

Analysis of Gender and Youth Employment in Rwanda

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Summary

During the past decade, Rwanda has been among the fastest-growing economies in the world. Between 2000/01 and 2010/11, the economy grew at nearly 8% per year, while income poverty declined from 59% to 45%. Although employment rates have remained relatively stable, there has been a substantial shift from self-employment to wage and unpaid employment.

This study focuses on labor outcomes of women and youth—the former have moved into low-quality employment, while the latter have high rates of underemployment. Labor market outcomes are examined through geographic analysis and a study of factors affecting employment at the individual level.

The analysis is based on cross-sectional data collected by the National Institute of Statistics of Rwanda (NISR). The study uses the two most recent waves of the nationally representative household surveys for 2005/06 and 2010/11. The other source was the 2010 Rwanda Demographic and Health Survey. The methods used to meet the study objectives were a literature review of previous work on the Rwandan labor market, participation profiling via a descriptive analysis, and econometric analysis of determinants of employment outcomes.

Rwanda's population pyramid has a wide base, indicating a high dependency ratio. Given that women in Rwanda still bear the burden of child nurturing and care, this population structure suggests that women's employment prospects are constrained by their reproductive and domestic roles. Between 2005/06 and 2010/11, the overall dependency ratio fell as the percentage of the population aged 18 or younger declined from 54% to 52%. This reduction in the percentage of children in the total population reflects trends in the fertility rate, which decreased from 6.2

to 4.6 children per woman during the 2005-2010 period.

The urban population is characterized by a "youth bulge"; that is, in urban areas, the percentage of people aged 15 to 34 is higher than in rural areas. This is partly explained by rural-urban migration: 64% of youth in urban areas were migrants, compared with 38% of youth in rural areas.

From 2005/06 to 2010/11, the overall employment rate remained around 82% for people aged 15 to 64. At 85%, women's rate was relatively high. The rate was much lower in urban than rural areas: 76% versus 83% in 2010/11. The relatively low urban rate was attributable to the predominance of agricultural employment in rural areas and higher unemployment and school attendance in urban areas. Furthermore, in urban areas, women's employment rate was about 5 percentage points lower than men's. To some extent, this may be because urban employment tends to require higher educational attainment, and women's attainment is relatively low. Employment is also affected by seasonality. Agricultural workers experience a reduction in employment opportunities during July and August—employment rates for July and August were about 10 percentage points lower than in other months.

The majority of Rwandan workers are engaged in non-wage employment. Even so, the percentage of the labor force in non-wage employment fell from 73% in 2005/06 to 64% in 2010/11. In both urban and rural areas, shifts were evident in the sectors in which women were employed—in urban areas, from agricultural self-employment to wage non-farm employment; in rural areas, to the unpaid family worker category. In both urban and rural areas, the shift among men was from agricultural self-employment and the unpaid family

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worker category to wage employment, specifically, private informal employment (largely construction and domestic services). The 15-to-34 age group benefited most from the increase in wage opportunities: the share of employed youth in wage non-farm employment rose by 15 percentage points between 2005/06 and 2010/11, compared with an 11 percentage-point increase for the general population. The increase in youth employment was mainly in construction and domestic services.

In 2010/11, median monthly salaries were RWF 22,000 for men and RWF 13,200 for women. Median wages increased between 2005/06 and 2010/11, but the gender pay gap widened from a percentage difference of about 33% to 67%. People with postsecondary education received the highest pay, but the gender gap was widest for such individuals. Nonetheless, between 2005/06 and 2010/11, the gender gap in pay among those with postsecondary education fell from 80% to 56%. Youth received relatively high wages, earning a median salary about 10% more than that of the population overall. Median public sector wages were 27% higher than those in the private formal sector.

The percentage of Rwandans aged 15 to 64 who were unemployed fell from 9.3% in 2005/06 to 6.9% in 2010/11. However, in urban areas, one in four women and one in five men were classified as unemployed in 2010/11. On the other hand, a relatively low percentage of youth were unemployed, which may be attributable to delayed labor force entry as a result of continuing education.

Underemployment is very high in Rwanda: 48% of people aged 15 to 64 reported seeking additional or new work in 2010/11, up from 46% in 2005/06.

Rwanda has made great strides in reducing the percentage of the population without education, especially among youth. Nonetheless, the need to invest in education persists, because of the association between higher education attainment and better jobs. Specifically, it is necessary to ensure that young people receive postsecondary education, as this appears to be a prerequisite for high-paying non-farm wage employment. As well, investment is needed in skills development, especially for women, to allow them to compete in the labor market and to reduce the male-female wage gap. In addition, investment

in education will be required to benefit from the youth bulge in urban areas.

Women account for more than half of Rwanda's workers, but men are more likely to have wage employment. In fact, a large percentage of women work without pay. Men are more likely than women to work in the formal and the informal sector where earnings are relatively high. Among youth, males and females have nearly similar farm wage earnings, but males fare better in every other wage category. Women's concentration in unpaid family work suggests that cultural factors (norms about domestic responsibilities) play an important role in labor market decisions. Consequently, even if more wage employment becomes available, women's access to such jobs may not be equal to men's. Land rights legislation was a step toward reducing cultural constraints that limit women's labor market opportunities. In addition, given that the cultural constraints are linked to women's reproductive roles, if the reduction in fertility is sustained, it will free up time for women to engage in high-paying employment. Similarly, availability of childcare or other forms of social protection schemes would significantly benefit women, allowing them to enter paid employment.

1. Introduction

Because women's socioeconomic status tends to be low in developing countries, reducing gender differences and empowering women are considered key for overall improvement in household conditions (Blackden et al., 2007; Quinsumbing and Malluccio, 2003). Gender bias, and consequently, unequal control of household resources, affect not only human development outcomes such as child nutrition, but also the productivity potential of a household. International evidence shows that gender inequities have constrained female labor force participation, productivity, and earnings in many developing countries (World Bank, 2007).

During implementation of the Poverty Reduction Strategy Papers, a number of countries in Sub-Saharan Africa (SSA) initiated interventions targeting gender equality. Despite progress, especially in primary and secondary school enrolment (World Bank, 2010), gender gaps remain in spheres such as labor market outcomes, asset ownership, and entrepreneurship. For instance, in 2006, women in SSA accounted for only 28% of non-agricultural wage employment (Morrison et al., 2008). Policy-makers are interested in the types of interventions that can improve women's labor market conditions (World Bank, 2012).

During the last 10 years, Rwanda has made tremendous progress in ensuring gender equality in school enrolment and empowering women. By 2009, Rwanda was among the few developing countries with 100% gender parity in primary and secondary enrolment (World Bank, 2011). The share of women in the national legislature increased from 17% in 1995 to 56% in 2010. Rwanda's land title registration policy improved women's prospects of owning and inheriting land (Ali et al., 2011). The use of modern contraception methods, a key measure of women's empowerment, doubled to 44%. Between 2005 and 2010, the fertility rate dropped from 6.0

to 4.6 births per woman (National Institute of Statistics Rwanda, et al., 2012).

On the other hand, attitudes toward gender equality are slow to change. For instance, the percentage of Rwandan women who agree that a husband is justified in beating his wife if she neglects the children has declined, but the figure was still relatively high at 44% in 2010 (National Institute of Statistics Rwanda, et al., 2012). As well, women who are employed and are breadwinners are more likely to face a male backlash through sexual violence (Finnoff, 2012).

The limited availability of gender-disaggregated statistics in developing countries is a major constraint in policy-making and development planning. Assessing progress on Millennium Development Goal (MDG) 3, Gender Equality and Empowerment of Women, particularly women's share of non-agricultural employment, has been difficult in Africa. Rwanda is no exception. Although several waves of the *Enquête Intégrale sur les Conditions de Vie des Ménages* (EICV) are available, in-depth examinations of labor market outcomes for women are scarce. The recently available thematic report on gender based on the 2011 EICV survey focused more on differences between female- and male-headed households (National Institute of Statistics of Rwanda, 2012). Because of unequal sharing of household resources, an analysis of this nature based on household headship may fail to capture key intra-household issues—such as who in the household works for pay and who provides unpaid services.

A large population of young people and rising educational attainment make youth employment a challenge in most countries in SSA (Africa Development Bank, 2012; World Bank, 2009). In 2011, an estimated 200 million Africans were aged 15 to 24, and around 40% had secondary education. Recent job creation has not benefited young people, and youth unemployment¹ could be

a source of social unrest and conflict². Only 20% of the 73 million jobs created by African countries between 2000 and 2008 went to 15- to 24-year-olds (Africa Development Bank, 2012). Consequently, youth account for a disproportionate share of those who are unemployed or underemployed. Questions remain about what factors influence youth employment in Africa and how youth unemployment affects poverty and the distribution of incomes on the continent.

In Rwanda, the increasing number of young people who graduate from school but find limited employment opportunities has heightened the need to focus on youth employment. Against this background, the African Development Bank has undertaken an assessment of labor market outcomes for women and youth in Rwanda. The ultimate objective is to inform development policies aimed at economic inclusion of women and youth. The analysis is based on the two most recent national household surveys (EICV2 and EICV3), complemented by secondary information from the Rwanda Demographic and Health Survey. The present study adopts the official Rwandan definition of youth as persons aged 15 to 34 years.

This study is organised as follows. Section 2 provides background on gender and youth issues in Rwanda, notably, educational attainment and demographic composition. Section 3 explains the data sources and analytical methods used. Section 4 presents key labor market outcomes. Determinants of employment outcomes are discussed in Section 5. Section 6 concludes with recommendations.

¹ The development literature contains various definitions of youth. UNICEF, WHO, UNAIDS and ILO define youth as persons aged 10 to 24; the UN uses the 15-to-24 age range; and the African Charter on the Youth (2006), 15 to 30. For consistency, the official Rwandan definition of youth as persons aged 15 to 34 was adopted for this report.

² Riots in North Africa during the "Arab Spring" in 2011 were partly attributed to high levels of joblessness, especially among youth in urban areas.

2. Background on labor market, gender and youth issues in Rwanda

2.1. Structure of the economy

From 2002 to 2011, Rwanda experienced positive real Gross Domestic Product (GDP) growth—an annual average of more than 8% (Table 1). This places Rwanda among the fastest-growing economies globally³. In 2009, the pace of economic growth slowed because of stagnation in the industrial sector and a significant decline in the services sector. To some degree, this may be explained by the after-effects of the 2008/09 global financial crisis, which reduced the demand for goods (especially from European countries) and the level of

remittances to developing countries (UNCTAD, 2012). Remittances are a major driving force in the services sector, for example, construction and education.

Although agriculture remains the mainstay of the Rwandan economy, it accounts for a diminishing share of Gross Domestic Product (GDP). During the past 10 years, the share of GDP growth attributable to agriculture lagged behind that of the industrial and services sectors. Over the 2002-to-2011 period, agriculture GDP growth averaged 5%, compared with more than 10% for both industry and services.

Services contribute the largest share of GDP—averaging 44% from 2002 to 2011. The share contributed by industry rose slightly from 14% to 16%, while the share contributed by agriculture declined slightly from 35% to 32%. Around 85% of Rwandans are engaged in agriculture (National Institute of Statistics of Rwanda, 2012), which means that 32% of GDP employs 85% of the population.

³ The other countries among the World's 10 fastest-growing economies, based on annual average GDP growth from 2001 to 2010, are Angola, China, Myanmar, Nigeria, Ethiopia, Kazakhstan, Chad, Mozambique, and Cambodia (International Monetary Fund, 2011).

Table 1. Rate of economic growth and share of GDP, by industrial sector, Rwanda, 2002-2011

Industrial sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Annual GDP growth rate (%)										
Total GDP	13.2	2.2	7.4	9.4	9.2	7.6	11.1	6.2	7.2	8.6
Agriculture	16.9	-3.1	1.8	6.5	2.8	2.6	6.4	7.7	5	4.7
Industry	7.2	4.7	15.5	9.3	11.7	9	15.1	1.3	8.4	17.6
Services	11.6	6.9	10.2	11.9	13.3	12.2	13.8	6.3	9	8.9
Share of GDP (%)										
Agriculture	35.4	38.3	38.6	38.4	38.4	35.6	32.4	33.9	32.2	31.9
Industry	13.9	12.8	13.9	14.1	13.8	13.9	14.8	14.4	15	16.3
Services	44.1	42.4	41.2	41.4	42	44.6	46.4	45.5	46.7	45.6

Source: Rwanda Macroeconomic Variable dataset (28/06/2012 release)

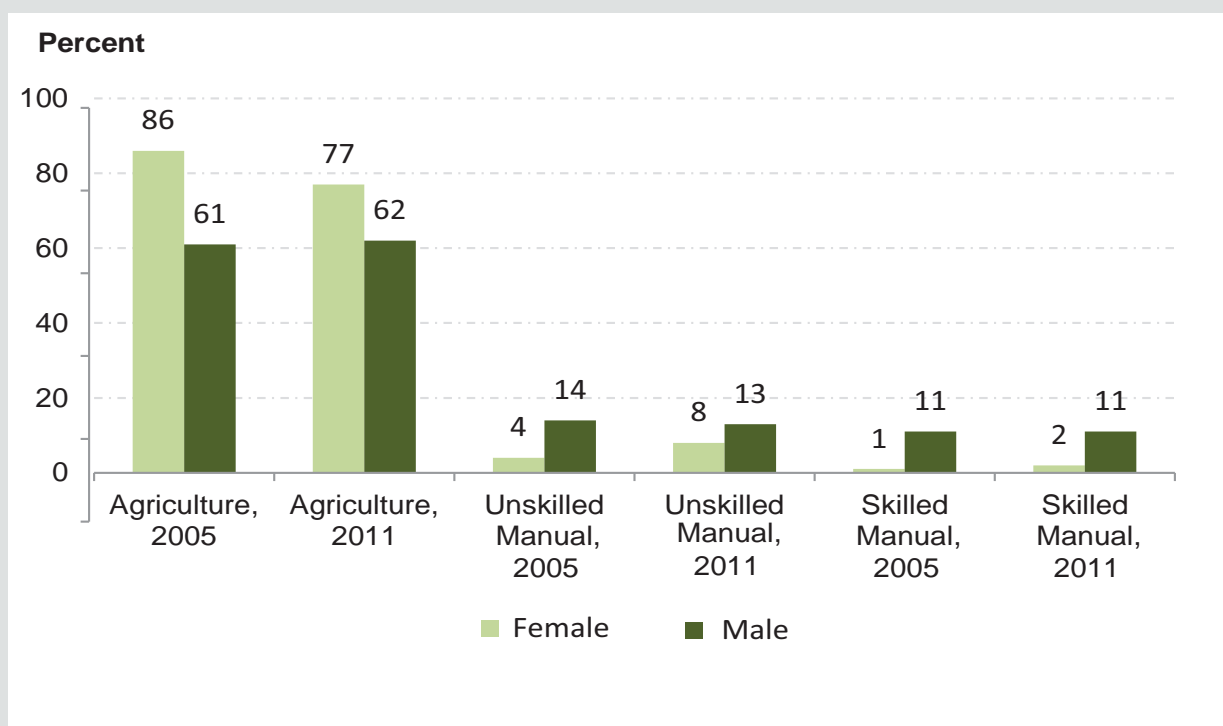
During the 2002-to-2011 period, changes in the structure of the economy were minimal. However, the characteristics of the labor market changed substantially, especially for women. The percentage of employed women aged 15 to 49 who were in agriculture fell from 86% in 2005/06 to 77% in 2010/11, while the percentage of employed men in agriculture remained relatively constant at 62% (Figure 1). At the

same time, the share of employed women working as unskilled or skilled manual laborers doubled from 5% to 10%. As well, the percentage of employed women who were unpaid family workers fell from 57% to 18%.

These shifts may be partly attributable to rising educational attainment. The Rwanda Demographic and Health Surveys (RDHS)

show that between 2005 and 2010, the percentage of 15- to 49-year-olds with no education declined from 23% to 17% among women and from 16% to 12% among men. Nonetheless, gender gaps in the labor market persist. For instance, in 2010, 19% of women received their earnings in cash, compared with 38% of men (National Institute of Statistics Rwanda, et al., 2012).

Figure 1. Percentage distribution, by gender and occupation, employed population aged 15 to 49, Rwanda, 2005/06 and 2010/11



Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

2.2. Youth and affirmative action

Given that a third of Rwandans-about 3.7 million individuals-are aged 15 to 34, youth employment is a critical policy issue. Youth employment rates are relatively high (for example, 71% for women and 91% for men aged 20 to 24 in 2010/11), but labor segmentation is pronounced. Young women are more likely than their male counterparts to work on family farms. For instance, in 2010/11, 74% of employed women aged 20 to 24 were in agriculture, compared to 55% of employed men. At the same time, rising school enrolment has meant that youth entering the labor market have higher educational attainment, and thus, are likely to seek different kinds of jobs. The percentage of women aged 15 to 34 with no education fell from 16% in 2005/06 to 4% in

2010/11; the corresponding drop among their male contemporaries was from 14% to about 5%.

Rwanda has a number of affirmative action programmes to address inequalities in access to economic opportunities. For example, the Vision 2020 Umurenge Programme (VUP) is both a cash transfer scheme and a public works programme (Ministry of Local Government, 2009). The programme is means-tested, targeting households in the lowest two ubudehe or poverty/consumption quintiles. Eligible households earn wages by working on community infrastructure projects. It is expected that the VUP will improve the welfare of households through increased consumption and asset and livestock acquisition.

Other examples of affirmative action pro-

grammers include:

- the Law on Matrimonial Regimes, Donations, Succession and Liberalities (1999), which guarantees the land rights of legally married women, ensures equal rights in inheritance by boys and girls, and requires spousal consent in any land transfer;
- the 2003 Constitution that earmarked at least 30% of posts in the public sector for women;
- the Organic Land Law (2005), which ensures equality among men and women in land ownership; and
- implementation of Organic Land Law through the land tenure regularization programme; initial assessments show that the law increased land ownership among married women (Ali et al., 2011).

2.3. Literacy

A key determinant of whether individuals can obtain jobs in the formal sector is their ability to read and write, that is, “literacy.” Those who are literate can easily acquire new skills, a critical ability in the current knowledge-driven economy—for instance, technologies such as mobile phones demand that users be literate. Furthermore, research shows that literate parents are more likely to keep children in school, which increases their lifetime earnings opportunities (UNESCO, 2008).

Some of the widest gender gaps in Rwanda are in educational attainment—especially, literacy status. For this analysis, literacy is defined as the ability to read and write “a letter or a simple note.” In 2010/11, 52% of women aged 15 to 64 were categorized as literate, compared with 62% of men.

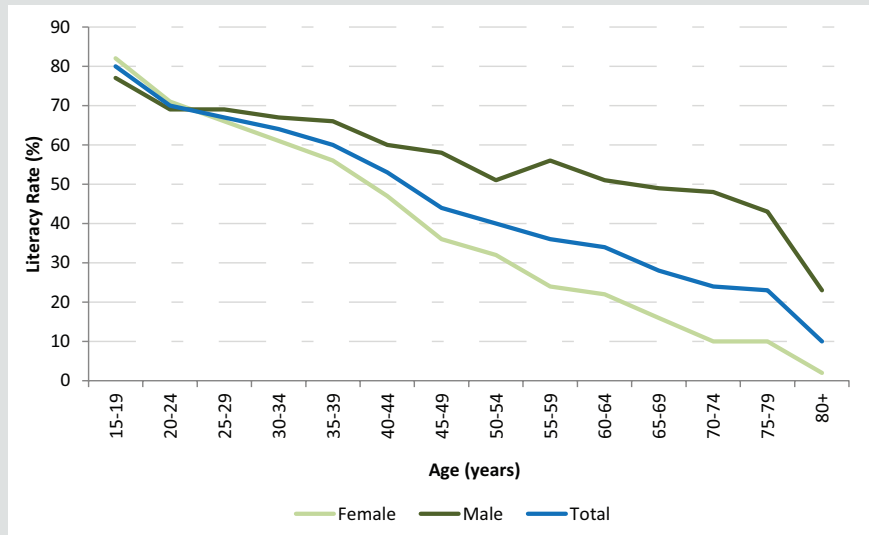
In the recent past, literacy rates have increased, and among 15- to 30-year-olds, the gap between males and females has disappeared (Figure 2). This reflected increased primary school enrolment.

On the other hand, at older ages, the percentage of women who are literate is less than that of men, and the gap widens with advancing age—for example, from 10 percentage points at ages 35 to 39 to 30 percentage points at ages 55 to 59.

Although programmers are needed to improve literacy among women aged 35 or older, if current education policies are

maintained, the gender disparity will disappear in the future.

Figure 2. Literacy rates, by gender and five-year age group, Rwanda, 2010/11



Source: Authors' calculations from the EICV3 2011 dataset

Literacy rates of women and men vary by occupational activity and rural-urban location. The occupational activities defined by the EICV3 are farm and non-farm wage and self-employment, and an unpaid worker category. The literacy rate was low among farm workers in 2010/11—about 20 percentage points below that of non-farm workers (Table 2). This suggests that literacy is key to non-agricultural self-employment. Gender differences in literacy rates by occupational activity were evident, particularly among the self-

employed. For instance, in agricultural self-employment, 55% of men compared with 35% of women were literate. Differences in literacy rates by rural-urban location were relatively small—urban residents' literacy rate was about 7 percentage points higher than that of their rural counterparts. Among youth, gender differences in literacy were minimal. The exception was non-agricultural self-employment where the difference between male and female youth was 7 percentage points.

Table 2. Literacy rates, by urban-rural location, occupational activity and gender, population aged 15 to 64 and 15 to 34, Rwanda, 2010/11

Urban-rural location and occupational activity	Working-age population (15 to 64)			Youth (15 to 34)		
	Total	Female	Male	Total	Female	Male
Total	56.3	51.5	62.2	67.3	66.4	68.3
Wage farm	44.6	42	48.1	54.3	54.2	54.5
Wage non-farm	62	62	62.1	66	66.9	65.7
Independent farmer	45.2	35.1	54.9	63.6	62	64.5
Independent non-farmer	66	59.3	73.1	74.2	70.7	77.9
Unpaid family worker	53.2	51.4	62.7	63.4	63.4	63.4
Urban	62.5	58.7	67.5	71.2	70.5	71.9
Wage farm	48.8	42.2	56.2	57.8	53.9	61.8
Wage non-farm	68	69.5	67.1	70.5	71.3	69.9
Independent farmer	43.1	36	56.4	72.2	71.4	73.2
Independent non-farmer	69.3	63.7	77.9	75.3	72	79.3
Unpaid family worker	57	55.2	68.6	67.5	67.5	67.5
Rural	55.5	50.7	61.6	66.7	65.8	67.8
Wage farm	44.3	42	47.5	54.1	54.2	54
Wage non-farm	60.4	58.5	60.9	64.6	64.6	64.6
Independent farmer	45.4	35	54.8	63.1	61.1	64.2
Independent non-farmer	65.3	58.2	72.3	74	70.4	77.6
Unpaid family worker	53	51.2	62.4	63.2	63.2	63.2

Source: Authors' calculations from 2005 EICV2 dataset.

2.4. Population structure

The demographic composition of a population has implications for employment. Appendix 1 shows population pyramids generated from the EICV2 and EICV3 for Rwanda's population overall and by rural-urban location. The broad bases of the pyramids indicate a high dependency ratio. Because women are responsible for child nurturing/caring, this population structure suggests that women's employment prospects will continue to be constrained by their reproductive and domestic roles⁴. Nonetheless, a slight reduction in overall dependency is evident, with the percentage of the population younger than 18 falling from 54% in

2005/06 to 52% in 2010/11. This is in line with trends in fertility, which decreased from 6.2 to 4.6 children per woman over the same period (National Institute of Statistics of Rwanda et al., 2012).

The structure of the population differs in rural and urban areas. The urban population is characterised by a "youth bulge"; that is, the 15-to-34 age group accounts for a larger share of the population in urban than rural areas. To some extent, this may be attributable to migration. According to the EICV3, 64% of youth in urban areas were migrants, compared with 38% of youth in rural areas⁵.

Between 2005/06 and 2010/11, the urban youth bulge remained stable, a demographic phenomenon that could have serious consequences. Unless Rwanda creates jobs for this population, the potential for civil unrest exists. As well, previous research has shown that the lack of urban employment opportunities may result in young girls being drawn into commercial sex work (Sommers 2012).

⁴ An analysis of time use in Rwanda showed that, in addition to market-based activities, women spend an average of about 20 hours per week on domestic responsibilities versus about 5 hours for men (National Institute of Statistics Rwanda, 2006).

⁵ The migration rates are based on the following survey question: "Have you always lived in this district?" Respondents were classified as migrants if they had not always lived in the district where they were interviewed.



3. Data sources and methods

3.1. Data sources

The main data sources are the two most recent national household surveys—Enquête Intégrale sur les Conditions de Vie des Ménages (EICV) (Integrated Household Living Conditions Survey)—conducted in 2005/06 and 2010/11 by the National Institute of Statistics of Rwanda with the assistance of Oxford Policy Management. The EICVs are multi-topic surveys modeled on the World Bank's living standards measurement surveys. They are based on two-stage stratified random sampling. In the first stage, the principal sampling unit is the enumeration area or zone de dénombrement (ZD), with the 2002 Rwanda Census as the sampling frame. The ZDs were chosen using the probability proportional to size procedure. In the second stage, households were the main sampling units, with an average of 12 households being randomly selected from each ZD/cluster.

The objective of the EICVs is to provide nationally representative data on incomes and household consumption, upon which national and subregion poverty estimates will be based. The EICV2 was conducted during June and September 2005. The EICV3, conducted over a full year from November 2010 through October 2011, was designed to capture seasonal effects in household incomes and consumption. The EICV2 covered 6,900 households from 620 ZDs; the EICV3 covered 14,308 households from 1,230 ZDs.

The surveys consisted of three modules: (1) household; (2) community; and (3) price. The household module captured the demographic characteristics of the household, educational attainment, access to health services, and employment. For household members aged 6 or older, the

employment section of the questionnaire gathered information on: employment status; desire to work and seeking work; occupation type; paid employment (nature of activity and wages); and participation in non-remunerated activities. All the above information was captured for the past 7 days and for the previous 12 months. The community module was administered to the Umudugudu (lowest village-level administrative unit) chairperson and captured availability of and access to infrastructure in the locality.

In the analysis, individual worker characteristics were matched to the household characteristics and to the characteristics of the community where the individual resided.

The EICVs are comprehensive, but they have shortcomings. For instance, from the EICV3, it is not possible to directly identify main sector of employment—agriculture, industry, or services—because, in 2010/11, information was collected on multiple jobs rather than only the main activity as in EICV2 in 2005/06. Main sector of employment can be derived from EICV3 data by using a combination of variables (for example, maximum number of hours worked on a particular job and job status), but the employment sectors generated with this method are not comparable to those collected directly in the EICV2. The EICV2 did not capture information on skill status, whereas the EICV3 directly captured occupational groups, which allows for the determination of the skill status of paid employees. Consequently, trend analysis of the skill status of employees is not possible.

3.2. Variables included in the analysis

Employment: The EICVs enquire about

the economic activity status of all usual and regular household members aged 6 or older during the past 12 months. Respondents aged 15 to 64 are classified as being employed if, during the past 12 months, they: cultivated their own farm; were in paid agricultural activity; worked for a salary or wages in the non-farm sector; ran a non-farm business for cash or profit; or participated in a Vision 2020 Uremenge Program (VUP) public works program.

Informal sector: Consistent with the International Labor Organization (ILO) definition, the informal sector is comprised of people who were self-employed, domestic workers or wage-earners who were not involved in professional or technical fields, and in addition, were not engaged in agricultural activities (ILO, 2000). This definition is consistent with the System of National Accounts (SNA 1993).

Demographics: The following household characteristics were considered in the analysis: gender, age, household composition (children aged 0 to 6; children aged 7 to 14; males aged 15 to 64; females aged 15 to 64; and people aged 65 or older), and migration status (whether individuals had moved to the district where they resided at the time of the interview). As earlier stated, youth refers to people aged 15 to 34, which accords with the official definition by the Government of Rwanda.

Socio-economic characteristics: Consumption expenditure is used as the household welfare measure. Previous studies have shown that income data for African countries are under-reported (McKay, 2000). Furthermore, given the seasonality of agricultural incomes in Rwanda, household consumption is a more stable measure of welfare status. However, the regression

analysis for employment outcomes includes variables relating to a household's non-agricultural income and the value of a household's agricultural equipment as covariates.

Other socio-economic characteristics used in the analysis pertain to educational attainment: the highest number of years of formal

education attained and four categories of attainment (no education, primary education, secondary education, and higher education). The education indicator represents accumulated human capital as well as skills acquired over time. The definitions of the major variables used for 2005 and 2010/11 are described in the table below.

Definitions of key variables used

	2005	2011
Employed	An individual is classified as employed if in the past 12 months she/he: (i) worked for wages; (ii) worked as an own account worker; (iii) was engaged in agriculture; or (iv) worked for no pay in household or external business.	An individual is classified as employed if in the past 12 months she/he: (i) cultivated own farm; (ii) engaged in a paid agricultural activity; (iii) worked for salary or wages in non-farm sector; (iv) ran a non-farm business for cash or profit ; or (v) participated in a voluntary works programme (VUP).
Employment -to-population ratio	Employed/Working-age population (15 to 64 years)	Employed/Working-age population (15 to 64 years)
Labor force	Working-age (15 to 64 years) individuals employed or unemployed (actively looking for a job or discouraged, that is, not looking for a job)	Working-age (15 to 64 years) individuals employed or unemployed (actively looking for a job or discouraged, that is, not looking for a job)
Unemployed	In the labor force without a job	In the labor force without a job
Unemployment rate	Unemployed/Labor force	Unemployed/Labor force

Source: EICV2, 2005 and EICV3, 2011

3.3 Determinants of employment

Following Cook (1998), a multinomial logit model is used to examine factors associated with employment outcomes in Rwanda, in particular: (i) employment in formal and informal sectors and agriculture, and (ii)

wage non-agriculture, and self-employment in non-agriculture and agriculture. Separate regressions for both categories of employment are estimated for women and men, and for urban and rural areas (Box 1). For each estimation, four employment outcomes are considered: (a) formal; informal; agriculture; and not employed; or (b) wage

non-agriculture; self-employment non-agriculture; agriculture; and not employed. For youth employment, the options are: (a) enrolled in school only; (b) work only; (b) work and school; and (d) doing nothing. Again, separate regressions are estimated for male and female youth, and for urban and rural areas.

Box 1. Model used for estimation of employment outcome

Consider an individual with m potential employment outcomes. Let Π_{jk} determine the probability that individual j ends up in employment outcome k (for example, non-farm wage employment). Let X_j represent the individual's characteristics (age, gender, asset ownership, migration status, household demographic composition and educational attainment), and let Z_{jk} be the characteristics of the k^{th} employment outcome for individual j . For the multinomial logit, for each of the m employment outcomes, the probability that individual j ends up in outcome k is given by

$$(1) \Pi_{jk} = \frac{\exp(\beta'_k X_j)}{\sum_{l=1}^m \exp(\beta'_l X_j)} = \frac{1}{\sum_{l=1}^m \exp[(\beta_l - \beta_k)' X_j]}$$

Where β_1, \dots, β_m are m vectors of the regression parameters. Equation 1 is estimated using the 2010/11 EICV3 dataset. Apart from being the most recent survey, the EICV3 covered a much larger sample over a full year, and so can capture seasonality and how it affects employment outcomes. Based on the above formulations, the marginal effects of X on the probability of employment outcome k are estimated as

$$(2) \frac{\partial \Pr(Y_i = k)}{\partial X_i} = \Pr(Y_i = k) \left[\beta_{k1} - \sum_{j=0}^k \Pr(Y_i = j) \beta_{j1} \right]$$

4. The Rwanda labor market

This section analyses employment outcomes in Rwanda and how these vary for women and men and for youth—employment rates, the extent and size of the informal sector, the skill status of employed people, and the earnings of those in paid employment.

4.1. Employment

Calculation of the employment rate (employment-to-population ratio)—the percentage of the population aged 15 to 64 who are working—is based on information about usual activity.

From 2005/06 to 2010/11, Rwanda's overall employment rate remained relatively stable at about 82% (Table 3). Women's rate was about 3 percentage points higher than men's in both 2005/06

and 2010/11. In fact, women accounted for more than half (55%) of the employed in 2005/06 (4.1 million) and 2010/11 (4.3 million).

The employment rate was lowest in the capital city, Kigali: 72% in 2005/06 and 75% in 2010/11. The highest rate was in the Northern region, rising from 84% in 2005/06 to 86% in 2010/11, followed by the Eastern region, where the rate fell from 85% to 82%.

In 2010/11, the regional distribution of the employed reflected that of the overall population. Kigali accounted for 10% of the employed population aged 15 to 64, and 9.8% of the general population. The Southern region's share of the employed population fell by about 3 percentage points between 2005/06 and 2010/11.

Given the high poverty rates in the Southern region, this decline may be attributable to migration from the Southern region to urban areas. Even so, employment rates remained more or less stable in the Southern region.

Growth in urban employment was largely driven by increased opportunities in Kigali—the area's share of urban employment rose by about 8 percentage points between 2005/06 and 2010/11.

In urban areas, women's employment rates were about 5 percentage points lower than men's. This may partly be because urban employment tends to require higher educational attainment, and the relatively low attainment of women puts them at a disadvantage.

Table 3. Employment rates and percentage distribution of employed, by rural-urban location, gender and region, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

Group	Employment-to-population ratio			Percentage distribution of employed		
	2011	2005	Change	2011	2005	Change
	(%)		(% points)	(%)		(% points)
National	81.6	82.4	-0.8	100	100	0
Gender						
Female	82.8	83.9	-1.1	54.5	54.9	-0.4
Male	80.1	80.7	-0.6	45.5	45.1	0.4
Region						
Kigali City	74.9	71.8	3.1	10.1	9.3	0.8
Southern Region	81.6	82.7	-1.1	23.4	26.1	-2.7
Western Region	80.9	83.3	-2.4	23.4	23.7	-0.3
Northern Region	85.9	84.3	1.6	19.3	17.9	1.4
Eastern Region	81.9	84.6	-2.7	23.8	22.9	0.9
Urban	75.6	73.1	2.5	15	15.8	-0.8
Gender						
Female	73.2	70.6	2.6	13.9	14.6	-0.7
Male	78.4	75.9	2.5	16.2	17.2	-1
Region						
Kigali City	73.7	69.9	3.8	57.1	49.4	7.7
Southern Region	79.2	80.3	-1.1	19.9	23.9	-4
Western Region	74.8	73.3	1.5	9.6	10.1	-0.5
Northern Region	80.2	70	10.2	7.3	9.2	-1.9
Eastern Region	79	79	0	7.3	-1.2	
Rural	82.7	84.4	-1.7	85	84.2	0.8
Gender						
Female	84.6	86.7	-2.1	86.1	85.4	0.7
Male	80.5	81.7	-1.2	83.8	82.8	1
Region						
Kigali City	82.2	83.7	-1.5	1.8	1.8	0
Southern Region	82	83.1	-1.1	24.1	26.4	-2.3
Western Region	81.4	84.4	-3	25.8	26.3	-0.5
Northern Region	86.3	85.8	0.5	21.4	19.6	1.8
Eastern Region	82.1	84.9	-2.8	26.9	25.9	1

Source: EICV2, 2005 and EICV3, 2011

Employment rates were much lower in urban than rural areas, although the overall urban rate increased from 73% in 2005/06 to 76% in 2010/11. The relatively low urban rates are attributable to widespread availability of agricultural employment in rural areas, and school attendance in urban areas, especially by 15- to 19-year-olds⁶. Indeed, urban employment rates were lowest among indi-

viduals aged 15 to 19 (Figure 4).

Urban employment rates were significantly lower among women than among men at ages 20 to 34, the prime child-bearing age range (at least 200 births per 1,000 women) (NISR et al., 2012). Thus, low employment among women of these ages may be due to the high cost of child care in urban areas. Women may stay at home to look after their children because

they cannot afford child care.

Women's employment rate peaks at ages 45 to 49, about 10 years later than the peak for men (35 to 39) (Figure 4). This, too, may be linked to the constraints imposed on women by reproductive responsibilities. They may not be able to fully participate in the labor market until their child care duties are completed.

Figure 4. Urban employment rates, by gender and age group, Rwanda, 2005/06 and 2010/11



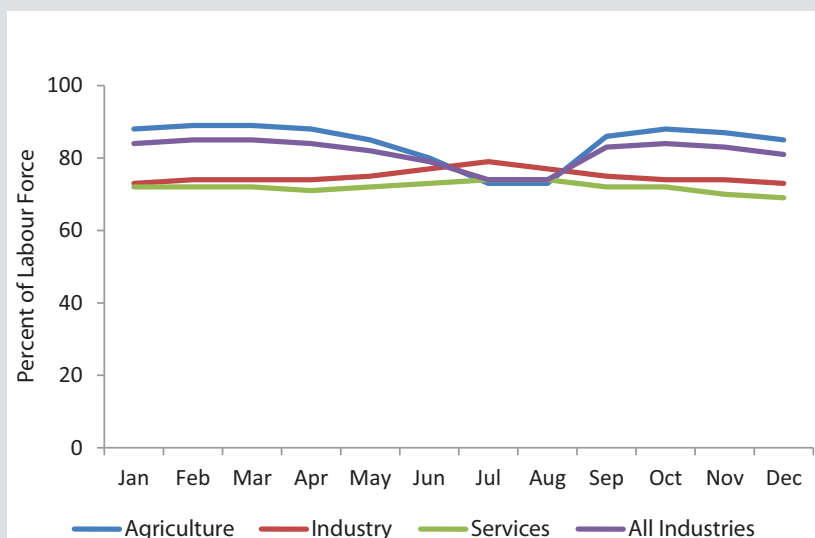
Source: Authors' calculations from EICV2, 2005 and EICV3, 2011

Seasonal variations in employment rates reflect the predominance of rain-fed agriculture. Rwanda's first agricultural season occurs during the September-to-January period; July-

August is usually characterized by minimal agricultural activity, and thus, lower employment rates. The EICV2 collected information on monthly employment during the previous year

(Figure 5). In 2005/06, employment rates for July and August were about 73%, compared with more than 85% in the other months.

Figure 5. Monthly employment rates, by occupational category, Rwanda, 2005/06



Source: Authors' calculations from EICV 2, 2005 dataset.

4.2. Wage versus non-wage employment

Although wage employment is a key determinant of economic transformation in agrarian settings (Timmer 1988), African countries typically have very low wage employment. The lack of job opportunities has a gender dimension, with women spending more time on non-remunerated activities than do their male counterparts. According to the 2013 WDR, at least 85% of women in SSA are in non-wage employment, compared with 75% of men (World Bank, 2012). In addition, youth are more likely than any other demographic category to be unpaid family workers.

While the majority of Rwandans are engaged in non-wage employment, the percentage fell sharply from 73% in 2005/06 to 64% in 2010/11 (Table 4). This decline was largely attributable to a sharp drop in the percentage of male workers in non-wage employment—from 68% to 51%—as men moved out of agricultural self-employment to wage non-farm

employment. By contrast, among female workers, non-wage employment fell by just 3 percentage points during this period.

Men accounted for 75% of the estimated 590,000 increase in the number of wage non-farm workers between 2005/06 and 2010/11. However, men made up only 44% of the estimated 477,000 workers who moved out of independent/agricultural self-employment. Women were disproportionately represented among the increase in the number of unpaid family workers. Specifically, the number of women aged 15 to 64 who were unpaid family workers rose by an estimated 350,000 during the 2005/06-to-2010/11 period, while the number of men decreased by an estimated 76,000.

These gender trends—a shift from agricultural self-employment to unpaid work for women and to non-farm wage employment for men—may be partly explained by rural-urban location. Among female workers in urban areas, the percentage engaged in agricultural self-employment

declined, while the percentage in wage non-farm employment rose; in rural areas, the percentage of women in the unpaid family worker category increased. In both urban and rural areas, the percentage of male workers who were in agricultural self-employment and unpaid family work declined, while the percentage in wage employment increased. Further analysis by sector of work and industry group indicates an increase in the percentage of male workers in private informal employment—predominantly construction and domestic services. Macroeconomic data support this finding, with growth in the construction industry averaging 23.5% during the 2005-to-2011 period (Rwanda Macroeconomic Dataset, 2012). This had little impact on women's employment, as most construction jobs entail high physical demands; only a few administrative, cleaning and other light jobs in the industry can be done by women.

However, the increase in female unpaid family labor should also be interpreted in the context of the demographic shift into employment by young individuals, gender roles in African countries, and changes in the way employment activities were captured between the EICV2 and the EICV3. With regard to the demographic transition, most of the increase in female unpaid labor is among youth, and research shows that most youth in Africa start out as unpaid family workers—assisting relatives in various income-generating activities or running errands (Chant and Jones, 2005). Given this pattern, the initial movement into unpaid family work may not be permanent, and young people may later be able to engage in income-generating activities. With regard to gender roles, young girls perform a variety of chores and may spend more time at gardening, water collection and child care than do their male counterparts. Finally, it is possible that women are engaged in unpaid labor in combination with other “mini” income generating activity, which information was not captured

in the EICV2 survey. In 2011, the EICV3 survey collected information on labor force status during the high and low seasons whereas in 2005, no similar information was collected. Indeed in the EICV3 survey, at least 50% individuals surveyed indicated having a secondary activity—during the high and low seasons. Consequently, the detailed nature of information collected in

2011 may also partly explain the changes in female unpaid labor force rates.

Although trends in youth employment generally followed those of overall employment, the increase in wage non-farm employment was greater for youth. For instance, the percentage of workers aged 15 to 34 in wage non-farm employment

increased by 15 percentage points between 2005/06 and 2010/11, compared with an 11-percentage-point increase for workers overall. The increase in youth employment was predominantly in domestic services and construction.

⁶ In 2010/11, the 15- to-19 age group accounted for 20% of the working-age population (15 to 64).

Table 4. Distribution of employed, by gender, occupational activity, youth status and rural-urban location, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

	Total			Female			Male		
	2011 (%)	2005	Change (% points)	2011 (%)	2005	Change (% points)	2011 (%)	2005	Change (% points)
Total National	100	100	-	100	100	-	100	100	-
Wage farm	12.5	13.9	-1.4	13.0	15.1	-2.1	12.0	12.6	-0.7
Wage non-farm	23.6	12.5	11.1	12.3	7.3	5.0	37.2	18.6	18.6
Independent farmer	21.7	35.9	-14.3	18.6	32.4	-13.8	25.3	40.2	-14.9
Independent non-farmer	13.0	10.8	2.2	11.5	9.9	1.6	14.7	11.9	2.8
Unpaid family worker	29.2	26.8	2.4	44.6	35.3	9.3	10.9	16.5	-5.6
Youth (15 to 34)									
Wage farm	12.8	15.0	-2.2	13.3	15.9	-2.6	12.3	13.9	-1.6
Wage non-farm	27.9	12.7	15.2	16.2	8.1	8.1	41.4	18.3	23.1
Independent farmer	11.9	25.8	-13.9	8.6	23.2	-14.6	15.7	28.9	-13.2
Independent non-farmer	13.3	11.8	1.5	12.2	10.7	1.5	14.5	12.8	1.7
Unpaid family worker	33.9	34.8	-0.9	49.6	42.1	7.5	16.1	26.2	-10.1
Urban									
Wage farm	5.4	6.4	-1.0	5.9	6.8	-0.9	4.8	6.1	-1.3
Wage non-farm	49.4	37.1	12.3	36.1	22.6	13.5	63.1	52.3	10.8
Independent farmer	11.0	20.9	-9.9	13.8	26.8	-13.0	8.2	15.3	-7.1
Independent non-farmer	20.8	19.0	1.8	22.0	19.3	2.7	19.6	18.7	0.9
Unpaid family worker	13.4	16.5	-3.1	22.2	24.4	-2.2	4.3	8.7	-4.4
Youth (15 to 34)									
Wage farm	5.0	6.5	-1.5	5.2	6.8	-1.6	4.9	6.1	-1.2
Wage non-farm	55.6	37.7	17.9	44.6	25.1	19.5	66.6	49.8	16.8
Independent farmer	5.1	15.3	-10.2	6.5	20.1	-13.6	3.7	10.6	-6.9
Independent non-farmer	19.2	19.2	0.0	19.7	18.7	1.0	18.7	19.7	-0.9
Unpaid family worker	15.1	21.4	-6.3	23.9	29.3	-5.4	6.2	13.8	-7.6
Rural									
Wage farm	13.8	15.2	-1.4	14.2	16.3	-2.1	13.3	13.8	-0.5
Wage non-farm	19.1	8.5	10.6	8.4	5.1	3.3	32.2	12.7	19.5
Independent farmer	23.5	38.4	-14.8	19.4	33.2	-13.8	28.6	44.9	-16.3
Independent non-farmer	11.6	9.5	2.1	9.9	8.5	1.3	13.7	10.6	3.1
Unpaid family worker	32.0	28.5	3.5	48.2	36.9	11.3	12.2	18.0	-5.8
Youth (15 to 34)									
Wage farm	14.3	16.4	-2.1	14.7	17.4	-2.7	13.8	15.3	-1.5
Wage non-farm	22.7	8.6	14.2	11.2	5.5	5.7	36.2	12.3	23.9
Independent farmer	13.2	27.6	-14.4	9.0	23.7	-14.7	18.2	32.3	-14.1
Independent non-farmer	12.2	10.4	1.8	10.9	9.5	1.4	13.7	11.5	2.2
Unpaid family worker	37.6	37.1	0.5	54.1	44.0	10.1	18.2	28.6	-10.4

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

The EICVs collected data on wages for all employed persons. Wages paid for short durations (for example, daily or weekly) were converted into a monthly amount. Median values are presented rather than average values, which vary widely with age, education, and work experience.

In 2010/11, the median monthly salary for men was RWF 22,000, compared with RWF 13,200 for women (Table 5). Moreover, between 2005/06 and 2010/11, the gender pay gap widened—from a percentage difference of about 33% to 67%.

Table 5. Median monthly wages, by gender, occupation category, employment sector and education, Rwanda, 2005/06 and 2010/11

	Total			Youth (15 to 34)		
	2011 RWF	2005	Average annual % change	2011 RWF	2005	Average annual % change
Total	18,000	6,600	34.5	20,000	7,200	35.6
Female	13,200	6,600	20.0	15,400	6,600	26.7
Male	22,000	8,800	30.0	22,000	8,800	30.0
Occupation category						
Wage farm	11,000	6,600	13.3	11,000	6,600	13.3
Female	11,000	6,600	13.3	11,000	6,600	13.3
Male	13,200	6,600	20.0	13,200	6,600	20.0
Wage non-farm	27,000	16,200	13.3	26,000	15,400	13.8
Female	25,000	13,400	17.3	25,000	15,000	13.3
Male	28,600	19,000	10.1	26,400		13.0
Public	42,000	23,000	16.5	38,800	22,500	14.5
Female	39,980	15,000	33.3	36,725	20,000	16.7
Male	44,000	26,000	13.8	39,925	23,000	14.7
Private (formal)	33,000	15,400	22.9	33,000	15,000	24.0
Female	25,000	13,200	17.9	26,400	13,200	20.0
Male	33,000	20,000	13.0	33,000	15,000	24.0
Private (informal)	15,000	6,600	25.5	15,400	6,600	26.7
Female	12,100	6,600	16.7	13,200	6,600	20.0
Male	17,600	6,600	33.3	19,800	6,600	40.0
Education						
None	13,200	6,600	20.0	13,200	6,600	20.0
Primary	16,000	6,600	28.5	17,000	6,600	31.5
Secondary	44,000	27,000	12.6	40,000	22,600	15.4
Postsecondary	220,000	111,000	19.6	182,000	67,000	34.3
Female						
None	11,000	6,600	13.3	11,000	6,600	13.3
Primary	13,200	6,600	20.0	13,200	6,600	20.0
Secondary	39,400	24,000	12.8	35,500	21,600	12.9
Postsecondary	170,000	70,000	28.6	150,000	64,000	26.9
Male						
None	15,400	6,600	26.7	17,200	6,600	32.1
Primary	20,000	8,800	25.5	21,000	8,800	27.7
Secondary	50,000	30,000	13.3	44,000	23,000	18.3
Postsecondary	267,900	126,000	22.5	200,000	96,000	21.7

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011

People with postsecondary education received the highest pay, but gender gap was widest for individuals with postsecondary attainment.

Nonetheless, between 2005/06 and 2010/11, the gender wage gap increased for all educational attainment groups except those with postsecondary education, among whom the difference narrowed.

The overall widening of the gender wage gap may be partly explained by men's higher educational attainment (Figure 2), and consequently, better jobs. However, wage gaps related to gender cannot be solely attributed to women's lower educational attainment. Studies in other developing countries suggest that discrimination may be a factor (Appleton et al., 1999).

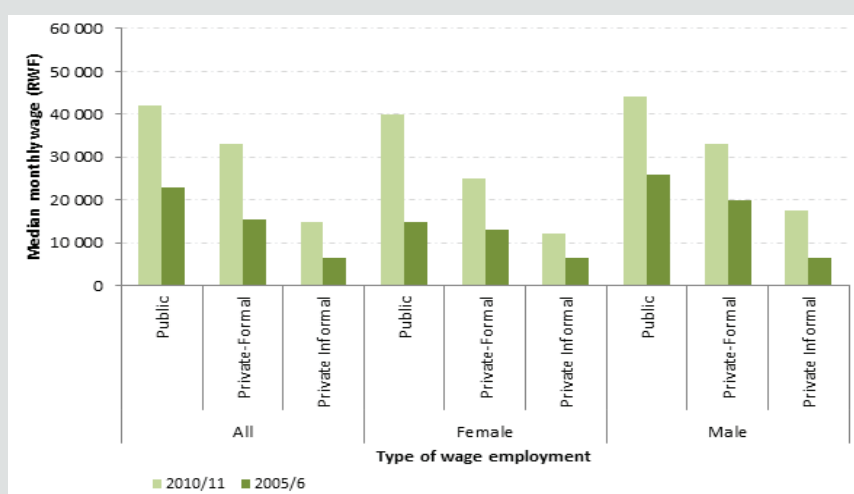
Youth wages were relatively high—the median salary of 15- to 34-year-olds was about 10% more than that of the general population (Table 5). These differences were driven mainly by female earnings, since the median wages for male youth and men overall were the same. But when educational attainment was taken into account, youth wages were, on average, about 10% less than those of the general population. In the wage-farm category, the monthly median for youth was the same as for the general population—RWF 11,000 in 2010/11. However, in this category, gender gaps emerged; in 2005/06, median wages for youth were nearly the same regardless of gender, but by 2010/11, male youth earned about 20% more than did their female counterparts. At lower levels of education, median wages for youth were the same as those for the general population, but among people with secondary or

postsecondary education, median wages for youth were lower.

In the public sector, median wages were 27% higher than those in the private formal sector and more than double those in the private informal sector (Figure 6). In 2010/11, the median monthly wage in the public sector was RWF 42,000, compared with RWF 33,000 in the private formal

sector and RWF 15,000 in the informal sector. Yet even in the public sector, a gender wage gap was apparent—in 2010/11, the median female monthly wage was about 10% lower than the male wage. This may reflect the relatively small number of women with public sector employment and the tendency for men to occupy most of the high-paying managerial jobs.

Figure 6. Average monthly wages, by gender and type of wage employment, Rwanda, 2005/06 and 2010/11



Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

4.3. Informal sector employment

The informal sector generally has lower productivity than the formal sector (World Bank, 2012). Table 6 disaggregates wage employment into agricultural and non-agricultural and into public, private-formal and private-informal.

An estimated 1.25 million Rwandans were employed in the informal sector in 2010/11—an increase of about 6 percentage points over 2005/06. And while

employment rose in both the formal and informal sectors, the increase was much faster in the informal sector, especially for men. As noted above, this appears to be driven by construction.

In 2010/11, close to a third (32%) of male workers were in private informal wage employment, compared with 18% of female workers. The share of male workers in informal wage employment rose by 11 percentage points between 2005/06 and 2010/11, compared with an increase of less than 2 percentage-points for women.

Table 6. Distribution of employed, by wage/non-wage, gender, industry and sector, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

	%			Thousands		
	2010/11	2005/06	Change (% points)	2010/11	2005/06	Change
National						
Wage	34.7	25.3	9.4	1,769	1,440	329
Agricultural	12.1	13.4	-1.3	618	763	-145
Non-agricultural	22.5	11.9	10.6	1,151	677	474
Public	4.0	3.2	0.8	206	162	44
Private-Formal	6.0	3.2	2.7	304	167	137
Private-Informal	24.7	18.8	5.8	1,259	1,111	148
Non-wage	65.4	74.7	-9.3	3,335	3,590	-256
Self-employment	36.5	47.8	-11.3	1,865	2,298	-433
Family worker	28.8	26.9	1.9	1,470	1,293	177
Female						
Wage	24.2	21.2	3.0	650	578	72
Agricultural	12.5	14.3	-1.9	182	390	-208
Non-agricultural	11.8	6.9	4.9	387	188	199
Public	2.7	2.2	0.5	74	54	20
Private-Formal	3.1	2.2	0.9	84	56	28
Private-Informal	18.3	16.8	1.5	492	467	25
Non-wage	75.8	78.8	-3.0	2,036	2,029	7
Self-employment	32.6	43.4	-10.8	877	1,117	-241
Family worker	43.2	35.3	7.9	1,159	909	250
Male						
Wage	47.3	30.1	17.2	1,092	862	230
Agricultural	11.7	12.3	-0.6	269	352	-83
Non-agricultural	35.6	17.8	17.8	823	510	313
Public	5.6	4.5	1.1	129	128	2
Private-Formal	9.4	4.5	4.9	216	128	88
Private-Informal	32.4	21.2	11.2	747	607	140
Non-wage	52.7	69.9	-17.2	1,218	1,562	-344
Self-employment	41.2	53.1	-11.9	953	1,186	-234
Family worker	11.5	16.8	-5.3	265	375	-110
Youth (15 to 34)						
Wage	43.8	25.9	17.9	568	379	189
Agricultural	14.0	15.9	-1.9	182	232	-50
Non-agricultural	29.8	10.0	19.8			
Public	3.0	1.9	1.0	38	28	10
Private-Formal	6.1	2.2	3.9	79	33	47
Private-Informal	34.7	21.8	13.0	451	318	132
Non-wage	56.2	73.5	-17.3	728	1,052	-324
Self-employment	17.3	27.7	-10.4	224	396	-172
Family worker	38.9	46.4	-7.5	504	664	-160
Female						
Wage	34.6	23.1	11.5	236	205	31
Agricultural	13.7	16.6	-2.9	93	147	-54
Non-agricultural	20.9	6.5	14.4	142	58	85
Public	2.6	1.6	1.0	17	15	3
Private-Formal	4.4	2.1	2.3	30	19	11

Private-Informal	27.6	19.4	8.2	188	171	17
Non-wage	65.4	76.9	-11.5	445	656	-211
Self-employment	16.4	26.3	-9.9	112	224	-113
Family worker	49.1	50.6	-1.5	334	432	-98
Male						
Wage	54.1	29.5	24.7	332	223	110
Agricultural	14.4	15.2	-0.8	88	115	-27
Non-agricultural	39.7	14.1	25.6	244	107	138
Public	3.4	2.3	1.1	21	18	3
Private-Formal	8.0	2.4	5.7	49	18	31
Private-Informal	42.7	24.7	17.9	262	187	75
Non-wage	45.9	70.6	-24.7	283	396	-113
Self-employment	17.4	29.3	-11.9	107	164	-57
Family worker	28.5	41.3	-12.8	176	231	-56

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

Although the estimated number of women in wage employment increased from 580,000 in 2005/06 to 650,000 in 2010/11, the male-female gap widened. Women's wage employment increased by 3 percentage points (from 21% to 24%), compared with 17 percentage points for men (from 30% to 47%). In 2010/11, 76% of female workers were in non-wage employment, compared with 53% of male workers. Moreover, the percentage of employed women who were unpaid family workers rose from 35% in 2005/06 to 43% in 2010/11; the figure for men dropped from 17% to 12%.

At the same time, the number of women in the public sector increased from 54,000 to 73,600, while the number of men remained fairly constant at 129,000 (Table 6). As a result, the female share of public sector workers rose from 30% to 36%. Nonetheless, the estimated number of unpaid family workers increased from 1.3 to 1.4 million because of growing numbers of women among the unpaid ranks⁷. The female share of unpaid family workers increased by more than 10 percentage points to 81 % in 2010/11.

The estimated number of people in non-wage employment fell from 2.3 million in 2005/06 to about 1.9 million by 2010/11.

This was driven by a decline in the number of workers in agriculture and an increase in informal sector wage employment, especially among men. Youth made up the bulk of male unpaid family workers—in 2005/06, 62% of all unpaid male family workers were aged 15 to 24; by 2010/11, the figure had risen to 66%. By contrast, most female unpaid family workers (72%) were aged 25 or older.

4.4. Skill status of wage employees

The 2010/11 EICV3 categorized respondents in wage employment by major occupation group: managerial/professional, skilled labor⁸, and unskilled labor. A third of Rwandans were in wage employment in 2010/11, the majority of whom (53%) were unskilled.

Although the percentage of employed men who were unskilled was higher than the percentage of women (59% versus 37%), this should be interpreted in the context of greater male representation in wage employment. The share of men in wage employment was nearly double that of women (47% compared with 24% in 2010/11). A lower percentage of employed men than women had managerial/pro-

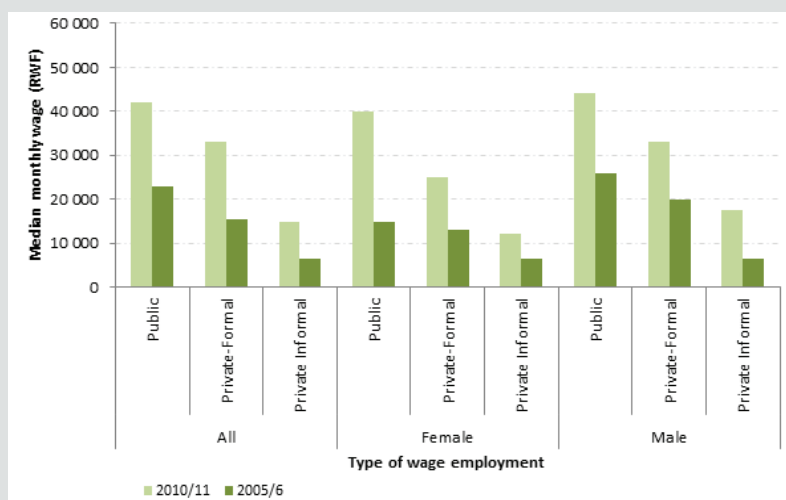
fessional (7% compared with 14%) or skilled jobs (34% compared with 49%). The higher percentage of managerial/professional and skilled jobs among women may be a reflection of the relatively few women in paid employment, rather than women having better skills. In fact, employed women were highly concentrated in unpaid family work (49% in 2010/11).

A relatively high percentage of youth in wage employment, particularly women, were skilled. Among women in wage employment, 64% of youth (ages 15 to 34) were skilled, compared with 49% overall. More than a third of all youth in wage employment were women, whereas just 27% of all people in paid employment were women. This suggests that the higher education of young women may be helping them to obtain wage employment.

⁷ The EICV2 and EICV3 asked all employed respondents their occupation category: (i) wage farm; (ii) wage non-farm; (iv) independent farmer; (iv) in dependent non-farmer; (vii) unpaid worker. For this study, unpaid family workers could be farm or non-farm.

⁸ Skilled labour includes office clerks and people involved in commerce and sales; unskilled labour includes artisans, and agricultural and fisheries workers.

Figure 7. Occupational distribution of paid workers aged 15 to 64, by gender, Rwanda, 2010/2011



Source: Authors' calculations from EICV3, 2011 dataset

4.5. Education and employment

Employment rates were high among Rwandans with little or no education (Table 7). In 2010/11, more than 96% of those with no education and 85% with

primary education were employed, compared with 55% and 65% of people with secondary and postsecondary education, respectively. As noted earlier, those with higher education tend to stay in school longer and to engage in a more selective job search. The very low

employment rate among youth with higher education (about 30%) is testament to this fact.

Nonetheless, employment rates among individuals with postsecondary education were higher than those among people with only secondary education. This may reflect high demand for and scarcity of highly skilled workers. In 2010/11, just 2.3% of individuals (1.6% of women and 3.1% of men) had postsecondary education.

In 2010/11, 22% of employed Rwandans (26% of women and 17% of men) had no education; the percentage is down from 26% in 2005/06 (Table 7). Another two-thirds had primary education, and the remaining 13% had secondary or postsecondary education. Between 2005/06 and 2010/11, the percentage of employed women and men with at least secondary education increased from 27% to 32% in urban areas and from 6% to 10% in rural areas.

Table 7. Employment rates and distribution of employed, by educational attainment, gender and rural-urban location, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

Educational attainment, gender, rural-urban location	Employment-to-population ratio			Percentage distribution		
	2011	2005	Change	2011	2005	Change
	(%)		(% points)	(%)		(% points)
Total employment	81.6	82.4	-0.8	100	100	0
National						
None	95.9	93.1	2.8	21.9	26.5	-4.6
Primary	84.9	84.1	0.8	65.2	64.1	1.1
Secondary	54.9	55.7	-0.8	10.7	8.7	2
Postsecondary	66.4	65.3	1.1	2.3	0.8	1.5
Female						
None	96.7	94.9	1.8	25.6	30.5	-4.9
Primary	86.1	84.8	1.3	63.6	61.6	2
Secondary	51.6	54.5	-2.9	9.2	7.5	1.7
Postsecondary	62.7	61	1.7	1.6	0.5	1.2
Male						
None	94.3	90.2	4.1	17.4	21.6	-4.2
Primary	83.5	83.4	0.1	67.1	67.2	-0.1
Secondary	58.1	56.8	1.3	12.5	10.1	2.4
Postsecondary	69	67.6	1.4	3.1	1.2	1.9
Youth						
None	90.6	87.2	3.4	10.5	16.8	-6.3
Primary	67.2	71.7	-4.5	76.8	77.5	-0.7
Secondary	28.4	24.2	4.2	11.7	5.5	6.2
Postsecondary	29.3	25.7	3.6	1	0.2	0.8
Female						
None	89.2	88.2	1	10.3	16.8	-6.6
Primary	69.1	72.8	-3.7	78.1	78.1	0
Secondary	26.4	23.9	2.5	10.8	4.9	5.9
Postsecondary	30.8	24.7	6.1	0.9	0.2	0.7
Male						
None	92.2	86	6.2	10.8	16.8	-6.1
Primary	65.1	70.4	-5.3	75.4	76.8	-1.4
Secondary	30.6	24.3	6.3	12.7	6.2	6.5
Postsecondary	28.1	26.7	1.4	1.1	0.2	0.9
Urban						
None	90.6	83.4	7.2	11.8	15.6	-3.8
Primary	83.8	78.4	5.4	56.2	58.5	-2.3
Secondary	58.3	58.3	0	22.6	21.6	1
Postsecondary	70.8	67.7	3.1	9.4	4.2	5.2
Female						
None	89.3	81.9	7.4	14.5	18.3	-3.8
Primary	81.8	76.6	5.2	57.5	58.2	-0.8
Secondary	52.6	53.1	-0.5	20.3	20.4	-0.1
Postsecondary	67	63.9	3.1	7.8	3.1	4.7
Male						
None	92.9	85.6	7.3	9	12.8	-3.8
Primary	86.1	80.3	5.8	54.9	58.8	-3.9
Secondary	64	64.2	-0.2	25.1	22.9	2.1

Postsecondary	73.9	70.1	3.8	11	5.4	5.6
Rural						
None	96.3	94.3	2	23.6	28.5	-4.9
Primary	85	85.2	-0.2	66.7	65.2	1.6
Secondary	53.5	54.2	-0.7	8.6	6.2	2.4
Postsecondary	60.3	52.6	7.7	1	0.1	0.9
Female						
None	97.4	96.4	1	27.4	32.6	-5.1
Primary	86.7	86.3	0.4	64.6	62.2	2.4
Secondary	51.2	55.6	-4.4	7.4	5.3	2.1
Postsecondary	55.4	17.8	37.6	0.6	0	0.6
Male						
None	94.5	90.8	3.7	19	23.4	-4.4
Primary	83.1	83.9	-0.8	69.4	68.9	0.5
Secondary	55.7	52.9	2.8	10.1	7.5	2.6
Postsecondary	63.2	58.4	4.8	1.5	0.3	1.3

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

A relatively low percentage of employed youth—10%—had no education. Nonetheless, about 75% had only primary education, a situation that may affect their chances of securing wage employment, particularly in the public and formal sectors.

4.6. Unemployment and underemployment

4.6.1. Unemployment

In this study, the unemployment rate is defined as the percentage of the labour force aged 15 to 64 who were not employed in the reference period (12 months in the

EICVs) and who were looking for work. Unemployment is a challenge in urban areas, where, in 2010/11, 14% of women and 6% of men classified as unemployed; Kigali had the highest rate—almost 12% (Table 8).

Youth unemployment rates were similar for men in urban and rural areas, but slightly higher for women in urban areas. People with postsecondary education and those in the highest and lowest expenditure quintiles had relatively high unemployment rates.

Between 2005/06 and 2010/11, overall

unemployment fell from 5.7% to 4.2%. Most of the reduction was attributable to job creation in urban areas, especially jobs for men. In urban areas, the male unemployment rate decreased by about a third, compared with a marginal increase of 0.5 percentage points in the female rate.

The largest decline in unemployment was among people with postsecondary education, notably men, whose rate dropped from 17% to 4%. This suggests that most of the new jobs went to men, and it is partly linked to the nature of the jobs created—physical jobs that favoured men.

Table 8. Unemployment rates, by gender, rural-urban location, youth status, educational attainment, region and expenditure quintile, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

Group		Unemployment rate by group (%)		
		2010/2011	2005	Change
Total		4.2	5.7	-1.5
	Female	3.9	4.3	-0.4
Urban	Male	4.5	7.3	-2.8
		10.0	15.8	-5.8
Rural	Female	14.1	13.6	0.5
	Male	5.8	18.0	-12.2
Youth		3.1	3.6	-0.5
	Female	2.2	2.5	-0.3
Urban	Male	4.3	5.1	-0.8
		4.6	5.5	-0.9
Rural	Female	5.3	4.6	0.7
	Male	3.9	6.4	-2.5
Youth		11.7	15.3	-3.6
	Female	17.7	16.9	0.8
Urban	Male	5.7	13.8	-8.1
		3.1	3.1	0.0
Rural	Female	2.7	2.4	0.3
	Male	3.5	3.9	-0.4
Education	None	4.3	8.4	-4.1
	Primary	3.5	4.5	-1.0
	Secondary	7.6	13.2	-5.6
	Postsecondary	4.9	16.5	-11.6
	Female			
	None	3.3	3.5	-0.2
	Primary	3.1	3.2	-0.1
	Secondary	10.4	13.2	-2.8
	Postsecondary	6.9	15.3	-8.4
	Male			
	None	5.9	8.2	-2.3
	Primary	4.1	5.9	-1.8
	Secondary	5.2	13.4	-8.2
	Postsecondary	3.8	16.9	-13.1
Region	Kigali City	12.3	16.1	-3.8
	Southern Region	3.9	5.7	-1.8
	Western Region	3.4	4.7	-1.3
	Northern Region	2.9	3.1	-0.2
	Eastern Region	2.8	3.8	-1.0
Poverty Status	Poorest	5.0	6.5	-1.5
	2nd	3.3	5.2	-1.9
	3rd	2.8	3.3	-0.5
	4th	2.8	4.6	-1.8
	Richest	6.6	8.2	-1.6

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

Unemployment rates were highest among people with secondary education—8% in 2010/11, compared with 5% among people with post-secondary education (Table 8). The rate among women with secondary education was especially high. These results may reflect the tendency for

people with lower educational attainment, especially women, to be employed in subsistence agriculture or unpaid family work.

The high unemployment in urban areas merits more detailed analysis. Urban

unemployment rates decline with age, but rise sharply after age 50 (Table 9). Between 2005/06 and 2010/11, the rates declined substantially among men while young women registered increases in urban unemployment rates.

Table 9. Urban unemployment, by gender, age group and educational attainment, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

Education Level	Females			Males		
	2011	2005	% Change	2011	2005	% Change
15 - 20 years						
Total	28.6	17.8	10.8	12.5	27.6	- 15.1
None	31.7	14.4	17.3	13.2	29.9	- 16.7
Primary	15.1	9.0	6.1	7.2	23	- 15.8
Secondary	46.5	40.8	5.7	19.1	36.6	- 17.5
Postsecondary
21 - 30 years						
Total	20.7	17.8	2.9	6.5	16.1	- 9.6
None	14.5	11.3	3.2	0	9.9	- 9.9
Primary	14.4	13.2	1.2	2.6	12.1	- 9.5
Secondary	32.9	28.9	4.0	12.6	23.2	- 10.6
Postsecondary	16.9	11.6	5.3	9.2	27.7	- 18.5
31 - 50 years						
Total	7.3	9.6	- 2.3	4.2	15.9	- 11.7
None	5.9	9.6	- 3.7	10.6	35.6	- 25.0
Primary	6.9	7.5	- 0.6	4.3	12.6	- 8.3
Secondary	10.3	12.4	- 2.1	2.7	12.9	- 10.2
Postsecondary	4.5	18.8	- 14.3	2.5	11.2	- 8.7
51 - 64 years						
Total	11.2	21.5	- 10.3	10.3	28.9	- 18.6
None	13.3	16.1	- 2.8	10.1	10.6	- 0.5
Primary	7.7	24.3	- 16.6	7.1	34.4	- 27.3
Secondary	16.4	26.4	- 10.0	15.9	40.4	- 24.5
Postsecondary	0.0	79.2	- 79.2	14.1	11.7	2.4

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

4.6.2. Underemployment

Although unemployment rates in Rwanda are relatively low, underemployment rates are high. The underemployment rate is the percentage of people aged 15 to 64 who are seeking additional or new employment. This is important in low-income countries where a majority of workers may be in non-wage employment.

Half (48%) of 15- to 64-year-olds reported that they sought additional work in 2010/11,

up from 46% in 2005/06 (Table 10). But although more people may have been working below their potential, Rwanda's underemployment rates are similar to those in other African countries. For instance, the World Bank (2009) reported underemployment rates as high as 60% in countries such as Mauritania.

Trends in underemployment varied considerably for different groups. The increase was greatest among people with postse-

condary education (7 percentage points). And while the rate rose by 19 percentage points in the Northern region, it declined about 16 percentage points in the Southern region. As expected, employed people had substantially higher underemployment rates than did the general population in 2010/11: 58% versus 48%. Underemployment rose an average of 4 percentage points among all classes of workers except self-employed farmers, among whom the rate increased by less than 2 percentage points.

Table 10. Underemployment rate, by labour force status, gender, rural-urban location, educational attainment, region and occupational activity, population aged 15 to 64, Rwanda, 2005/06 and 2010/11

Rural-urban location, educational attainment, region, occupational activity	Population aged 15 to 64			Youth (population aged 15 to 34)		
	Total	Female	Male	Total	Female	Male
	2010/11	2005	2010/11	2005	2010/11	2005
Total	48.2	45.9	46.0	42.6	50.7	49.6
Urban	46.3	49.0	45.5	47.3	47.2	51.0
Rural	48.5	45.2	46.1	41.7	51.4	49.4
Educational attainment						
None	49.3	45.8	44.5	41.0	57.4	53.6
Primary	53.2	48.4	51.4	44.9	55.2	52.3
Secondary	31.4	34.6	30.2	35.4	32.6	34.0
Postsecondary	41.0	34.2	37.3	32.0	43.5	35.3
Region						
Kigali City	46.7	42.3	45.5	41.8	48.1	42.9
Southern region	42.8	58.4	38.8	53.7	47.4	64.2
Western region	53.7	45.7	53.4	41.9	54.2	50.0
Northern region	55.0	36.1	52.4	33.2	57.9	39.5
Eastern region	43.4	41.1	40.9	38.4	46.3	44.2
	Employed					
Total	57.5	54.1	53.8	48.9	61.9	60.4
Occupational activity						
Wage farm	65.1	60.9	62.8	55.5	68.0	68.6
Wage non-farm	59.7	55.7	55.6	52.3	61.3	57.3
Independent farmer	55.0	53.4	44.9	47.0	63.9	59.6
Independent non-farmer	58.5	54.4	60.6	51.5	56.7	57.3
Unpaid family worker	53.9	50.6	52.7	46.4	59.8	61.5

Note: Underemployment rate is share of people seeking additional or new employment.

Source: Authors' calculations from EICV2, 2005 and EICV3, 2011 datasets

In 2010/11, women's underemployment rate was lower than men's: 46% versus 51%. However, between 2005/06 and 2010/11, women's rate rose more than 4 percentage points, compared with an increase of less than 1 percentage point among men. Gender differences were also apparent by occupational activity. Rates increased among women who were wage farm workers or unpaid family workers, but among men in these occupational classes, underemployment declined slightly. However, in the independent farmer class, underemployment among women fell 2 percentage points, but rose 4 percentage points among men.

People aged 15 to 34 had much higher underemployment rates than did the population aged 15 to 64 overall: 63% versus 58% in 2010/11. The gaps between youth and the general population were much wider for women (almost 8 percentage points) than for men (close to 4 percentage points). Trends in youth underemployment mirrored those of the general population.

4.7 Determinants of employment

What factors are related to whether an individual ends up in formal, informal, or agricultural employment? To answer this question, a multinomial logit model for employment in 2010/11 was estimated. Because residents of rural and urban areas face different labour markets, separate models were estimated by rural-urban location and by gender. The employment categories considered were: formal, informal, agriculture and not employed (base category)⁹. The results for people aged 15 to 64 are presented in Table 11¹⁰. The columns show the estimated marginal

effects and corresponding z-statistic in brackets. The marginal effect is the average change in the probability that an individual finds himself/herself in an employment category as a result of a unit change in the independent variables. For example, the coefficient of 0.252 for secondary education in urban areas indicates that the probability of an individual with secondary education being in formal employment was about 25% higher than of an individual with no education. On the other hand, the negative coefficient of 0.112 for the female dummy variable indicates that the probability of women engaging in formal employment is about 10% lower than that of men.

Gender was important. In both rural and urban areas, women had a 15% lower chance of engaging in informal self-employment. As well, women in urban areas were much less likely (11%) than those in rural areas (6%) to engage in formal employment.

Education was also significant. Higher attainment was positively associated with formal employment, and negatively associated with agriculture and informal employment. The positive effect of education on formal employment was strongest in urban areas. Nonetheless, in urban areas, secondary and higher education area were associated with unemployment among women. This may be due to the scarcity of and slow growth in employment opportunities, compared with the number of graduates. Hence, unemployment rates are higher among well-educated women.

The presence of young children constrained formal employment in urban areas; in rural areas, it increased the

likelihood of informal self-employment. The presence of women aged 15 to 64 in the household was negatively associated with employment in agriculture and positively associated with formal and informal self-employment in both rural and urban areas. This suggests that the presence of adult women to take care of agricultural food production is necessary before an individual can seek other employment opportunities. Female household labour enables individuals, especially men, to find more lucrative non-farm employment.

A number of other findings are noteworthy.

- Residents of the Northern region were less likely to have formal employment.
- In urban areas, migrants were more likely to work in the informal sector and less likely to be unemployed, while in rural areas, migrants were in both the formal and informal sectors.
- In the Eastern region, where agriculture dominated, the likelihood of formal and informal self-employment was low in both rural and urban areas.
- As people aged, they were less likely to engage in informal self-employment, and more likely to be in agriculture and formal employment.
- Residents of households that obtained credit were, as expected, more likely to be engaged in formal and informal employment.
- Accumulation of household assets was associated with agricultural employment, more than with other employment outcomes.

⁹ Agricultural employment includes those who are self-employed in agriculture and unpaid family workers.

¹⁰ This includes all categories of the labour force including those in self-employment.

Table 11. Determinants of formal/informal/agriculture employment and not employed, by rural-urban location, population aged 15 to 64, Rwanda, 2010/11

Multinomial logit (marginal effects)								
Sample: Individuals (aged 15 to 64)	Urban				Rural			
	Formal	Informal	Agriculture	Not employed	Formal	Informal	Agriculture	Not employed
Female=1	-0.112*** (-8.827)	-0.147*** (-10.535)	0.194*** (17.103)	0.065*** (6.962)	-0.062*** (-16.673)	-0.161*** (-31.295)	0.222*** (41.929)	0.001 (0.574)
Age in years	0.003*** (5.800)	-0.009*** (-12.974)	0.007*** (14.452)	-0.002*** (-3.419)	-0.000* (-2.079)	-0.003*** (-15.411)	0.004*** (16.370)	-0.000*** (-4.472)
Migrant	0.007 (0.499)	0.111*** (7.111)	-0.092*** (-7.762)	-0.027** (-2.596)	0.015*** (4.401)	0.022*** (5.282)	-0.039*** (-7.809)	0.002 (1.569)
<i>Education dummies</i>								
Some primary	0.042 (1.452)	-0.055* (-2.250)	0.006 (0.322)	0.007 (0.314)	0.030*** (5.205)	-0.001 (-0.183)	-0.034*** (-4.736)	0.005 (1.638)
Completed primary	0.102*** (3.608)	-0.067** (-2.662)	-0.052** (-2.676)	0.016 (0.687)	0.049*** (7.912)	0.006 (0.920)	-0.062*** (-7.788)	0.008* (2.369)
Secondary	0.252*** (9.606)	-0.209*** (-8.604)	-0.111*** (-5.672)	0.069** (3.232)	0.134*** (21.644)	0.023** (3.039)	-0.174*** (-19.246)	0.016*** (5.182)
Postsecondary	0.471*** (16.538)	-0.344*** (-8.729)	-0.197*** (-5.884)	0.070** (3.057)	0.285*** (21.052)	0.038 (1.164)	-0.347*** (-9.077)	0.024*** (6.116)
Obtained credit	0.098*** (7.418)	-0.028 (-1.776)	-0.015 (-1.157)	-0.054*** (-4.559)	0.029*** (7.933)	-0.001 (-0.129)	-0.019*** (-3.557)	-0.009*** (-4.317)
Log of non-agricultural income	0.001 (1.047)	0.003*** (3.615)	-0.004*** (-4.224)	-0.001 (-1.186)	0.000 (1.395)	0.001*** (3.331)	-0.001*** (-3.747)	0.000 (0.073)
Log of value of agricultural assets	-0.012*** (-6.551)	-0.006** (-2.953)	0.024*** (10.932)	-0.007*** (-5.757)	-0.006*** (-4.669)	-0.015*** (-10.458)	0.022*** (11.504)	-0.001*** (-5.503)
<i>Household structure</i>								
Number of children younger than 7	-0.019** (-3.012)	0.006 (0.921)	0.010 (1.653)	0.003 (0.705)	-0.002 (-0.908)	0.006** (2.582)	-0.005 (-1.914)	0.001 (1.879)
Number of children 7 to 14	-0.010 (-1.812)	0.003 (0.512)	0.009 (1.806)	-0.002 (-0.458)	-0.001 (-0.831)	-0.003 (-1.598)	0.004 (1.807)	0.000 (0.573)
Number of males 15 to 64	0.006 (1.224)	-0.013* (-2.346)	-0.006 (-1.231)	0.014*** (4.399)	-0.000 (-0.169)	0.000 (0.114)	-0.001 (-0.364)	0.001* (2.213)
Number of males 65 or older	-0.105** (-2.733)	0.014 (0.371)	0.023 (0.755)	0.068*** (3.732)	0.008 (0.923)	-0.015 (-1.431)	0.006 (0.495)	0.001 (0.666)
Number of females 15 to 64	0.014** (2.581)	0.029*** (4.835)	-0.043*** (-7.537)	0.000 (0.008)	0.012*** (6.674)	0.009*** (3.995)	-0.021*** (-8.014)	0.001 (1.220)
Number of females 65 or older	-0.022 (-0.832)	0.024 (0.829)	-0.006 (-0.258)	0.005 (0.282)	0.009 (1.212)	0.027** (3.180)	-0.040*** (-3.872)	0.004** (2.649)
<i>Regional dummies</i>								
Southern	-0.005 (-0.278)	-0.078*** (-4.091)	0.179*** (13.662)	-0.095*** (-5.178)	-0.035** (-2.885)	-0.037* (-2.476)	0.082*** (4.409)	-0.010*** (-3.957)
Western	0.012 (0.482)	-0.094*** (-3.489)	0.111*** (5.662)	-0.029 (-1.450)	-0.030* (-2.475)	-0.025 (-1.644)	0.061** (3.287)	-0.007** (-2.912)
Northern	-0.077* (-2.486)	-0.045 (-1.489)	0.177*** (8.341)	-0.055* (-2.285)	-0.025* (-2.085)	-0.046** (-3.037)	0.082*** (4.359)	-0.011*** (-4.036)
Eastern	-0.074* (-2.369)	-0.073* (-2.329)	0.224*** (11.003)	-0.077* (-2.512)	-0.045*** (-3.706)	-0.070*** (-4.623)	0.123*** (6.553)	-0.008** (-3.266)
Observations	3,892	3,892	3,892	3,892	22,144	22,144	22,144	22,144

Notes: z-statistics in parentheses ; *** p<0.001, ** p<0.01, * p<0.05

Source: EICV3, 2011.

Table 12 examines wage versus non-wage employment: non-agricultural wage; non-agricultural informal self-employment; agriculture; and not employed. The probability of non-farm wage employment was 20% lower for women than men in rural and urban areas. Women's probability

of formal sector employment was 11% lower than that of men in urban areas and 6% lower in rural areas. In urban areas, migration was positively associated with non-farm wage employment.

In rural areas, non-farm wage employment

was associated with higher education; in urban areas, the importance of higher education was attenuated. In rural areas, secondary education increased the probability of non-farm wage employment by 15%, and postsecondary education, by 41%.M

Table 12. Determinants of wage/non-wage employment, by rural-urban location, population aged 15 to 64, Rwanda, 2010/11

Multinomial logit (marginal effects)								
Sample: Individuals (aged 15 to 64)								
	Urban				Rural			
	Wage (non-agric)	Informal (non-agric)	Agriculture	Not employed	Formal	Informal	Agriculture	Not employed
Female=1	-0.208*** (-15.282)	0.142*** (11.816)	-0.015** (-2.898)	0.081*** (7.904)	-0.197*** (-34.560)	0.207*** (32.752)	-0.063*** (-15.668)	0.053*** (11.710)
Age (years)	-0.004*** (-6.280)	0.007*** (13.568)	0.000 (1.675)	-0.004*** (-6.966)	-0.002*** (-8.761)	0.003*** (11.666)	-0.000 (-1.838)	-0.001*** (-4.192)
Migrant	0.154*** (10.009)	-0.068*** (-4.991)	-0.010 (-1.902)	-0.077*** (-7.327)	0.035*** (6.650)	-0.005 (-0.731)	-0.003 (-0.889)	-0.028*** (-5.771)
<i>Education dummies</i>								
Some primary	0.039 (1.534)	0.023 (1.118)	0.020 (1.957)	-0.082*** (-4.460)	0.027*** (3.647)	-0.037*** (-4.462)	0.006 (1.539)	0.003 (0.519)
Completed primary	0.049 (1.867)	-0.006 (-0.298)	0.027* (2.571)	-0.070*** (-3.607)	0.052*** (6.223)	-0.102*** (-10.680)	0.018*** (3.970)	0.031*** (4.177)
Secondary	0.027 (1.040)	-0.076*** (-3.517)	0.014 (1.241)	0.036* (2.049)	0.151*** (16.750)	-0.302*** (-27.516)	0.020*** (3.787)	0.131*** (17.173)
Postsecondary	0.216*** (6.918)	-0.198*** (-6.837)	0.015 (1.125)	-0.032 (-1.480)	0.415*** (15.002)	-0.538*** (-10.526)	0.031 (1.862)	0.092** (2.971)
Obtained credit	0.051** (3.146)	0.074*** (5.787)	-0.004 (-0.682)	-0.121*** (-8.637)	0.030*** (5.428)	0.079*** (11.479)	0.001 (0.397)	-0.110*** (-19.015)
Log of non-agricultural income	-0.016*** (-19.783)	0.023*** (32.434)	-0.001*** (-4.330)	-0.005*** (-8.709)	-0.005*** (-14.031)	0.015*** (34.358)	-0.002*** (-8.727)	-0.008*** (-22.063)
Log of value of agric assets	-0.008*** (-3.907)	-0.000 (-0.097)	0.002 (1.919)	0.006*** (4.649)	-0.012*** (-6.715)	-0.010*** (-3.786)	0.004** (2.917)	0.018*** (8.206)
<i>Household structure</i>								
Number of children younger than 7	-0.006 (-0.811)	0.006 (1.033)	-0.002 (-0.795)	0.001 (0.297)	0.005 (1.867)	0.005 (1.555)	0.001 (0.377)	-0.011*** (-4.345)
Number of children aged 7 to 14	-0.002 (-0.418)	-0.005 (-1.058)	-0.000 (-0.022)	0.008 (1.941)	-0.007** (-2.966)	0.004 (1.442)	-0.000 (-0.265)	0.003 (1.631)
Number of males aged 15 to 64	0.012* (2.167)	-0.018*** (-3.470)	-0.001 (-0.310)	0.007 (1.689)	0.009** (3.252)	-0.034*** (-10.270)	-0.000 (-0.114)	0.025*** (11.271)
Number of males aged 65 or older	-0.041 (-0.993)	0.002 (0.041)	0.001 (0.050)	0.038 (1.750)	0.001 (0.064)	-0.014 (-0.906)	-0.012 (-1.570)	0.025** (2.630)
Number of females aged 15 to 64	0.052*** (8.668)	-0.057*** (-10.189)	0.001 (0.517)	0.003 (0.770)	0.024*** (8.556)	-0.047*** (-14.207)	0.005** (3.142)	0.018*** (8.251)
Number of females aged 65 or older	0.011 (0.342)	-0.028 (-0.878)	-0.015 (-1.132)	0.031 (1.734)	0.039*** (3.529)	-0.053*** (-3.888)	0.011 (1.907)	0.002 (0.258)
<i>Regional dummies</i>								
Southern	-0.033 (-1.617)	0.163*** (10.226)	0.010 (1.512)	-0.140*** (-8.796)	-0.045* (-2.411)	0.175*** (7.565)	-0.018 (-1.799)	-0.112*** (-8.157)
Western	0.007 (0.253)	0.119*** (5.610)	0.009 (1.046)	-0.136*** (-5.831)	-0.027 (-1.472)	0.191*** (8.232)	-0.018 (-1.745)	-0.146*** (-10.517)
Northern	-0.039 (-1.190)	0.155*** (5.877)	-0.010 (-0.738)	-0.107*** (-4.402)	-0.013 (-0.686)	0.254*** (10.785)	-0.008 (-0.821)	-0.233*** (-15.789)
Eastern	-0.018 (-0.470)	0.219*** (8.454)	0.030*** (3.718)	-0.230*** (-5.457)	-0.092*** (-4.918)	0.210*** (9.064)	-0.016 (-1.559)	-0.102*** (-7.431)
Observations	4,709	4,709	4,709	4,709	21,310	21,310	21,310	21,310

Notes: z-statistics in parentheses ; *** p<0.001, ** p<0.01, * p<0.05

Source: EICV3, 2011.

Table 13. Determinants of youth employment outcomes, population aged 15 to 34, Rwanda, 2010/11

Multinomial logit (marginal effects) Sample: Individuals (aged 15 to 34)								
	Urban				Rural			
	School only	Work only	Work and school	Nothing	School only	Work only	Work and school	Nothing
Female=1	-0.007 (-0.545)	-0.071*** (-4.800)	0.005 (.)	0.072*** (7.253)	-0.007 (-1.290)	0.022*** (4.035)	-0.014*** (-3.419)	-0.001 (-0.338)
Age group (years)								
19 to 22	-0.155*** (-13.624)	0.181*** (10.327)	-0.061 (.)	0.035** (2.856)	-0.171*** (-35.870)	0.225*** (46.655)	-0.047*** (-11.928)	-0.006** (-2.659)
23 to 26	-0.251*** (-19.277)	0.253*** (14.146)	-0.049 (.)	0.047*** (3.892)	-0.281*** (-42.507)	0.335*** (61.888)	-0.052*** (-9.802)	-0.002 (-0.774)
27 to 30	-0.404*** (-17.416)	0.379*** (17.368)	-0.018 (.)	0.043*** (3.331)	-0.401*** (-23.943)	0.446*** (38.728)	-0.051*** (-5.337)	0.007* (2.377)
31 to 34	-0.438*** (-11.443)	0.417*** (13.471)	-0.008 (.)	0.029 (1.824)	-0.535*** (-11.024)	0.535*** (16.801)	-0.021 (-1.147)	0.022*** (5.095)
Migrant	-0.028* (-2.305)	0.018 (1.182)	0.007 (.)	0.003 (0.339)	-0.006 (-1.180)	0.010* (2.075)	-0.006 (-1.653)	0.002 (0.907)
Education dummies								
Some primary	-0.321 (-0.009)	-0.668 (-0.012)	1.037 (.)	-0.048 (-0.007)	0.185** (2.907)	-0.250*** (-5.469)	0.076 (1.319)	-0.011 (-1.224)
Completed primary	-0.248 (-0.007)	-0.715 (-0.013)	1.030 (.)	-0.067 (-0.010)	0.219*** (3.449)	-0.304*** (-6.673)	0.098 (1.712)	-0.013 (-1.447)
Secondary	-0.131 (-0.004)	-0.881 (-0.016)	1.080 (.)	-0.069 (-0.011)	0.377*** (5.944)	-0.485*** (-10.700)	0.122* (2.133)	-0.013 (-1.484)
Postsecondary	-0.071 (-0.002)	-0.956 (-0.017)	1.140 (.)	-0.113 (-0.017)	0.448*** (6.987)	-0.616*** (-13.307)	0.178** (3.097)	-0.009 (-0.974)
Obtained credit	-0.087*** (-3.297)	0.077*** (3.466)	0.047 (.)	-0.037** (-3.002)	-0.198*** (-12.426)	0.176*** (14.863)	0.040*** (5.312)	-0.018*** (-3.625)
Log of non-agricultural income	-0.002* (-2.570)	0.003*** (3.627)	0.001 (.)	-0.002*** (-3.832)	-0.003*** (-8.801)	0.002*** (4.770)	0.002*** (6.434)	-0.000* (-2.001)
Log of value of agric assets	-0.001 (-0.695)	0.005** (2.785)	-0.000 (.)	-0.004*** (-3.391)	0.006** (3.260)	0.000 (0.200)	-0.003* (-2.408)	-0.003*** (-5.987)
parent_hh	0.145*** (13.093)	-0.200*** (-13.572)	0.038 (.)	0.017 (1.764)	0.062*** (10.670)	-0.082*** (-14.725)	0.021*** (4.661)	-0.000 (-0.085)
hhh_age21	0.188 (0.012)	0.549 (0.011)	0.143 (.)	-0.880 (-0.013)	-0.033 (-1.019)	0.010 (0.371)	0.037* (2.230)	-0.015 (-0.811)
Household Structure								
Number of children younger than 7	-0.024*** (-3.971)	0.016* (2.363)	-0.005 (.)	0.013** (3.269)	-0.006* (-2.295)	0.008** (3.073)	-0.002 (-1.009)	-0.000 (-0.027)
Number of children aged 7 to 14	0.005 (1.105)	-0.002 (-0.419)	-0.004 (.)	0.002 (0.480)	0.006** (3.048)	-0.009*** (-4.405)	0.000 (0.169)	0.003** (3.221)
Number of males aged 15 to 64	0.010* (2.515)	-0.023*** (-4.390)	0.002 (.)	0.010** (3.077)	0.005* (2.116)	0.001 (0.559)	-0.008*** (-4.741)	0.002* (2.473)
Number of males aged 65 or older	0.045* (2.055)	-0.013 (-0.416)	-0.057 (.)	0.024 (1.341)	-0.001 (-0.161)	-0.001 (-0.133)	-0.002 (-0.246)	0.004 (1.111)
Number of females aged 15 to 64	0.016*** (3.516)	-0.009 (-1.635)	-0.006 (.)	-0.001 (-0.290)	0.010*** (4.338)	-0.004 (-1.540)	-0.009*** (-4.880)	0.003** (2.648)
Number of females aged 65 or older	0.041* (2.157)	-0.041 (-1.630)	0.001 (.)	-0.001 (-0.042)	0.035*** (4.140)	-0.049*** (-5.814)	0.013* (2.084)	0.001 (0.265)
Regional Dummies								
Southern	-0.015 (-0.976)	0.076*** (4.036)	0.020 (.)	-0.080*** (-5.615)	0.016 (0.733)	-0.030 (-1.477)	0.027 (1.478)	-0.012* (-2.078)
Western	-0.006 (-0.278)	0.097*** (3.692)	-0.052 (.)	-0.039* (-2.419)	0.018 (0.833)	-0.020 (-0.954)	0.022 (1.193)	-0.020*** (-3.308)
Northern	-0.043 (-1.824)	0.098*** (3.347)	-0.000 (.)	-0.055** (-2.638)	-0.062** (-2.875)	0.018 (0.860)	0.065*** (3.558)	-0.022*** (-3.430)
Eastern	0.005 (0.193)	0.113** (3.007)	0.027 (.)	-0.145*** (-3.372)	0.020 (0.961)	-0.018 (-0.859)	0.013 (0.703)	-0.016** (-2.628)
Observations	4,331	4,331	4,331	4,331	19,367	19,367	19,367	19,367

Notes: z-statistics in parentheses ; *** p<0.001, ** p<0.01, * p<0.05

Source: EICV3, 2011.

5. Conclusions and policy implications

The main objective of this analysis was to provide a better understanding of gender and youth employment outcomes in Rwanda. In addition, the study sought to examine whether statistical evidence suggests the existence of gender discrimination in the Rwandan labour market.

While overall employment rates remained the same between 2005/06 and 2010/11, substantial shifts occurred in the labour market. The percentage of women in agricultural self-employment declined, while the percentage who were unpaid family workers increased. Among men, the percentage in the agriculture and unpaid family work categories fell, and the share in non-farm wage employment rose. The estimated number of people with non-wage employment declined from 2.3 million to 1.9 million.

Migration into the Kigali region was substantial, especially from the Southern region. However, the overall employment rate was much lower in urban than rural areas—76% versus 83% in 2010/11. By age group, employment rates follow an inverted u-shape—rates are lowest among youth and people aged 60 or older. The agricultural employment rate is seasonal, dipping during July and August.

Trends in youth employment paralleled trends in employment for the Rwandan population overall. Between 2005/06 and 2010/11, the share of 15-to 34-year-old workers in non-farm employment rose from 10% to 30%, while the share in agricultural self-employment fell from 18% to 6%. The movement of youth toward non-farm wage employment was primarily into domestic services, followed by construction.

Gender differences in wages are

considerable. In 2010/11, median monthly salaries were RWF 22,000 for men and RWF 13,200 for women. And although median wages increased between 2005/06 and 2010/11, the gender pay gap widened—from a difference of 33% to 67%. The gap was widest among people with only primary school education. Earnings were highest for people with postsecondary education.

Among those in wage employment, 47% of youth were unskilled workers, compared with 53% overall. Furthermore, among youth in wage employment, 64% of the women were skilled workers, compared with 49% of all women in wage employment.

Unemployment was lower for youth than for the labour force overall; for example, in urban areas in 2010/11, the rates were 13% and 22%, respectively.

The multivariate analysis demonstrated that education is a key determinant of formal employment for women—especially in urban areas. However, the presence of young children in the household was negatively related to formal employment among women.

Rwanda has substantially reduced the percentage of its population without education, particularly among youth. However, the strong association between higher education and better-quality jobs suggests that continued investment in education is needed. Specifically, it is necessary to ensure that young people attain some postsecondary education, which appears to be a prerequisite for non-farm wage employment. Investment in skills development is also needed, especially for women, to make them more employable and to reduce the male-female wage gap. In addition, investment in

education will be required to tap the potential of the youth bulge in urban areas.

More than half the people who are employed are women, but men are more likely to have wage employment. The percentage of women who work without pay is substantial; men have a greater tendency to be employed in both the formal and informal sectors where earnings are relatively high. Among youth, men and women have nearly similar farm-wage earnings, but men fare better than women in every other wage category.

Women's concentration in unpaid family work suggests that cultural factors (for instance, norms about domestic responsibilities) are important in labour market decisions. Consequently, even if more wage employment becomes available, women's access to such opportunities may not equal that of men. Land rights legislation implemented over the past 15 years that favoured women was a step toward reducing cultural constraints that limit women's labour market opportunities. And if the reduction in fertility is sustained, it will free up time for women to engage in high-paying labour market activities.

Rwanda's public works initiative, the Vision 2020 Umurenge Programme (VUP), could address some of the employment needs of women. The VUP could offer child care to mothers selected to engage in public works by making it possible for them to hire elderly women as babysitters. Evidence from Rwanda's neighbours shows that such gender-focused public works can relieve the child care constraints faced by working mothers, especially in rural areas (World Bank, 2009b).

Improvement of the business environment is a necessary precursor to further expansion.

sion of the private sector, which would, in turn, provide more employment opportunities for youth and women. According to the Rwanda Private Sector Foundation, entrepreneurs face challenges with tax ad-

ministration, the availability and cost of electricity, and high transport costs due to inadequate infrastructure. Removing barriers to small and micro-enterprises would enable them grow and create jobs in the

informal sector, where earnings prospects are better than in agriculture. Employers could also be encouraged to offer apprentice opportunities to youth through tax rebates and wage subsidies.

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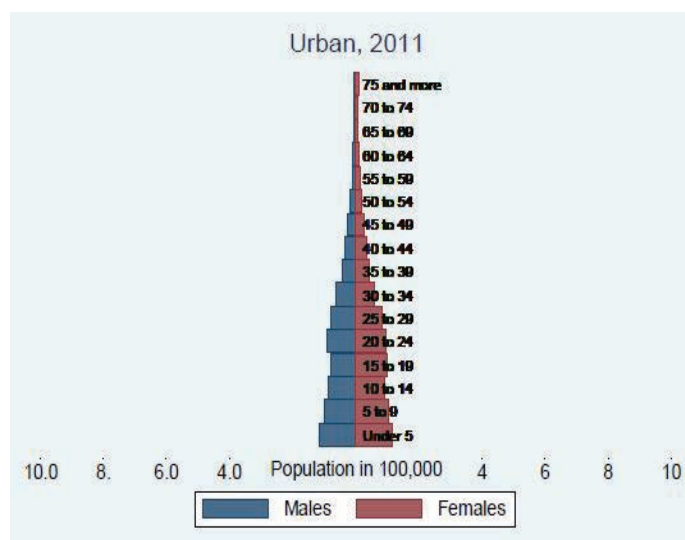
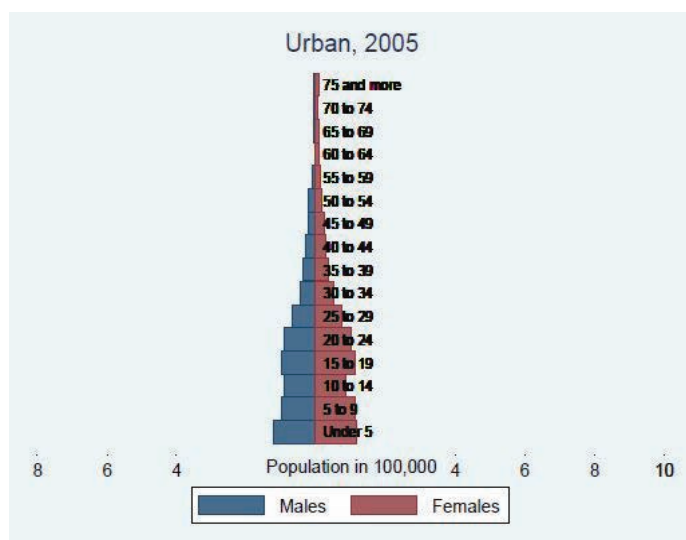
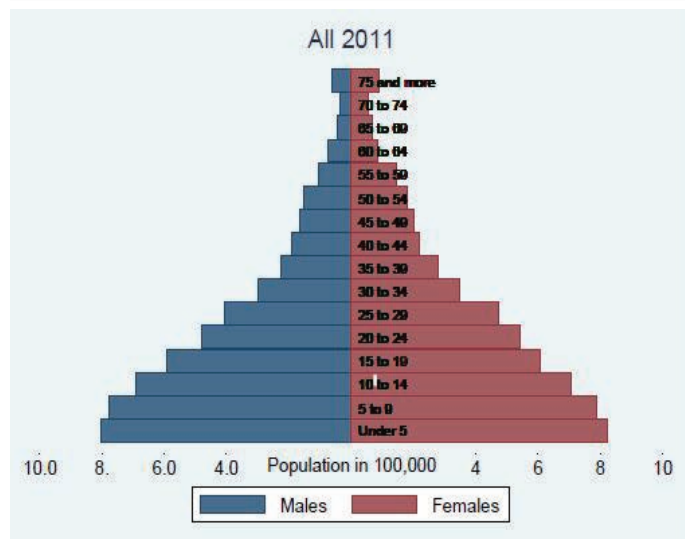
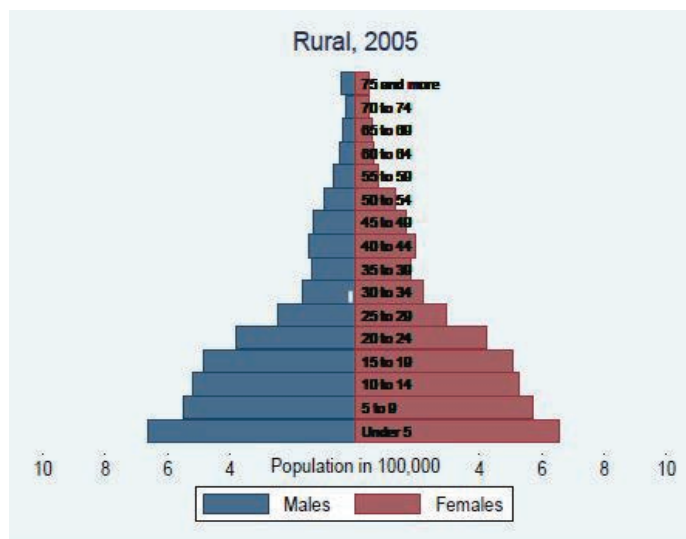
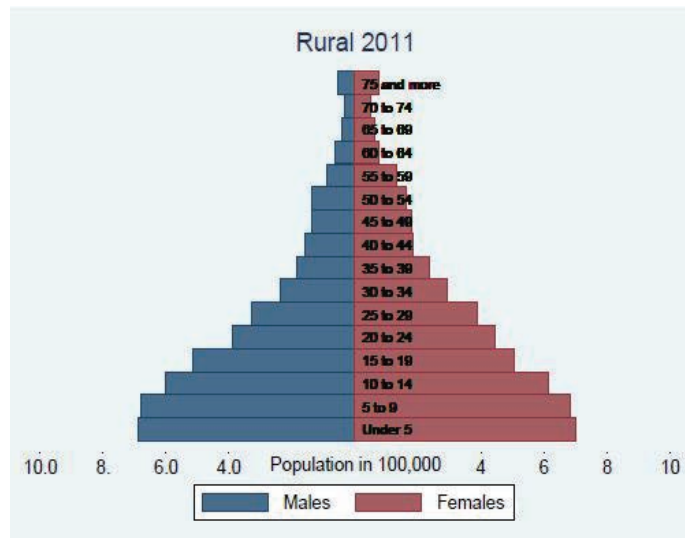
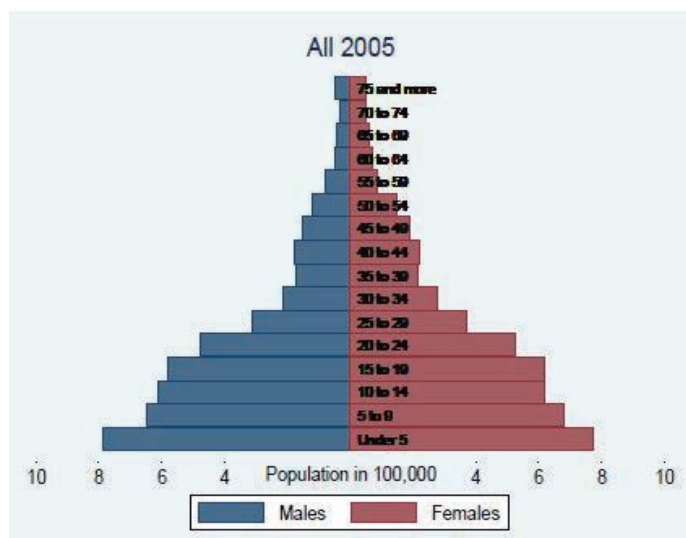
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Appendix 1. Age-sex structure of the population, by rural-urban location, Rwanda, 2005/06 and 2010/11





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