickly taper off with distance from the city cores. The links observed in city centers decline steeply in areas 5–10 km away from secondary city cores. Opportunities for leveraging the benefit of urbanization are found in these peri-urban areas, which in turn should be better connected to the city cores both physically and economically. Without proper land use management and extended services and infrastructure, rapid expansion at the periphery of Kigali would create negative externalities. Currently, 30 percent of Rwanda's non-monetary poor live within 20 km of one of the six secondary cities (Figure 30). Extending economic opportunities to them is vital for their participation in the peri-urban economy and for reducing poverty in the periphery.

Sectoral efforts to plan and manage urban areas should continue, and efficient urban planning is crucial. Urban population growth has been accompanied by rapid expansion of built-up areas in the periphery and fringe zones of Kigali and in most secondary cities. Since density has been shown for having a positive relationship

Figure 30: Nearly one-third of Rwanda's poor live within 20 km of a secondary city



Source: Staff calculation based on 2002 and 2012 Censuses.

with job creation and poverty reduction, opportunities indeed exist in increasing density in these areas that are currently not well connected to the urban economy. It would be worthwhile for the government to revisit current planning and zoning guidelines to synchronize them with actual development and current demands, and to allow for a more flexible and participatory use of zoning and planning regulations. This would recognize the living standards and housing conditions of the majority of Rwandans, while preparing for future growth and responding to growing demands. In particular, the efficient management of Kigali's land market and effective but also pragmatic use of zoning regulations will be central; here further analysis is needed.

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