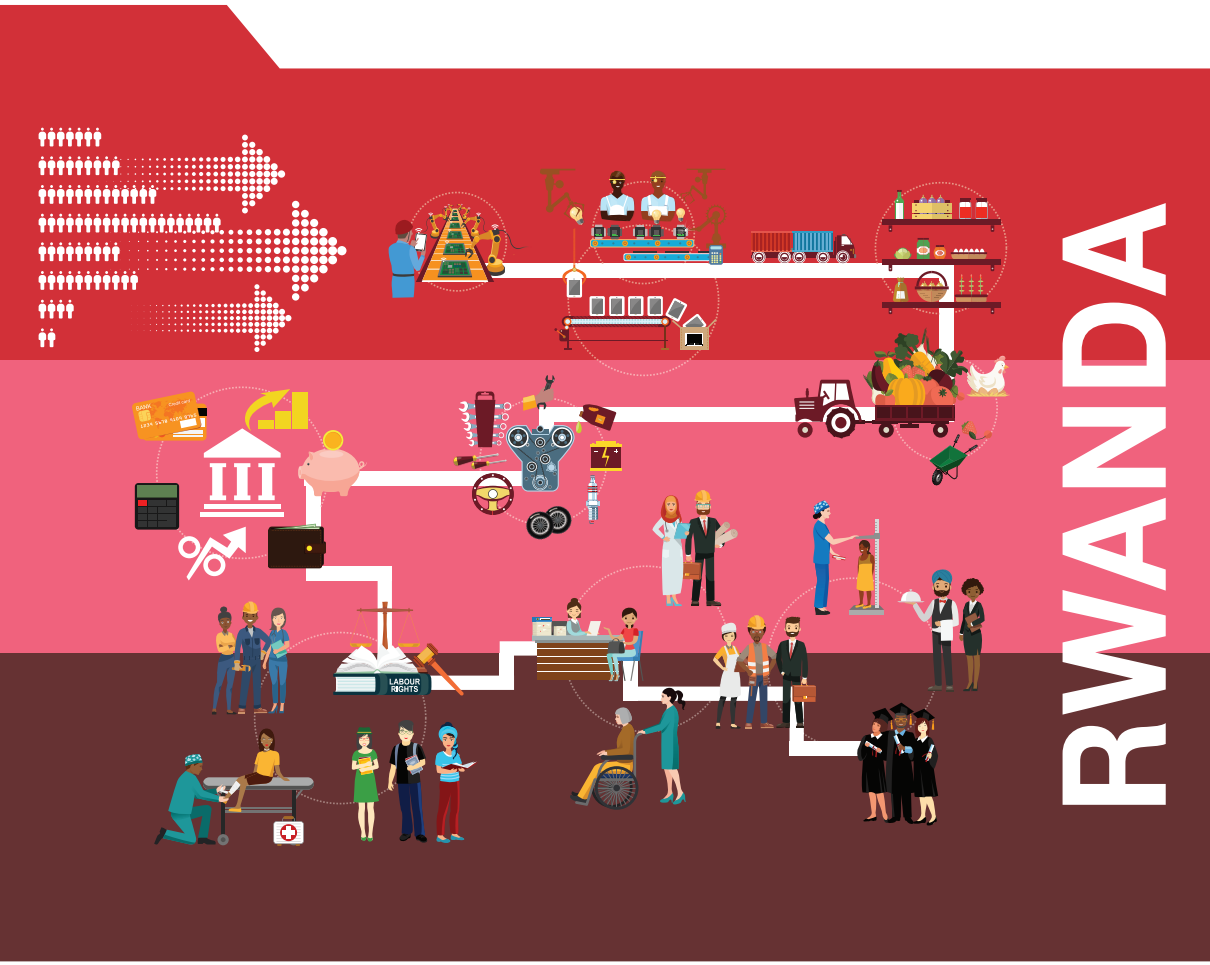
How Immigrants Contribute to Rwanda's Economy



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Foreword

Immigration has figured on the Rwandan policy agenda since the 2000s, when new policies were introduced which focus on attracting high-skilled immigrants to contribute to the country's economic development. Figures on the impact of these policies on migration trends remain absent, meaning more systematic empirical research into how immigrants integrate and contribute is needed. Empirical evidence can inform the debate on migration flows, and constitute a basis to understand which policy responses to institute for the benefit of both immigrants and their destination countries.

The OECD Development Centre, the International Labour Organization and the European Commission have worked together to tackle these challenging questions. Working across different contexts, the goal is to help countries design effective policies for leveraging immigration for positive development outcomes. This has included providing advice on the governance of comprehensive immigration systems and linking development strategies for policy coherence within a country and across countries.

This report, How Immigrants Contribute to Rwanda's Economy, *is a step forward. It builds on comparable analyses for Rwanda and nine other countries – Argentina, Costa Rica, Côte d'Ivoire, the Dominican Republic, Ghana, Kyrgyzstan, Nepal, South Africa and Thailand – to improve the understanding of immigration's economic impacts. Different key components of the economy are explored through a combination of quantitative and qualitative methodologies.*

The report examines empirically how immigrants affect key segments of the economy. These segments include: the labour market in terms of labour force and human capital, economic growth, and public finance. The report also analyses the political and historical contexts of immigration and suggests ways to maximise the impact of immigrants through appropriate policy responses.

The report highlights the fact that understanding and addressing the impact of immigration is not straightforward. It depends on the country context and socio-economic conditions. However, any country can maximise the positive impact of immigration by improving policies to better manage and integrate immigrants so that they can legally invest and contribute to the economy where they work and live while staying safe and leading fulfilling lives. The report also provides a basis for dialogue and policy guidance for development practitioners and policy makers who attempt to integrate immigrants into there economy and society for the benefit of both immigrants and the native-born population.

The European Commission, the OECD Development Centre and the ILO look forward to continuing their co-operation with Rwanda to optimise immigration for better economic and development outcomes.

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Director of the Conditions of Work and Employment Programme, ILO

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How Immigrants Contribute to Rwanda's Economy is the fruit of the joint OECD-ILO project, Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination (ECLM), carried-out in ten low- and middle-income countries. The project was managed by David Khoudour, Head of the Migration and Skills Unit of the OECD Development Centre, under the guidance of Mario Pezzini, Director of the OECD Development Centre and Special Advisor to the OECD Secretary-General on Development, Federico Bonaglia, Deputy Director of the OECD Development Centre, Manuela Tomei, Director of the ILO's Conditions of Work and Employment Programme, and Michelle Leighton, Chief of the Labour Migration Branch at the ILO. Shinyoung Jeon and Hyeshin Park, from the OECD Development Centre, co-ordinated the project, while Theodoor Sparreboom, Chief Technical Advisor in the Labour Migration Branch, led the ILO team. The OECD team included Maria Alejandra Betancourt, Bram Dekker, Fatoumata Diarrassouba and Sarah Kups. The ILO team was composed of Sandra Berger and Jesse Mertens.

The report on Rwanda was co-ordinated by Jesse Mertens, and the following authors prepared draft chapters:

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The rest of the ECLM project team provided significant contributions, including valuable comments, advice and feedback on previous versions of the report. Vararat Atisophon, OECD Development Centre, helped with statistical work, while Alexandra Le Cam, Patricia Cuber, OECD Development Centre, and Hélène Lombard, ILO, provided administrative support for the project, including country missions and event organisation. Jill Gaston edited the report and the OECD Development Centre's publications team, led by Delphine Grandrieux and Henri-Bernard Solignac-Lecomte, turned the draft into a publication. The cover was designed by Aida Buendía. The project has also benefited from the contribution from previous colleagues at the OECD Development Centre, especially Marcus Böhme and Ragini Chaurasia.

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List of abbreviations

CEPGL	*Communauté Economique des Pays des Grands Lacs* (Economic Community of the Great Lakes Countries)
CIT	Corporate income tax
DGIE	Directorate General of Immigration and Emigration (Rwanda)
DRC	Democratic Republic of the Congo
EAC	East African Community
ECLM	Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination
EICV	Integrated Household Living Conditions Survey
GDP	Gross domestic product
GoR	Government of Rwanda
ICT	Information and communication technology
ILO	International Labour Organization
IOM	International Organization for Migration
KILM	Key Indicators of the Labour Market
LFPR	Labour force participation rate
LFS	Labour Force Survey
MIFOTRA	Ministry of Public Service and Labour (Rwanda)
NISR	National Institute of Statistics of Rwanda
ODL	Occupations-in-Demand List
OECD	Organisation for Economic Co-operation and Development
RDB	Rwanda Development Board
RRA	Rwanda Revenue Authority
RWF	Rwandan franc
SMEs	Small and medium-sized enterprises
UNDESA	United Nations Department of Economic and Social Affairs
USD	United States dollar
VAT	Value added tax
VUP	Vision 2020 Umurenge Program

Executive summary

While Rwanda has experienced significant and complex patterns of migration in the past, labour migration has only recently emerged, affecting both the economic and socio-economic development of the country. Migration increased considerably during most of the 20th century largely as a result of conflict, causing large in- and outflows of refugees. Little attention was paid to migrants' economic integration. This changed in the early 2000s with the introduction of a new development framework (Vision 2020) that focused on increasing tourism, importing skills and attracting foreign direct investment. Today, questions remain about immigrants' labour market impact and economic contribution, as well as the costs and benefits of immigration.

To address these questions, the OECD Development Centre and the International Labour Organization launched a project on Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination. The project was co-financed by the European Union's Thematic Programme on Migration and Asylum and was implemented from 2014 to 2018. The project aimed to analyse the economic impact of immigration in ten partner countries. The project's work in Rwanda was launched in the context of a national consultation seminar on 25 September 2015, organised in collaboration with the Ministry of Public Service and Employment (MIFOTRA).

Immigration's contribution to Rwanda's economy is small but growing

The analysis in this country report demonstrates that immigrant and native-born workers (see Box 1.2 in Chapter 1 for definitions) have different labour market outcomes, reflected through a range of indicators. The analysis focuses on three main dimensions of the economic contribution of immigrants in Rwanda: labour markets, economic growth and the public finance.

- **How immigrants affect labour markets**

  The profile of immigrant workers appears to be different in Rwanda from that usually observed in other developing countries. While immigrant workers tend to be relatively young and less educated than the native-born population, the reverse is true in Rwanda. Immigrants are slightly older and have a

higher level of education than native-born workers. They also tend to enjoy better employment opportunities and working conditions. Further, they are overrepresented in the most productive sectors, and continue to be attracted to sectors for which there are currently relatively few qualified native-born workers. These observations align themselves with the Vision 2020 national development framework, which includes a goal to leverage foreign skills to improve skills among native-born workers. Through the Vision 2020 framework and a comprehensive migration policy, the Government of Rwanda continues to improve regional and international co-operation and integration. This creates a positive environment both for migrant workers and for the foreign investment needed to help Rwanda transition from an agrarian subsistence society to a knowledge-based service economy.

Rwanda deliberately attracts highly-skilled workers from abroad, and immigrant workers have a strong position in the Rwandan economy. This report shows that the presence of immigrants can, under very limited conditions, increase the wages of native-born workers. However, their presence might have a negative impact on native-born employment rates, particularly in the case where foreign-born workers arrived recently.

- **Immigration and economic growth**

  Given the sectoral distribution of workers and their level of education, immigrant workers are estimated to have contributed between 10% and 12.7% of gross domestic product in 2012, compared to a share in employment of 4.7% (the methodology for calculating this contribution is detailed in Chapter 5). Immigrants thus contribute significantly to the economy. They also appear to complement education levels of the native-born.

- **Immigrants' contribution to public finance**

  The foreign-born population made a positive contribution towards the government's fiscal balance in 2012. The value of their net per capita contribution (public expenditures minus tax revenues) greatly exceeded that of native-born individuals (the methodology for calculating this contribution is detailed in Chapter 6). Tax revenues from foreign-born individuals also outweighed the benefits they received from publicly provided goods and services.

Certain policy changes could boost immigrants' economic contribution

Rwanda has considerably shifted its approach to migration policy by positioning it firmly as an instrument of economic development. Intervening in migration and non-migration policies could help immigrants integrate into and positively contribute to Rwanda's economy. Such policy interventions include facilitating skills recognition, continually monitoring integration gaps as well as raising awareness about immigrants' rights through information campaigns. Furthermore, it is important to better co-ordinate and improve

coherence between, and implementation of, national policies; to attract more international investment and firms from abroad; and to strengthen the regional integration processes.

Specific policies could aim to reduce the size of the informal sector, improve the national infrastructure and lower the country's dependence on foreign aid. While Rwanda is actively attracting highly-skilled immigrants, it also needs to provide more low-skill jobs, which are currently lacking. The country should also prioritise lowering its high levels of underemployment. This would allow native-born workers more opportunities to develop new skills based on those brought by foreign-born workers.

In order to ensure that immigration continues to contribute positively to the Rwandan economy, longer-term labour market impacts and the productivity and growth impacts of immigration need to be better understood. Therefore, it is important to strengthen the collection of comparable data at regular intervals, particularly concerning the place of birth of individuals and their parents. It will also prove useful to conduct more empirical studies and evaluations of policy outcomes and migration trends.

Chapter 1

Immigrants' contribution to Rwanda's economy: Overview and policy implications

This chapter provides an overview of the full report. It first describes the project on Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination (ECLM). It then addresses the economic impacts of immigration in Rwanda as assessed by the literature and the ECLM project. The chapter summarises the report's key results regarding the country's foreign-born population, such as its potential to stimulate growth. It presents Rwanda's immigration history and labour market indicators of both foreign-born and native-born workers. The authors compare employment rates and wages of immigrants and Rwandan-born workers and analyse their contribution to economic growth. Finally, the chapter offers policy implications related to how immigrants affect Rwanda's economy.

Labour migration in Rwanda is a recent phenomenon, but it has affected the country's economy and the society in a number of ways. Rwanda has historically experienced significant and complex patterns of international migration, influenced by the social and political unrest in the early 1990s. In most of the 20th century, migration in Rwanda occurred as a result of conflict, and many foreigners in the country were refugees. In fact, economic immigration is uncharacteristically absent from the country's history.

In the 2000s, a new policy focus emphasised tourism, skills import and the attraction of foreign direct investment. This triggered a radically new policy approach intended to harness the potential of regional and international economic integration to benefit the country's development. However, questions related to immigrants' economic contribution remain.

This report aims to provide empirical evidence for policy makers and the broader public on the economic role of immigration. It was written in the context of a joint OECD Development Centre – International Labour Organization project on **Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination** (ECLM) (Box 1.1).

The report consists of six chapters. Chapter 1 assesses the overall economic contribution of immigration in Rwanda and presents policy implications. Chapters 2 and 3 provide the current policy context and a descriptive analysis of immigration and the labour market in Rwanda. Chapter 4 empirically investigates the impacts of immigration on the labour market. Chapter 5 explores the link between immigration and economic growth and Chapter 6 between immigration and public finance.

This country report can be read in conjunction with the project's comparative report (OECD/ILO, 2018). The former provides an in-depth discussion of the economic impact in Rwanda in the context of its economic and immigration history. The latter presents a comparative overview of the research results in the project's ten partner countries. It seeks to explore how patterns of labour migration and its effects on developing countries' economies can best inform migration policy making.

Box 1.1. **What is the value added of the project?**

In August 2014, the OECD Development Centre and the International Labour Organization (ILO) launched a project, co-funded by the EU Thematic Programme on Migration and Asylum, on **Assessing the Economic Contribution of Labour Migration in Developing Countries as Countries of Destination**. This project, implemented from 2014 to 2018, aimed to analyse the economic impact of immigration in developing countries across a variety of dimensions.

The OECD, ILO and EU launched the project to address a dual reality. More than one third of international migrants (UNDESA, 2017) and 25% of all working-age international migrant workers (ILO, 2015) currently live in low- and middle-income countries, and yet little is known about how these economies are affected by immigrant populations. This stands in stark contrast to the depth of literature on the economic impacts of immigration in high-income (usually OECD) countries (Kerr and Kerr, 2011; Bodvarsson and Van den Berg, 2013; and Böhme and Kups, 2017). This missing analysis would not be an issue if the existing research results on OECD countries applied equally to non-OECD countries, but they may be different due to a different context.

A large number of immigrants in developing countries come from within their region while many OECD countries host immigrants from the entire globe. Moreover, the economic and policy context in which these immigrants integrate into the labour market is different. As an example, the share of informal employment[1] tends to be more elevated in lower than in higher-income countries. Both of these factors likely contribute to impacts of immigration that differ between developed and developing countries. Understanding these differences could help low and middle-income countries formulate immigration and integration policies that maximise the development potential of immigration.

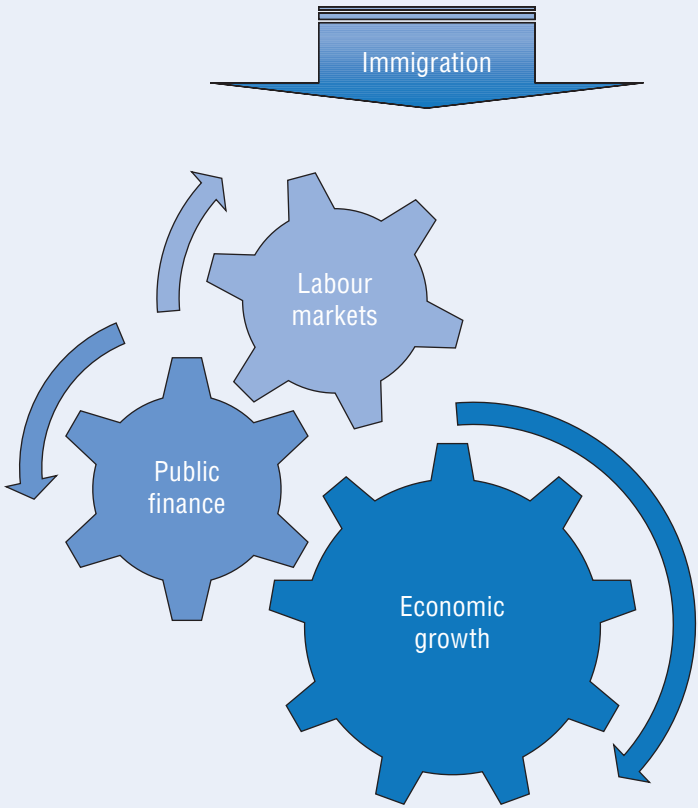
The project was carried out in collaboration with ten partner countries: Argentina, Costa Rica, Côte d'Ivoire, the Dominican Republic, Ghana, Kyrgyzstan, Nepal, Rwanda, South Africa and Thailand. They were selected based on their interest in the project, a substantial (but varying) share of immigrants and a relatively low share of humanitarian immigrants. By working with a diverse group of countries in terms of their geographic location and economic and immigration history and characteristics, the project aimed to provide an indication of the range of possible economic impacts of immigration in developing countries. It therefore addressed not only stakeholders in the ten partner countries, but equally policy makers and other interested parties in other low and middle-income countries with mid-sized to large immigrant populations.

The project examines empirically how immigrants contribute to their host countries' economies by focusing specifically on: i) labour markets, not only in terms of labour force and human capital, but also employment and wages; ii) economic growth, in

Box 1.1. **What is the value added of the project?** *(cont.)*

particular production and productivity, at both firm and economy levels; and iii) public finance, including public spending and fiscal contributions (Figure 1.1).

Figure 1.1. **Immigration: Contributing to host countries' economies**



The methodologies to analyse these various impacts generally follow those used in other contexts and published in the academic literature. Leading migration researchers provided their perspectives on suitable methodologies at an international expert meeting that took place at the OECD in Paris on 23-24 February 2015. Data constraints sometimes made it impossible to analyse all aspects in every partner country. Each country report and the integrated report provide detailed descriptions of their methodologies.

1. Informal employment encompasses the following situations: own-account workers and employers in their own informal sector enterprises, own-account workers producing solely for their household, contributing family workers, members of informal producers' co-operatives and employees holding informal jobs (that is, if their employment is not subject to for example national labour law) (Hussmanns, 2004).

Rwanda can benefit from studying the economic impacts of immigration

In the context of the project's objectives, as set out in Box 1.1, immigration in Rwanda is an interesting country to study. The share of immigrants varies between less than 1% to about 4.7% of the working-age population (aged 15+), depending on how an "immigrant" is defined (see Box 1.2 on the definitions of immigrants used in this report). However, their presence has had a formative influence on the country's history and national identity. In fact, the country's immigration history is characterised by a number of chronologically consecutive themes, i.e. the history of the making of its own population, colonisation, refugee movements, and technical assistance mobility from neighbouring and high-income countries in relation to skills shortage issues.

Box 1.2. **The challenge of defining "immigrants"**

Immigrants and foreigners

No universal definition of an immigrant exists. The most commonly cited definition accords with the 1998 Recommendations on Statistics of International Migration: "any person who changes his/her country of usual residence, […] in which an individual normally spends his daily period of rest" (UN, 1998). An individual who enters the nation for up to three months is not considered as an immigrant, but rather a visitor. Beyond three months, the individual will be termed a short-term immigrant for the next nine months. Only after one year of legal residency in the country the immigrant will be termed a long-term migrant.

In line with this definition, the Population Division of the United Nations Department of Economic and Social Affairs estimates international migrant stocks by using the country of birth as a reference (UNDESA, 2017). This report adopts this definition, in particular for the empirical analysis, as it is widely used in analytical work and as data are available in all countries covered by the project. International immigrants are therefore individuals who were born in another country than the country in which they live. This definition does not take into account the citizenship of people.

Some people are born abroad but are not foreigners, while others are born in their country of residence but do not have its citizenship. This often relates to the national legislations in terms of citizenship and naturalisation. Four different scenarios in terms of country of birth and citizenship are illustrated in Table 1.1:

- In countries that favour *jus sanguinis*, it is more difficult for the children of immigrants born in the country to get access to the citizenship of their country of birth (**native-born foreigners**).
- In countries where *jus soli* prevails, children of immigrants can become citizens of their country of birth more easily. They are therefore **native-born citizens**, but are often referred to as the second generation.

Box 1.2. **The challenge of defining "immigrants"** *(cont.)*

- In some countries, and depending on the naturalisation rules, individuals born abroad can become citizens of their country of residence after a certain number of years. They are **foreign-born citizens**.
- While most people born in their country of residence are also citizens of that country, in most cases the foreign-born are also foreigners (**foreign-born foreigners**). This is because (i) they do not stay long enough to acquire citizenship, (ii) the legislation in their country of origin does not allow for dual citizenship, or (iii) the rules in their host country are too strict.

Table 1.1. **Understanding the differences between immigrants and foreigners**

		Country of birth	
		Born in the country of residence	Born in a foreign country (immigrants)
Citizenship	***Citizens of the country of residence***	Native-born citizens	**Foreign-born citizens**
	Citizens from another country (foreigners)	Native-born foreigners	**Foreign-born foreigners**

Labour immigrants

While labour immigration refers to immigration for employment in the destination country as the primary purpose, different ways to measure it exist. In legal terms, labour immigrants can refer to immigrants who have a work permit in the destination country. A statistical definition would be those who immigrate for work or employment-related opportunities. Information on the reason for immigration is not always available, even in high-income countries (OECD/European Union, 2014). Yet, some partner countries (e.g. Argentina, Costa Rica, the Dominican Republic and Thailand) have such information.

In this report, several sources of data were used, ranging from administrative and labour force data to population and establishment censuses. Administrative data capture people registered in administrative processes, while the labour force survey collects data on a representative sample of the population. Census data aim for universal coverage of individuals (or establishments) present on the reference date. The data acquired through administrative procedures are used in Chapter 2, which provides insights into some of the common channels of immigration to Rwanda as well as policies and procedures. Administrative data usually concern foreign citizens who are born abroad. Chapters 3 and 4 are based on census data, which allow for a comprehensive analysis of international immigrants (foreign-born individuals) and their characteristics. Chapter 5 is based on two waves of the Rwandan Establishment Census (foreign employees). Chapter 6 is based on detailed personal labour force, income and expenditure data found in the Rwandan Integrated Household Living Conditions Survey, covering both foreign-born citizens and foreign-born foreigners (referred to simply as "foreigners").

Since the 1990s, the country has taken great strides to integrate migration processes (both immigration and emigration) into national development strategies and interregional co-operation. Rwanda remains among the least advanced countries in the world with a Human Development Index ranking 151 out of 187 (UN, 2016), but is making strong progress as demonstrated by many indicators. It had a GDP per capita of USD 1 784 in 2015, coupled with high (but falling) fertility and infant mortality rates. Overall education levels remain relatively low although these are also improving steadily.

Rwanda's economy is still dominated by subsistence agriculture, while tourism and services are becoming increasingly more important sources of national revenue (services being the most valuable, contributing 43.6% to GDP). The poverty rate decreased from 57% to 39% between 2005 and 2013, while life expectancy rose from 55.5 to 65.6 years in that same interval (World Bank, 2017). Despite being a landlocked country with relatively few natural resources, Rwanda has experienced impressive annual economic growth rates, in part resulting from its development strategy. This strategy emphasises the importance of strengthening external connectivity and encouraging regional flows of both people and goods in order to transition from a mainly agrarian to a knowledge-based economy (Government of Rwanda, 2012).

While abundant economic data illustrates the potential for immigration's positive impacts on further growth, empirical data on Rwanda remains scarce, as on many other countries in the region. Although several institutions, including the Directorate of General Immigration and Emigration, are mandated to collect and analyse data to guide migration policy decisions, practical implementation can be strengthened. Existing censuses, held at fairly regular intervals, provide useful but limited empirical analysis to guide economic and labour migration policies. The already scarce amount of data on immigrant stocks and flows found in existing data is likely in large part a result of inflows of (returning) refugees rather than purely labour migration. Nonetheless, there has been a steady improvement in available statistical data on skills, labour, education and migration indicators (National Institute of Statistics of Rwanda (NISR), 2016).

Given the absence of large immigration flows and the relative scarcity of migration data, the literature on labour immigration to Rwanda is almost non-existent. Most research relates to the expulsion or voluntary return of Rwandan refugees (Shindo, 2012; Gasarasi, 2008), or to the presence and impacts of refugee camps on resident populations in Rwanda (Biligi, Loschmann and Siegel, 2017; Taylor et al., 2016; Baez, 2008). The few papers that address migration and mobility tend to do so in the context of moving beyond discussions of conflict and its relation to migration. They rarely touch on the issue of labour migration (Bakewell and Bonfiglio, 2013; NISR, 2012a).

This report is a first attempt to quantify some of the contributions of labour immigrants to the Rwandan economy, and aims to improve the understanding of economic migration to Rwanda. The analysis uses nationally representative population census data in order to assess the economic contribution of immigrant labour. It covers immigrant workers' impact on public finance as well as their potential impact at the enterprise level (see Annex 1.A1 on the data used).

This report aims to analyse the impact of immigration on a wide range of economic outcomes. Moreover, it seeks to understand not only how the economic characteristics of foreign- and native-born workers vary, but how these differences affect the native-born population. By studying ten countries, the project aims to provide insights to help government authorities boost the economic contribution of immigration. In view of this, the Rwandan government approved the country's participation in the project in February 2015. A launch in the context of a national consultation seminar was organised in September 2015 in collaboration with the Ministry of Public Service and Employment (MIFOTRA), and brought together a broad range of policy makers, government officials and experts.[1]

The economic contribution of immigrants in Rwanda is limited, but has potential to stimulate growth

Foreign-born workers in Rwanda tend to benefit from slightly better labour market outcomes and working conditions than their native-born counterparts, which is discussed in more detail in Chapter 3. They also have a tendency to work in the most productive sectors of the economy, and are strongly concentrated in Kigali and a few other urban areas. While one would expect that this relatively advantageous position helps foreign-born workers compliment native-born workers, regression analysis shows that their presence can, under certain circumstances, have negative consequences for the employment rate of native-born workers. As a group, foreign-born workers contribute up to twice as much to GDP as their share of employment would suggest. This could have something to do with the firms they tend to be employed in. Foreign-born workers are more likely to be employed in larger, more productive and export-oriented firms, even if their presence does not directly increase the productivity of individual firms. Economic impacts are discussed in more detail in Chapter 5.

These findings are in line with Rwanda's Economic Development and Poverty Reduction Strategy 2008-2012 (Government of Rwanda, 2007) and the Vision 2020 framework. Both emphasise the importance of leveraging international talent to supplement local skills alongside other means to achieving growth and alleviate poverty. These include medium- and long-term objectives such as increasing

the role of the private sector in human development and basic social services, improving education outcomes and gender equality, and transitioning to a knowledge-based service economy.

Economic migration is infrequent and a relatively recent phenomenon in Rwanda

Overall, Rwanda's immigration history follows four main dynamics: (i) the history of the formation of its own population, (ii) colonisation, (iii) refugee movements and (iv) technical assistance mobility from neighbouring and high-income countries, in relation with skills shortage issues. In general, the country is characterised by the absence of a long-term history of economic immigration.

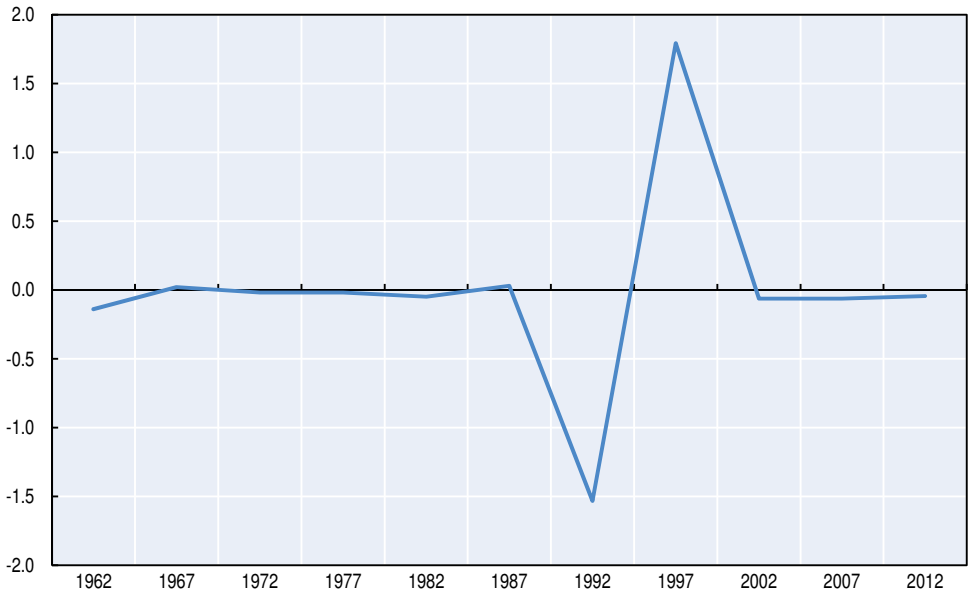
Following Rwandan independence in 1962, political crises in neighbouring countries, combined with violent repressions of particular population groups, resulted in vast numbers of people seeking refuge in neighbouring countries, but subsequently, also in Rwanda itself. Estimates of the numbers of refugees vary greatly between sources, ranging between 55 000 and 250 000 individuals. Large movements of refugees and the war of 1990 to 1994 led to large outflows of Rwandans. These were followed by equally large inflows resulting from continued violence in neighbouring Democratic Republic of the Congo (DRC) from 1996 onwards (Figure 1.2).

In the 2000s, the government's new development strategy strongly emphasised tourism, skills import and attracting foreign direct investment, which triggered a radically new policy approach much more sensitive to the impacts of immigration. Representing about 3.6% of the resident population (NISR, 2012a), international immigrants (foreign-born individuals) to Rwanda seem to have considerably increased since the 1990s. However, too little is known about the way in which these groups have settled and currently live in the country, due to the absence of studies on their geographical distribution, integration or economic activities.

Returned exiles represent a significant share of Rwanda's immigrants. Strictly speaking, people who were born in Rwanda and had to leave the country during various periods of civil unrest between 1959 and 1994 to become refugees, are not international immigrants when they return home. These former refugees brought back the skills and experiences gained in their host countries, and their reintegration into national labour markets can pose similar challenges to those of integrating international immigrants. In 2009, the new government adopted an eight-point plan to ensure the return of exiles to Rwanda which, among other things, included promoting national unity, security for all Rwandans, repatriation and reinstallation of all Rwandan refugees, and social and economic well-being of all citizens (DGIE, 2009).

Figure 1.2. **Large outflows were followed by large inflows of mainly refugees in the 1990s**

Net migration stock (in millions), 1962-2012



Source: World Bank (2016), *World Development Indicators*, *https://data.worldbank.org/data-catalog/world-development-indicators*.

Up until the mid-1990s, Rwanda's approach to immigration was tightly linked to security issues and constrained by the issue of nationality (Mugangu et al., 2004). In the mid-2000s, the government decided to revise its policy and legislative frameworks on migration to render them more consistent with Rwanda's new economic and development policy objectives. One step taken was to develop a pro-active migration policy to attract foreign entrepreneurs and immigrant workers with much-needed skills to help boost economic development, in line with the country's commitment towards promoting good governance and strengthening the private sector. The Rwandan Directorate General of Immigration and Emigration (DGIE), under the National Security Services, drafted this policy, as well as a strategy, with inputs from a range of ministries (DGIE, 2009).

In addition to attracting foreign investments and needed skills into the country, the resulting National Migration Policy and Strategies is entirely geared towards facilitating the return of the Rwandan diaspora and implementing Rwanda's commitments in the frameworks of the Regional Economic Communities. A noteworthy characteristic of the Rwandan labour migration policy is its openness. As opposed to many policies across the region, it does

not operate a market test where applicants must prove that local labour is not available. Legislation has also been harmonised with the 2010 EAC Protocol on the free movement of people, labour and services as required of all EAC partner states.

Foreign-born workers fare better than native-born workers on many key labour market indicators

To say that the foreign-born in Rwanda are well integrated into the labour market, compared to their native-born counterparts, might be an understatement (Figure 1.3). Chapter 3 describes labour market indicators for both native- and foreign-born workers. In short, foreign-born workers tend to be older, less economically active and less often employed than native-born workers. But they are also more highly educated and overrepresented in paid employment, and they tend to be active in the most productive sectors. Conversely, unemployment rates among Rwandan-born workers are extremely low, and Rwandan-born workers are overrepresented in vulnerable employment and in subsistence agriculture, and have much higher rates of under-qualification than the foreign-born. The findings therefore suggest that foreign-born workers are quite successful on the labour market, compared to Rwandan-born workers.

Underemployment rates cannot be calculated with the available data. But these findings suggest that many Rwandan-born workers are not fully employed or are engaged in several low-quality jobs at once.[2]

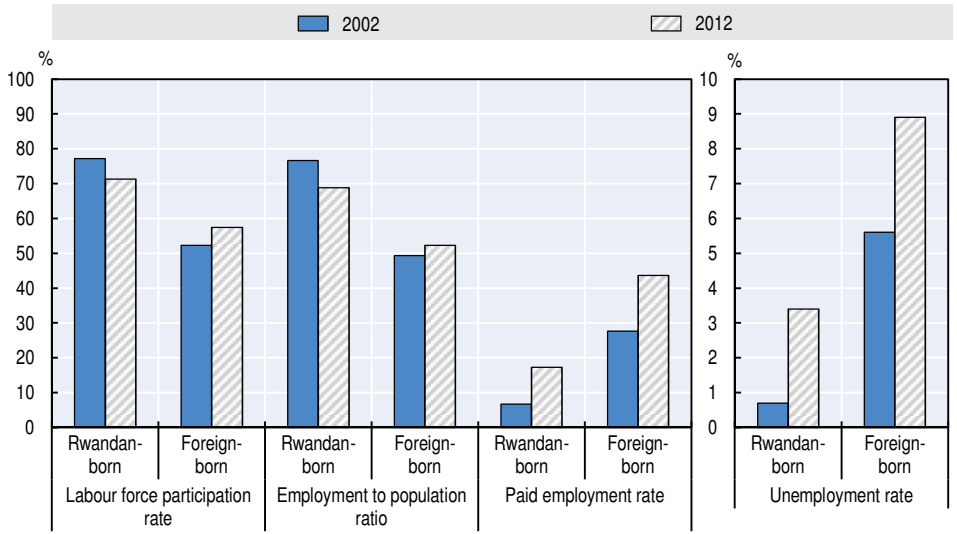
While Rwandan-born workers appear to fare worse than foreign-born workers according to a number of key labour market indicators, outcomes for the former improved considerably between 2002 and 2012, catching up with those of the foreign-born. For instance, educational achievement improved vastly. By 2012, the majority of Rwandan-born workers still had a primary or lower education, but rates of secondary and tertiary levels of education increased compared to 2002, particularly among young workers.[3] Among the non-vulnerably employed, shares of primary educated workers actually increased. This can be a sign of positive labour market integration, as even those with lower levels of education found wage employment more frequently in 2012.

While almost 80% of Rwanda's labour force was engaged in rural agriculture in 2012, urbanisation continued between 2002 and 2012. Foreign-born workers in particular were overrepresented in urban areas, likely due to the fact that more and better quality non-agricultural jobs were predominantly to be found there. In 2012, the geographic distribution of the foreign-born labour force somewhat mirrored that of the Rwandan-born labour force. They were concentrated in and around Kigali (where foreign-born workers accounted for over 10% of the

labour force), Rubavu District in the Western Province, and throughout parts of the Eastern Province (see Figure 1.4).

Figure 1.3. **Foreign-born workers are more likely to be unemployed than Rwandan-born workers**

Labour force participation, employment and unemployment by origin, 2002-12 (%)



Note: See also Annex Tables 3.A1.2-3.A1.4a.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

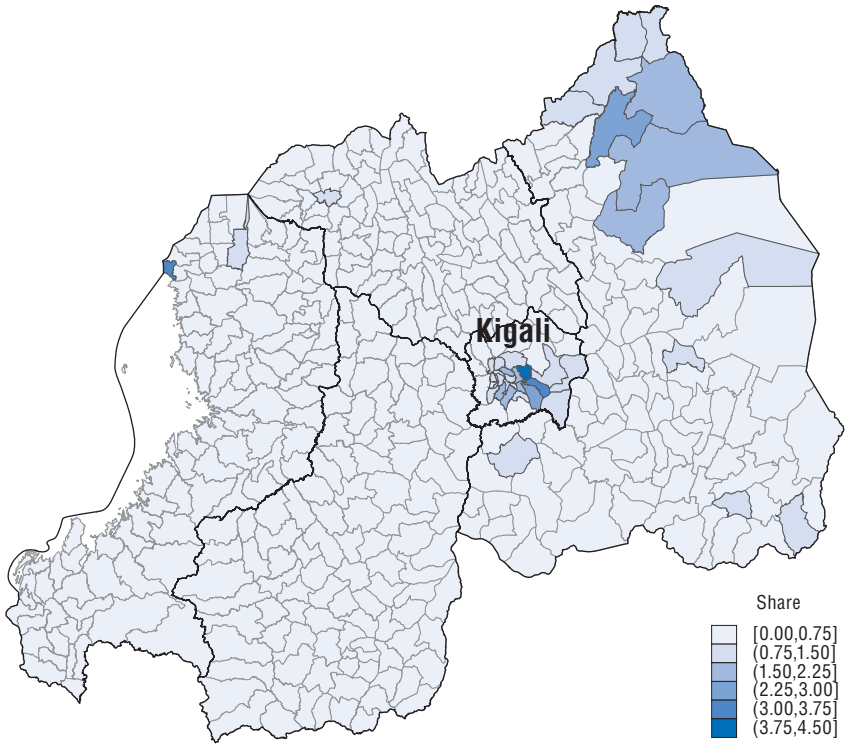
Immigrant shares are negatively associated with native-born workers' employment rates and positively associated with their wages

An important issue to consider is the extent to which the presence of immigrant workers improves or worsens the employment opportunities and wages of native-born workers. It is often discussed in studies of migration to high-income countries, but is rarely examined in the context of low- and middle-income countries. This issue is addressed using a statistical method known as regression analysis.[4]

The inflow of immigration can be considered as an increase in the supply of labour in the country of destination and can be analysed based on two dimensions representing a person's level of skill: education and experience. When combined, education and experience can be used jointly to segment the labour force into workers with comparable skills. The regression analysis examines whether a high concentration of immigrants in a labour force segment with a particular level of skills is associated with a higher or lower than average outcome for native-born workers with that same level of skills.

Figure 1.4. **The foreign-born labour force is concentrated in Kigali**

Distribution of foreign-born labour force per administrative sector in Rwanda (%), 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

When simply comparing skill levels in the Rwandan labour force, the employment-to-population ratio appears to be unevenly distributed. A drop in ratios can be seen in all education groups at the fringes of the experience range: there are relatively less employed Rwandan-born workers with little or extensive experience compared to workers in the middle of the range. Economically active foreign-born workers are strongly overrepresented among workers with a tertiary or higher level of education, though education levels of native-born workers appear to be catching up steadily.

Unemployment rates of native-born workers are consistently low across all skill levels, and only rise marginally among tertiary educated workers. Paid employment rates have been increasing over time, and are higher for workers with higher levels of education. The opposite is true for vulnerable employment rates, which seem to fall with education levels, but rise as experience increases. Wages of Rwandan-born workers remain low for anyone with a secondary

and lower level of education, and increase considerably for tertiary educated workers, who also enjoy much higher paid employment rates.

On the basis of these observations, regression analysis in Rwanda suggests that employment-to-population ratios of native-born workers are lower for skill levels in which there are higher shares of foreign-born workers. Conversely, wages of native-born workers are higher for skill levels in which there are higher shares of foreign-born workers (Table 1.2). This is likely due to relatively high wages being paid in sectors in which foreign-born workers are overrepresented. The employment effect disappears when taking regional differences into account, suggesting considerable regional differences in the impacts immigrant workers have on local labour markets. This observation is reinforced by the fact that, when taking regional differences into account, wages of native-born workers are actually lower in the presence of a higher share of immigrants. Finally, it is seemingly native-born men who mostly compete with foreign-born workers, and the presence of immigrants appears to have a stronger impact when looking at only those most recently arrived.

Table 1.2. **Migration affects employment rates and wages of Rwandan-born workers**

Summary of results of regressions of several Rwandan-born labour market outcomes and foreign-born share

Variables	All workers National	All workers Regional	Men	Men (controlling for women)	Women	New immigrants
(1) Employment rate of Rwandan-born workers	-	o	-	-	o	-
(2) Unemployment rate of Rwandan-born workers	o	-	o	o	o	+
(3) Paid employment rate of Rwandan-born workers	o	o	o	o	o	o
(4) Vulnerable employment rate of Rwandan-born workers	o	o	o	o	o	o
(5) Log of real wages of Rwandan-born workers	+	-	o	o	o	o

Note: The table reports the sign of the immigrants' share variables from regressions where the dependent variable is the mean Rwandan-born labour market outcome for an education*experience group at a particular point in time. o = no significant effect; + = a significant positive effect; - = a significant negative effect.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*; and on National Institute of Statistics, *Integrated Household Living Conditions Survey microdata*, 2000, 2005, 2011 and 2014 (NISR, 2000, 2005, 2011, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*.

Overall, the findings of this analysis suggest that the presence of immigrants does not have an unequivocally positive or negative effect on the labour market outcomes of Rwandan-born workers. Across all the years analysed, the presence of foreign-born workers both displaces Rwandan-born workers in terms of employment and raises the wages of Rwandan-born workers. It is possible that the presence of foreign-born workers at a particular skill level increases wages for all workers at that skill level.

Rwandan- and foreign-born workers still seem to occupy considerably different positions in the labour market. This is evidenced by the large disparities in average education levels between Rwandan-born and foreign-born workers,

generally better working conditions of foreign-born workers, and the strong geographic dispersion of Rwandan- and foreign-born workers. Over 70% of Rwandan-born workers still depend on subsistence agriculture in rural areas while most foreign-born workers are concentrated in non-agricultural jobs in Kigali and a few other urban centres. The fact that foreign-born workers fill needed skill gaps aligns with the national development framework's aim to leverage foreign skills for the benefit of the native-born labour force.

Despite their considerable share of sectoral value-added, immigrants do not make firms more productive

The link between immigration and economic output at the country and at the firm level is tenuous. An estimate of foreign-born workers' contribution to Rwanda's GDP is assessed here on the basis of their share of total employment and their labour productivity. As shown in Chapter 3, foreign-born workers' share of value added (represented by their share of total employment) is about 4.7%. Labour productivity is approximated by the distribution of native-born and foreign-born workers across sectors and education levels, in order to more precisely estimate immigrants' value added to GDP. Given the sectoral distribution of both native-born and foreign-born workers and average years of education of each group per sector, the foreign-born workers' share of value added is estimated as much higher, ranging between 10% and 12.7% (Figure 1.5). Immigrant workers' considerable value added share compared to their employment share likely comes from the combination of their overrepresentation in the most productive sectors and higher average number of years of education.

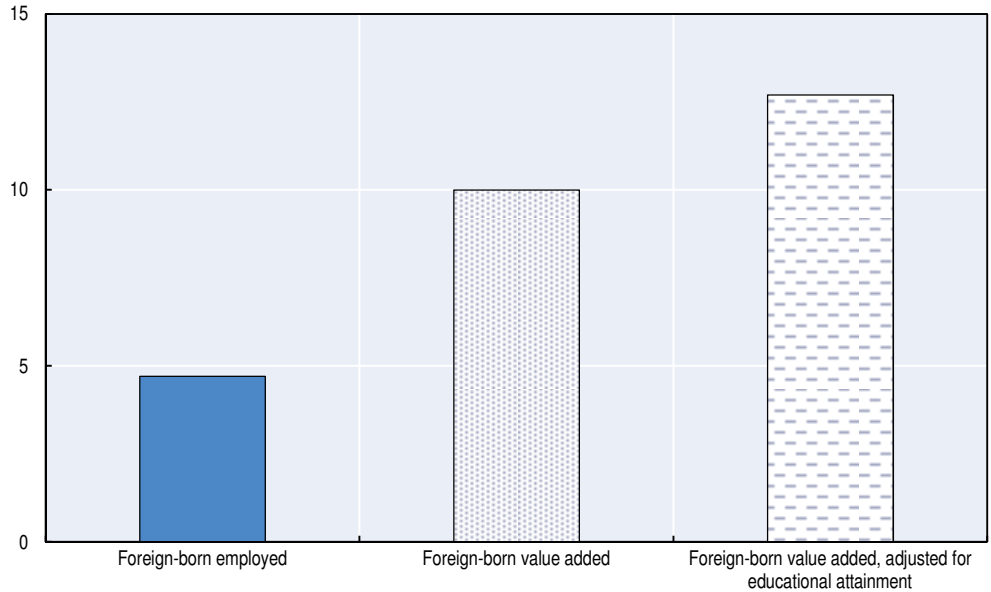
It remains to be seen whether immigrants have an impact on the productivity of firms that employ them. Based on the Rwandan Establishment Census rounds of 2011 and 2014, the annual turnovers of "immigrant-employing" firms and "non-immigrant-employing" firms are compared.[5] The analysis shows that employing any immigrants at all bears no relationship with having a high annual turnover when controlling for a variety of firm- and location-based characteristics.[6] Likewise, the number of immigrants employed within a single firm is not related to annual turnover. These two findings together suggest that immigrants themselves do not necessarily improve firm-level productivity, rather they tend to be more highly educated and more concentrated in productive sectors and firms than native-born workers.

Immigrants make a positive contribution to the government's budget

A final economic effect analysed in this report is the net fiscal contribution of immigrants. In this analysis, the contribution of immigrants is estimated by allocating government income and expenditures to foreign- and native-born individuals, and calculating the net contribution of each group on a per-capita basis.

Figure 1.5. **Foreign-born workers contribute more to GDP than their share of employment**

Foreign-born employed (% of all employment) and foreign-born value added (% of GDP), 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Census 2012 microdata* (NISR, 2012), *http://www.statistics.gov.rw/datasource/population-and-housing-census*; and on United Nations, *National Accounts Official Country Data* (UN, 2017).

In 2012, immigrants did not place a burden on public finances. In fact, irrespective of whether they are defined as foreign-born individuals or foreign nationals, immigrants contributed more to government revenue than they benefited from government services in that year. This presents a potential fiscal surplus of RWF 32.7 billion (Rwandan francs) attributable to foreign-born individuals, representing about 2.4% of the approved 2012 budget. By contrast, the net fiscal contribution of the native-born population was negative, amounting to a potential deficit of RWF 406.9 billion (29.4% of the approved budget). These findings are repeated from the fiscal analysis undertaken in Chapter 6 of the report, based on Annual Economic Reports and official population data.

Looking at revenue-to-expenditure ratios, foreign-born individuals contributed 1.7 times more than the cost of expenditures that can be attributed to them. This corroborates the above findings that foreign-born individuals made substantially higher contributions to public revenue relative to the value of public expenditure attributed to them. In contrast, the contributions by the native-born population only covered 62% of the value of public expenditure attributed to them. This difference is probably due to the fact that foreign-born workers are more likely than the native-born to be in waged employment, and hence are more likely to pay taxes.

Conclusions and policy implications

In Rwanda, immigrant and native-born workers have different, yet often complimentary, labour market outcomes, as reflected in a range of labour market indicators. While immigrant workers in many countries tend to be relatively young and less educated than the native-born population, the reverse is true in Rwanda. Immigrants are slightly older and have a higher education profile than native-born workers. They also appear to enjoy better employment opportunities and working conditions, as reflected by their higher wages. Foreign-born workers are more highly educated than their native-born counterparts. As a group they are overrepresented in the most productive sectors, and they continue to be attracted to sectors in which Rwandan-born workers are underrepresented.

Immigrant workers are not just "better off" than native-born workers. They can also help improve the labour market outcomes of the native-born by transferring skills or generating labour demand. In the presence of more foreign-born workers, employment-to-population ratios fall while unemployment rates do not rise; this could be a sign of improving quality of employment, particularly in those sectors and occupations where foreign-born workers are present, rather than of competition between workers. Foreign-born workers, due to their overrepresentation in waged employment, also contribute more per capita to public coffers than native-born workers.

Several issues related to immigration remain to be addressed. Some of the most important are the longer-term labour market impact, the productivity and growth impact, and the need to improve estimates of fiscal contributions. All three of these issues concern the availability of adequate data. With regard to the first, it is important to collect comparable data at regular intervals, including, where possible, adding new survey questions on place of birth of individuals and their parents. Further analysis of data from the national Labour Force Survey (LFS), which inquires about an individual's nationality, residency status (permanent or temporary) and country of birth could provide critical information to monitor the situation of immigrants as well as individuals of immigrant descent in relation to Rwanda's labour force.

Concerning the impact of immigration on productivity, some data exist in the form of the Establishment Census. But similar to the LFS, investing in comparable data over time might prove useful not only for examining immigration's productivity effects, but also for understanding productivity dynamics overall. Finally, more accurate net fiscal contributions could be calculated using individual tax records instead of estimates based on immigrant shares of total contributions and expenditures.

In recent years, Rwanda has done a lot to develop an economy attractive to foreign skills and investment, and seems to be starting to reap the benefits. Nonetheless, aside from more intense data collection and analysis, a number

of policy interventions could improve the economic impact of immigration in Rwanda. These centre largely on the following:

- improving coherence between, and carrying out, a range of national policies and implementing institutions
- building on the momentum of the Vision 2020 framework by further developing skills, formalising enterprises and attracting foreign investment
- strengthening regional integration.

There has been steady progress in designing, developing and implementing immigration policy. However, meeting targets within the policy and in relation to other major policy frameworks, notably on skills development and investment, has been slow. While it may be too early to draw conclusions on the impact of new migration policies and strategies within the current national development strategy, particularly in the absence of empirical studies and policy evaluations, the labour market trends of immigrants seem to be in accordance with the national development framework. It will therefore be critical for the government to evaluate whether migration instruments in place are flexible enough to keep up with labour market demands and are suitable for addressing potentially growing migration flows in the future. One way of doing this is to expand existing labour market information systems to include more data disaggregated for migrant and non-migrant labour supply and demand, based on the data and examples provided in this report.[7] Another meaningful approach would be to develop mechanisms to simplify and ensure continued implementation of the migration policy.

While employed foreign-born workers represented less than 5% of the workforce in 2012, their employment in terms of sectoral, occupational and educational distributions fills gaps in the labour market. Therefore, regularly updating the Occupations in Demand List will be critical as Rwanda continues to work towards its 2020 objective to become a knowledge-based economy and increase the capabilities and skills of its population. In this respect, the overrepresentation of foreign-born workers in the services sector is a good sign. The large differences in employment shares between Rwandan- and foreign-born workers in some service subsectors suggest that a large demand for labour and skills in these sectors still exist, in particular with respect to high-skilled and non-vulnerable jobs.

Even though non-farm economic activity in Rwanda is predominately private, the vast majority of these firms are small-scale and located in the informal sector. If the government is to fulfil its objective of having the private sector lead the country's development, it should give priority to policies that help micro- and small enterprises move into the formal sector and expand, whether they employ immigrant workers or not. Currently, single-person ventures make up a large share of the non-farm economy, and have limited prospects to greatly

contribute to overall job creation. At the same time, mechanisms should be developed to monitor and ensure implementation of existing migration policies aimed at supporting the improvement of available skills in the private sector.

Furthermore, practical interventions can address market failures that prevent small and medium-sized enterprises from growing. These include programmes that increase access to credit, improve fundamental business and augment the financial skills of firms' managers.

Most of Rwanda's largest employers are public or mixed, even though these firms are rare. Policies to attract a greater number of large private firms from abroad, such as expanding investment promotion agencies or encouraging linkages between national and international enterprises, are likely to help create domestic employment. However, such policies will succeed only if they encourage transferring skills and engaging the local workforce in parallel. Such initiatives might also encourage the return of the high-skilled Rwandan diaspora from abroad, as well as lead to greater high-skilled labour immigration.

In terms of regional integration, Rwanda has met its obligations to the Communauté Economique des Pays des Grands Lacs (CEPGL) and East African Community (EAC). The country plays an important leadership role in a region characterised by political instability and conflicts, and where security considerations rather than economic development dominate governments' attitudes to migration policy. The numbers of nationals from all CEPGL and EAC countries present in Rwanda have increased considerably over time. Thus, it is important to examine statistical and administrative data in depth to determine their profiles and the dynamics of their interest in and impact on Rwanda.

Regarding the social integration of foreign and foreign-born individuals, Rwanda is seen as an exemplary country in the region. This is likely owing to its political history and experience in reconciling post-conflict communities. Nonetheless, further research and policies are needed to improve the living and working conditions of certain vulnerable categories of foreign and foreign-born workers. Policies could, for instance, help integrate refugee communities currently residing in the country, given the importance of refugee spending for developing the local economy.

Notes

1. For details, see *www.ilo.org/global/topics/labour-migration/events-training/WCMS_409591/lang--en/index.htm*.
2. More recent findings from the Rwandan labour force survey, conducted in 2016 and 2017, suggest that time-related underemployment rates in 2016/2017 are around 30%, and that a broader measure of labour underutilisation suggests that around 58% of the labour force is being underutilised (either unemployed, in time-related unemployment, or in the potential labour force). At the same time, informal employment (in both formal and informal sectors) makes up almost 91% of total employment in 2017, suggesting

that quality of employment in Rwanda remains low and formal waged jobs remain elusive (NISR, 2017). Differences due to changes in definitions are discussed further in Chapter 3.

3. However, the quality of secondary and tertiary education remains questionable, meaning that, despite an increase in numbers, secondary and tertiary graduates might not be equipped with the educational skills necessary for the modern workforce (Ishihara, et al., 2016).

4. Similar studies have been performed in a few other low- and middle-income countries, including Costa Rica (Gindling, 2008), South Africa (Facchini, Mayda and Mendola, 2013) and Thailand (Pholphirul and Rukumnuaykit, 2010), which tend to find differing effects. While they find little or no adverse effect of immigration on native-born workers' employment, the impacts on wages are sometimes slightly negative.

5. The Rwanda Establishment Census asks for the share of foreigners, and not foreign-born individuals, among a firm's employees.

6. As data is collected at the level of the firm, individual workers' characteristics such as education cannot be taken into account.

7. The public website of Rwanda's Labour Market Information System (LMIS) can be found at *www.lmis.gov.rw*. It was last updated in 2015.

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ANNEX 1.A1

Data used in the report

The majority of the analysis in this report is based on population censuses (2002 and 2012) and surveys conducted by the National Institute of Statistics of Rwanda (NISR). These are made directly available to users by the NISR. The population censuses contain information about the country of birth, age, sex, education and work status of an individual. However, there is no information on wages or income. Nevertheless, specific Key Indicators of the Labour Market (KILM) were generated in Chapter 3.

The use of information from the Integrated Household Living Conditions Surveys (2000, 2005, 2011 and 2014) provided wage data as well as information on place of birth. These were used in Chapters 4 and 6 to estimate fiscal contributions of native- and foreign-born individuals.

The Rwandan Establishment Censuses (2011 and 2014) are a valuable source of information on all economic activities, the number of employed people and the size of establishments in Rwanda. The census is held every three years and counts every operating establishment with a fixed location and which practices a specific economic activity in Rwanda. Data from both waves of the Establishment Census were used in Chapter 5 to assess the contribution of immigrants to the production and productivity of firms.

In addition, the report relies on macroeconomic data from national and international sources. These include the United Nations Department of Economic and Social Affairs (on immigrants) and the World Bank (*World Development Indicators*).

Chapter 2

The immigration landscape in Rwanda: Patterns, drivers and policies

This chapter provides the economic and policy context of labour immigration in Rwanda. It starts with an overview of the macroeconomic context and recent socioeconomic development the country has experienced. Subsequent sections provide an overview of the immigration context, which, though not very large in absolute terms, is part and parcel of Rwanda's history.

Rwanda has seen impressive economic growth despite continuing inequalities

For the past two decades, Rwanda has experienced considerable and stable economic growth. Between 2000 and 2015 real gross domestic product (GDP) per capita increased steadily, growing at a pace of about 5% per year. In 2005, it surpassed the pre-conflict levels of the 1980's and early 1990's. Rwanda has been lauded by many as an exemplary case of achieving broad-based economic growth despite being relatively resource poor (Christiaensen and Devarajan, 2013). This could be attributed to strict autocratic economic governance which promotes private sector development while protecting against the most egregious forms of profiteering (Booth and Golooba-Mutebi, 2012). It could also result from the country's rapid post-conflict recovery, which includes strong poverty reduction efforts, intensive growth in agricultural productivity (despite a moderate decline in agricultural production), and a progressive stabilisation of population growth (Verpoorten, 2014).

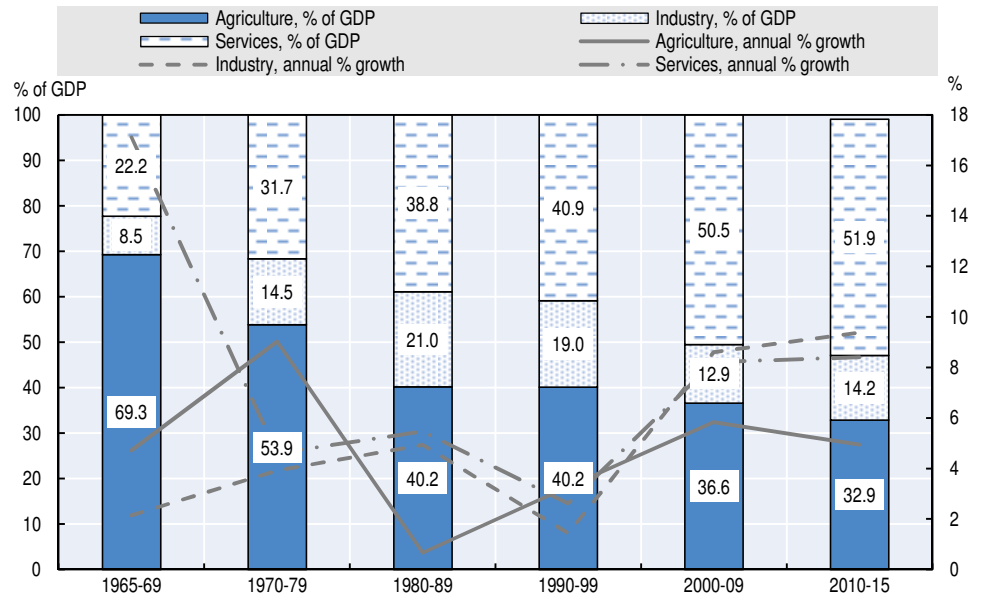
Rwanda remains among the least advanced countries in the world with a Human Development Index ranking of 151 out of 187 (UN, 2016), in spite of recent progress in many economic indicators. It had a GDP per capita of USD 1 784 in 2015, coupled with high fertility and infant mortality rates. Rwanda's population, estimated to be 11 262 564 by the National Institute of Statistics of Rwanda in 2015, remains overwhelmingly rural (only about 15% of Rwandans live in urban areas) with a high population density of 445 inhabitants per square kilometre. Overall education levels remain relatively low although this is steadily improving. Rwanda's economy is dominated by subsistence agriculture, the export of crops such as tea and coffee, as well as services (now the largest sector of the economy with 47.5% of GDP in 2015). The poverty rate decreased from 57% to 39% between 2005 and 2013, while life expectancy rose from 55.6 to 65.6 years in that same interval (World Bank, 2017).

In 1998, the government began drafting a development policy framework known as Rwanda Vision 2020 (Government of Rwanda, 2000, 2012), which outlined a long-run development path and goals to be reached by the year 2020.[1] For the short-run, the plan outlined the need for policies that promoted private sector growth in order to create an environment that stimulated growth in industry and services. In order to achieve this, sectoral transformations are required as Rwanda's economy is still largely based on the informal agricultural sector. These transformations can be observed in the decline of

the agricultural share of GDP, from 45% in 1998 at the beginning of the Vision 2020 programme to 33% in 2012,[2] while the share of industry increased from 6% to 14% (Figure 2.1). Additionally, services more than doubled from 20% in 1965 to 47% in 2015, while also becoming the largest contributor to GDP since 2000. These changes indicate that Rwanda is making strong efforts to move away from an economy that overly depends on primary production and towards one based on services and trade. Additionally, the shifts reflect the move towards higher productive sectors in the economy, which will ultimately allow for higher quality jobs as well as more income opportunities for the Rwandan population (Malunda, 2012).

Figure 2.1. **Agricultural contribution to GDP has declined, while that of services has increased**

Value added by sector (% of GDP), Annual value added growth by sector (%), 1965-2015



Source: World Bank (2016c), *World Development Indicators*, *https://data.worldbank.org/data-catalog/world-development-indicators*.

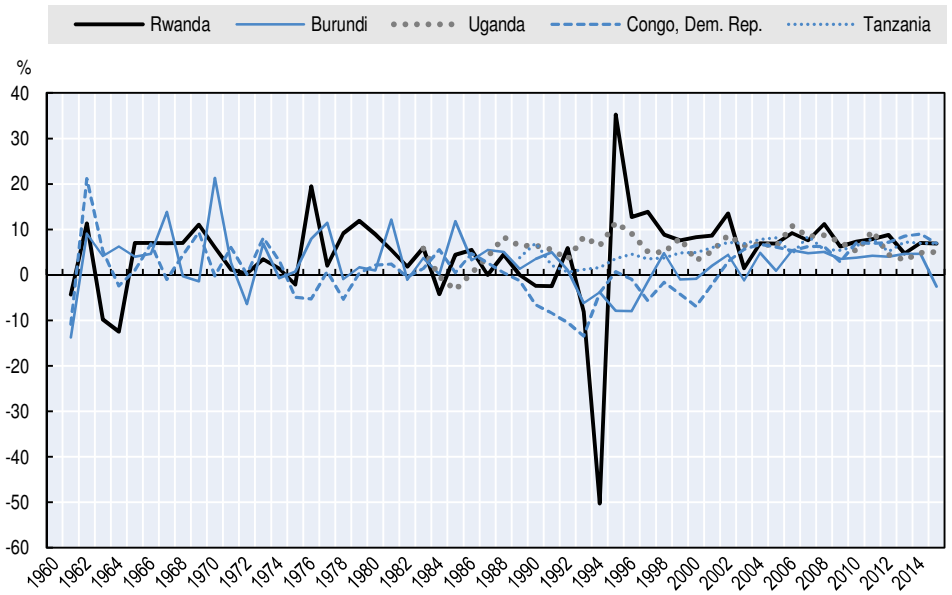
Furthermore, Vision 2020 emphasises the need to improve human resources for Rwanda to become a knowledge-based economy, to develop infrastructure as well as to promote regional economic integration and co-operation. In order to achieve these goals, a medium-term strategy was developed in the second Economic Development and Poverty Reduction Strategy (Government of Rwanda, 2013). The purpose of this strategy is to accelerate economic growth and reduce poverty through four key areas: rural development, economic transformation, productivity and youth employment, and accountable governance. More

concrete goals include raising GDP per capita to USD 1 000, having a poverty ratio of less than 30% and having less than 9% of the nation living in extreme poverty by 2018 (World Bank, 2016a).

These ambitious goals are built on the development success of the past decade. At the beginning of 2001, Rwanda was characterised by a comparatively high level of current account deficit, low savings and investment rates as well as high underemployment and unemployment rates. Furthermore, intense exploitation of agricultural land in combination with high birth rates had led to a decline in the productivity of land as well as malnutrition among its population. Nevertheless, GDP growth was 8.7% in 2001 and remained high in the following years, with an average of 7.6% since 1995 (Figure 2.2). This growth path in addition to the increased employment opportunities indicate the tremendous efforts that Rwanda has undertaken in restructuring and stabilising its economy since the 1990s and working towards the 2020 goals mentioned above. As a result, GDP per capita has been growing steadily since 1994 from a low of USD 486 to USD 1 718[3] in 2015, surpassing the GDP per capita of its neighbours Burundi and the DRC in 1996, while almost having caught up to Uganda (Figure 2.3).

Figure 2.2. **The economic growth of Rwanda has stabilised since the early 2000s**

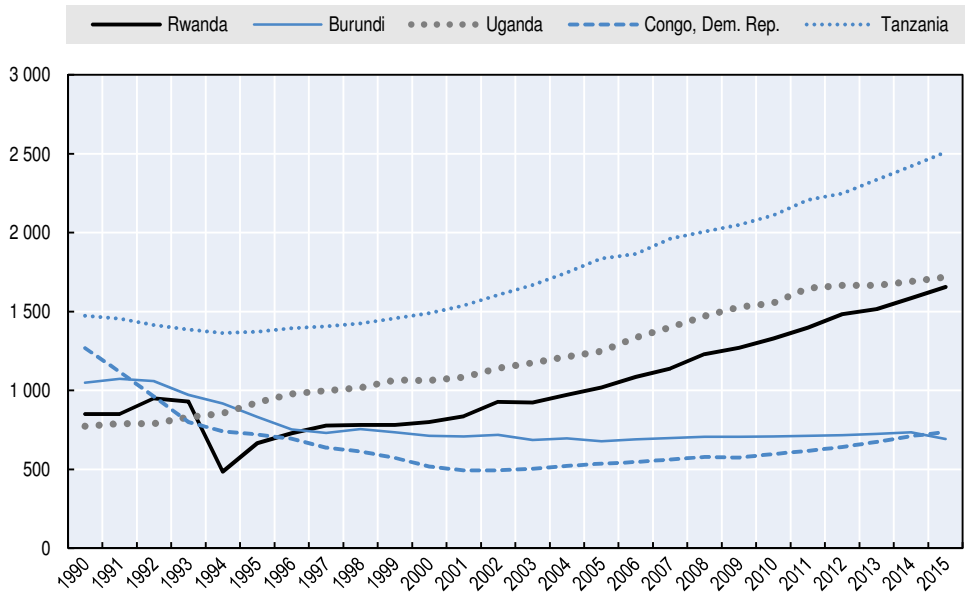
Annual GDP growth rate (%), 1960-2014



Source: World Bank (2016c), *World Development Indicators*, *https://data.worldbank.org/data-catalog/world-development-indicators*.

Figure 2.3. **GDP per capita has seen a constant increase since the mid 1990's**

GDP per capita, PPP (constant 2011 international dollars)

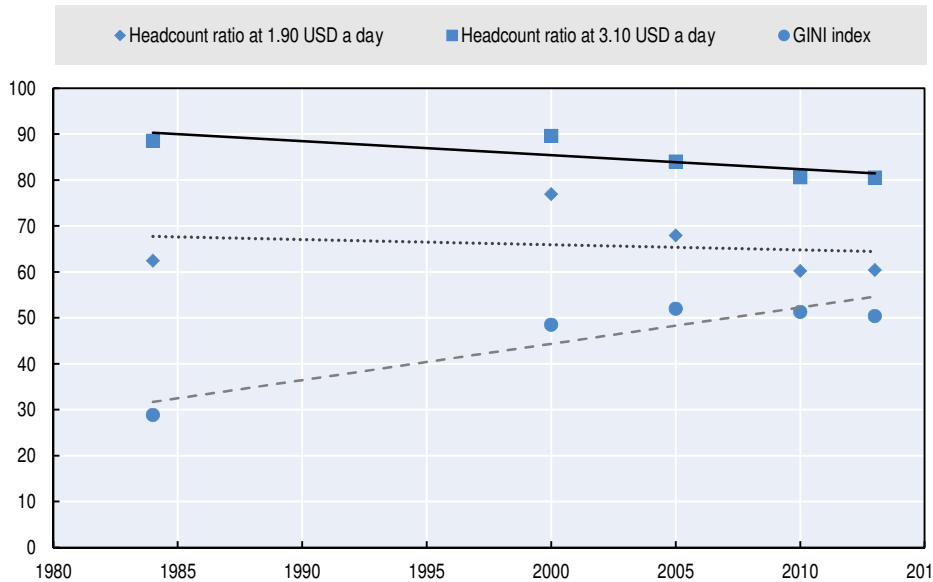


Source: World Bank (2016c), *World Development Indicators*, *https://data.worldbank.org/data-catalog/world-development-indicators*.

Additionally, Rwanda has made tremendous progress in reducing poverty and inequality evidenced by the fact that many of the Millennium Development Goals (MDGs) were met by 2015 (UN, 2014). Rwanda saw substantial improvements in its living standards, a 67% drop in child mortality, as well as the attainment of near-universal primary school enrolment (World Bank, 2016a). Furthermore, it managed to reduce the rate of extreme poverty by 16.6 percentage points from 2000 to 2013 (77% to 60.4%, respectively) (Figure 2.4). This reduction was due to a variety of factors including the reduction in household size, the increase in income from transfers, and the increase in wage income due to higher production levels, increased employment opportunities and commercialisation of agriculture (NISR, 2012a). However, it seems that the benefits of poverty reduction are not spread equally across the population, and some authors argue that the country's focus on "maximum growth at any cost" is an inefficient means of reducing poverty (Ansoms, 2012), also evidenced by an increase in inequality between 2001 and 2011, from 29% to 51% (World Bank, 2017). This points toward the need to develop more inclusive growth as well as implement pro-poor policies.

Figure 2.4. **Poverty has decreased, while income inequality has been on the rise over the past decades**

Poverty headcount ratio (USD 1.90/3.10 a day), Gini index (%)



Source: World Bank (2016c), World Development Indicators, *https://data.worldbank.org/data-catalog/world-development-indicators*.

Immigrants' socio-economic status depends on the timeframe, but more data is needed

Current immigrant stocks in Rwanda seem composed of low-skilled immigrants from border areas either seeking refuge in Rwanda (from Burundi, DRC and Uganda), or small cross-border traders (NISR/MINECOFIN, 2014). An increasing number of professionals from neighbouring countries, the East African Community (EAC) and overseas has also settled in the country either for the mid-term linked to a work contract or longer term using Rwanda as the basis of their operations (ibid). There is, however, a scarcity of quantitative and qualitative data currently available on these various groups.

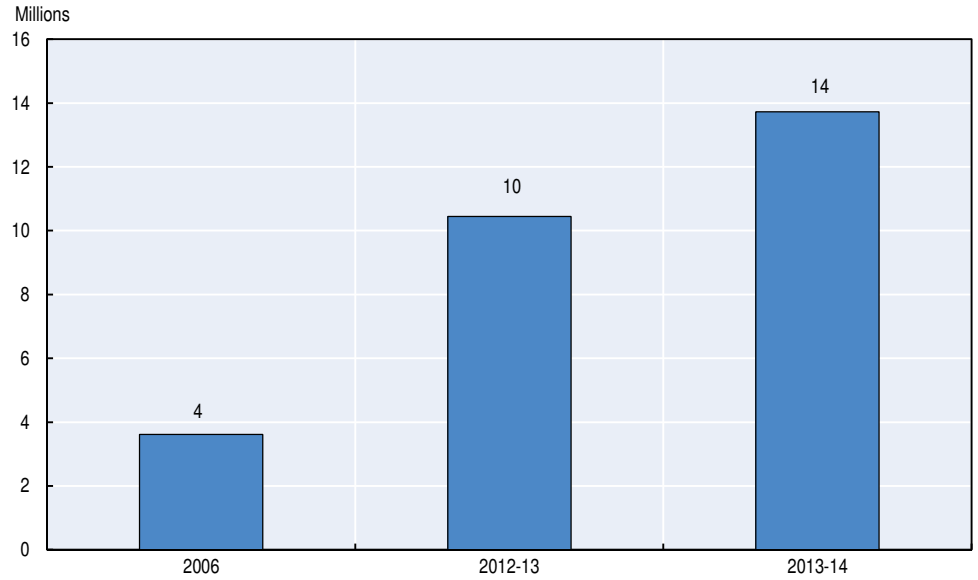
Like many other countries in the region, until recently, Rwanda did not have good quality data on migration. Its various censuses, held at regular intervals, are useful instruments but are also limited to guide economic and labour migration policies. Recent developments are improving available statistical data on skills, labour and education indicators.

The 2009 National Skills Audit reported severe skills gaps in the private sector in Rwanda. Rwanda's Economic Development and Poverty Reduction Strategy II (EDPRS II, 2013) identifies the lack of skilled labour as a growing

problem. The number of formal sector firms reporting inadequate skills as a major constraint has doubled since 2006. The problem is more serious for large firms with more than 100 employees, 45% of which reported an inadequately educated workforce as a constraint in 2011.

The recently piloted Labour Force Survey (NISR, 2016) contains three questions relating to one's nationality, immigration status (permanent resident or temporary resident) and country of birth. This is critical information to monitor the situation of immigrants and people of immigrant descent in relation to the national labour force of the country. It could become a useful monitoring and evaluation instrument for implementing Rwanda's immigration policy and more specifically in relation for managing the Skilled Workers Programme and the Occupations-in-Demand List on which that Programme is based. However, this will only become possible if the Labour Force Survey is administered regularly with consistent questions over time. For now, available data from the 2016 pilot for these three questions have not been cross-tabulated with other indicators, let alone analysed in depth in comparison with national labour force indicators.

Figure 2.5. **Cross-border movements increased as of 2012**
Number of individual cross-border movements between 2006 and 2014



Source: Directorate General Immigration and Emigration, cited in IOM Rwanda (2015).

It is also clear from data released by the Rwandan Directorate General of Immigration and Emigration (DGIE) that the new migration policy has resulted in substantive increases in border crossings since 2012. For instance, a 14% increase in travellers coming in and going out of the country was observed

over four months at borders with Uganda (DGIE cited in IOM Rwanda, 2015). Overall, within a few years there was a 24% increase in cross-border movement (see Figure 2.5).

Rwanda possesses capable institutions to collect and analyse migration data to guide policy decisions but systematic data collection plans still need to be put in place and staff trained to analyse it regularly. Attention should also be paid to supporting qualitative research on the experience and integration of all categories of international immigrants to Rwanda to complement available statistical data.

The country entered a very different era of migration in the second half of the 2000s, as a result of a radical change in and the adoption of pro-active migration policies that will be described in the following section. The adoption of an open approach to the free movement of populations from partners in regional integration, including the Communauté Economique des Pays des Grands Lacs (CEPGL) and the East African Community (EAC), has undeniably increased flows to and from Rwanda particularly related to trade or for short-term business. Overall, there seems to be larger groups of immigrants from neighbouring countries (Burundi, DRC, Tanzania and Uganda) and a steady increase of immigrants from overseas. But too little is known about the impact of these immigrants on the Rwandan society and its economy for lack of empirical studies of existing data. Should Rwanda continue with similar policies and see its growth accelerate, it would certainly become an immigration hub, thus raising questions about integrating these different population groups into its own workforce.

Many migration policies have been developed since 2000, but implementation remains unclear

In the mid-2000s, the Rwandan government decided to give a completely new direction to its policy and legislative frameworks on migration to render them more consistent with Rwanda's new economic policy objectives. In particular, the government wanted to align its migration policy to Rwanda Vision 2020.

Rwanda should develop a pro-active programme to attract foreign entrepreneurs and immigrant workers with much-needed skills that would help boost economic development. This was one of several recommendations made in an Investment Policy Review undertaken by the United Nations Conference on Trade and Development (UNCTAD) in 2005-06. This is the background for the development of a pro-active migration policy designed in line with the country's commitment to promoting good governance and strengthening the private sector. The DGIE was therefore tasked with drafting the National Migration Policy and Strategies with inputs from a range of ministries (DGIE, 2009).

The National Migration Policy is intended to improve outcomes for migrants and natives

The Rwandan National Migration Policy is a 33-page document with a comprehensive approach to migration issues. It follows four main goals: (i) enhancing Rwanda's competitiveness and integration into the global economy; (ii) promoting the process of regional integration and development within the various regional bodies to which Rwanda is ascribed; (iii) generating economic growth and employment opportunities in formal and informal sectors; and (iv) protecting Rwanda's security and stability as well as contributing towards improved living standards for all Rwandans (DGIE, 2009, pp.1).[4]

Rwanda has made the choice of legislation and policy that are entirely geared towards attracting foreign investments and needed skills into the country. They also facilitate the return of the Rwandan Diaspora and respect Rwanda's commitments within the frameworks of the CEPGL, formed by Burundi, DRC and Rwanda, and of the EAC under the 1999 Treaty establishing a Common Market between member states (Burundi, Kenya, Rwanda, Uganda and the United Republic of Tanzania). The latter includes freedom of movement, residence and establishment for workers.

The National Migration Policy presents specific programmes that directly address the policy goals and establish a range of permits. These include the Tourism, Labour Migration Programme (short-term approach)[5] and in particular the Skilled Workers Programme based on the Occupations-in-Demand List, and the Business Migration Programme for multinationals, large entrepreneurs and medium-sized traders (long-term approach).[6]

In addition, the policy document deals with permanent and temporary residency and creates paths between them, provides indications regarding access to citizenship and caters to the diaspora. It also provides technical indications on identity and travel documents for Rwandans, border management and counter-trafficking. Finally, it contains an institutional framework for implementing the policy, including monitoring and evaluation mechanisms and the principle of the one-stop shop. The policy on citizenship caters to most situations and clearly aims to facilitate Rwandan citizenship. The following possibilities are listed for eligibility for citizenship: foreign nationals aged 18 and above living in Rwanda or abroad who fulfil the necessary requirements; nationality by birth on the Rwandan territory; nationality of Rwandan origin; and nationality by marriage, by naturalisation or by recovery of Rwandan nationality (DGIE, n.d.).

The specificity of the Rwandan migration policy is its openness. As opposed to many policies across the region, it does not operate against a market test where the applicant must disprove the availability of local labour. Rather, an Occupations-in-Demand list identifies jobs for which skills are lacking or in short supply, and for which the government recruits actively from abroad. Key criteria

are proof of sufficient funds and payment of fees. The Rwanda Development Board (RDB) checks the applicants' qualifications and is responsible for the registration of investor and skilled worker visas.

Box 2.1. **Additional information on the National Migration Policy**

Legislative and administrative reforms were undertaken and led to the passing of the following laws and regulations for implementing the National Migration Policy:

- Law No.04/2011 of 21/03/2011 on Immigration and Emigration in Rwanda
- Ministerial Order No.02/01 of 31/05/2011 Establishing Regulations and Procedures Implementing Immigration and Emigration Law
- Ministerial Order No.03/01 of 31/05/2011 Determining the Fees Charged on Travel Documents, Residence Permits, Visas and Other Services Delivered by the Directorate General of Immigration and Emigration
- Law No. 05/2012 of 17/02/2012 Governing the Organisation and Functioning of International Non-Governmental Organisations
- Ministerial Instructions No.003/19.18 of 04/04/2013 Determining Occupations in Demand List
- Presidential Order No.70/01 of 03/12/2013 Establishing Border Posts
- Law No.13 ter/2014 of 21/05/2014 Relating to Refugees.

The current legislation and visa application system comprise 48 different visa types (including sub-classes), a considerable increase from the situation in the early 2000s. The current system is fully managed under the one-stop shop principle and most applications can be entirely processed online. There are also multiple ways in which holders of one type of visa may change to another type while in the country, based on changes in situations (for instance, people receiving job offers or having investment opportunities, or students wanting to work during their holidays). The policy is also progressive in terms of the profile of immigrants it caters for, addressing the expectations of multinationals as well as small cross-border traders and frontier populations.

Legislation[a] has also been harmonised with the 2010 EAC Protocol on Free Movement of People, Labour and Services as a requirement of the East African Community partner states. These laws provide citizens of EAC partner states the right to visit Rwanda for a period of up to six months without a visa. They can be issued a specific visitor's visa by simple endorsement in their valid travel document. The work permit fee for the EAC citizens has been waived. As a result, an increasing number of skilled experts target Rwanda's emerging economy. Another innovation under the EAC protocol is the possibility for citizens of member states to travel with an identification, voter or student card, instead of a passport. This measure is currently effective in Rwanda, Kenya and Uganda (see DGIE, 2009).

Box 2.1. **Additional information on the National Migration Policy** *(cont.)*

A new CEPGL travel document has been re-introduced for Rwandans and foreigners residing in Rwanda. It allows holders to travel across member states (DGIE, 2009).

While there is no integration policy per se in Rwanda – somewhat understandably given the type of immigration targeted by government and the recent change in policy direction – the Rwandan legislation has catered for aspects such as integrating dependents. All visa types except tourist visas (since application is individual) allow bringing in dependents and spouses and give them the same rights as the main applicants. Children under the age of 25 may also accompany their parents on temporary work and investors visas if they are still pursuing education.

a. Law No.04/2011 of 21/03/2011 on Immigration and Emigration in Rwanda; Ministerial Order No.02/01 of 31/05/2011 Establishing Regulations and Procedures Implementing Immigration and Emigration Law.

Several government bodies are responsible implementing and co-ordinating immigration policy

Migration policy matters and management are discussed and administered by the Rwanda Directorate General on Immigration and Emigration. Services rendered by the Directorate include the issuance of passports for Rwandan nationals, the issuance of visas and permits for foreign nationals visiting Rwanda as well as the implementation of the Occupations-in-Demand list.[7] The Directorate works in close collaboration with other government entities. For example, in the Skilled Workers Programme, the policy indicates annual targets for the number of people to be admitted in the skilled workers category, with occupation-specific levels based on skills assessments and the Occupations-in-Demand List. However, to date this policy has not been implemented.

The Ministry of Public Service and Labour is responsible for undertaking annual consultations with key stakeholders throughout the country about the composition and number of skilled workers needed in the country every year. Consultations should include government agencies, employer and employee organisations, civil society groups, groups representing immigrants, human rights bodies, representatives of provincial and district officials, academics, and others likely to have an interest in importing skilled workers. The consolidated Occupations-in-Demand List is to then be approved by Cabinet.

Given the connections between the Rwandan immigration policy and investment and skills, the Rwanda Development Board (RDB) plays a key role in implementing the policy. The RDB is responsible for vetting the credentials and investment projects of investors applying for investor permits. The RDB was established under the principle of the one-stop-shop for investors and was set up by bringing together all the government agencies responsible for the entire

investor experience under one roof. This includes key agencies responsible for business registration, investment promotion, environmental clearances, privatisation and specialist agencies which support the priority sectors of ICT and tourism, as well as small and medium-sized enterprises, employment promotion and human capacity development in the private sector.

Additionally, in the Business Migration Programme, the government is meant to indicate specific priority areas for investment on an annual basis, once the RDB has consulted government agencies, the Private Sector Federation and other relevant stakeholders. The Tourism Programme should be managed in collaboration with the National Agency for Tourism and National Parks, also under the RDB (DGIE, 2009). The RDB is therefore the economic structure playing an important role in Rwanda's immigration policy.

Immigration policies contribute considerably to economic development

Rwanda has considerably shifted its approach to migration policy by positioning it firmly as an instrument of economic development guided by three main goals: tourism development, skills enhancement for innovation and economic development, and facilitation of investment. To implement these clearly identified goals, the Government of Rwanda has endorsed policy and adopted legislation consistent with its declared objectives with a pragmatic approach to institutional co-ordination, adopting the one-stop shop principle and relying increasingly on electronic systems and procedures.

Policy was adopted in 2008 and most related legislation had been passed by 2011. Training of staff and restructuring of implementing agencies was also conducted in the meantime. It seems too early to draw conclusions on the efficiency of the new system. While there has been steady progress in policy design, development and implementation, it will be important to see whether meeting targets within the major policy frameworks, notably on skills development and investment, benefit substantively from the new migration policy and strategies. It will also be critical for government to evaluate whether instruments in place are flexible enough to allow necessary shifts based on renewed priorities. The regular update of the Occupations-in-Demand List will be critical in this respect.

In terms of regional integration, Rwanda has met its obligations to the CEPGL and EAC. The country is playing an important leadership role in a region characterised by political instability and conflicts where governments' attitudes towards migration policy are dominated by considerations of economic development. For all CEPGL and EAC nationals, except perhaps Kenya, there have been steady and considerable increases in stocks of immigrants in Rwanda. It will be important to examine statistical and administrative data in depth to determine the profile of these immigrants and the dynamics of their interest in, and impact on, Rwanda over time.

Even though Rwanda has made significant economic progress, it continues to face challenges that need to be tackled. Firstly, the size of the informal private sector should be decreased in order to ensure continued economic growth. Furthermore, improving the nation's infrastructure as well as access to electricity is needed to reduce constraints to private investment, while additionally decreasing the cost of finance. Lastly, Rwanda needs to consider reducing its dependency on foreign aid, currently 30% to 40% of the public budget, by mobilising domestic resources in order to avoid the vulnerability that comes with fluctuating aid flows (World Bank, 2016a).

Furthermore, Rwanda should address its employment landscape, which is currently lacking jobs as well as experiencing high levels of underemployment. In this vein, the Rwanda National Employment Policy aims to create 1.5 million new jobs by 2024, which roughly translates to 214 000 productive off-farm jobs annually for that duration, to meet the needs of the labour force (World Bank, 2016b). This could be achieved by promoting and providing opportunities in non-farm employment, which is essential for sustainable economic transformation. Therefore, strong links between the agricultural and non-agricultural sectors need to be created, while ensuring growth in the latter. This will promote employment as well as help decrease the large amount of income inequality currently present in the nation (Malunda, 2012).

Notes

1. The first version of Vision 2020 was published in 2000, and was revised in 2012, according to its authors, in order "to assess the relevance of the indicators and targets and ensure that they continue to reflect the ambition and the progress of the country towards attaining its long term development goals" (Government of Rwanda, 2012).
2. The agricultural share of GDP has been declining since at least 1965, when it stood at 74.8% (World Bank, 2017).
3. The units are constant 2011 international dollars. Note that one of the 2012 revisions of Rwanda Vision 2020 includes the adjustment of GDP per capita to meet changing thresholds for middle-income countries. The revised Vision 2020 target for GDP per capita was raised from USD 900 to USD 1 240, in order to comfortably surpass the current threshold of USD 1 006 for lower-middle-income countries.
4. In addition, the policy is aligned to the following national and international frameworks: Rwanda Vision 2020, the National Investment Strategy (NIS), the Economic Development and Poverty Reduction Strategy (EDPRS), the Millennium Development Goals (MDG), the New Partnership for Africa's Development (NEPAD), and the Migration for Development Programme (DGIE, 2009).
5. The short-term approach supports strategies that aim to fill talent and skills gaps in the labour market of Rwanda. It includes the skilled workers programme (whose key objective is to attract foreign workers to fill identified labour market shortages for a temporary period of time in Rwanda); special frontier workers; holiday workers; researchers, trainees and volunteers; as well as technical assistants (DGIE, 2009).

6. The long-term approach aims to support the progress of skills acquisition by Rwandan-born individuals. This is a more sustainable approach for filling labour market shortage gaps. It facilitates the entry into the labour market for Rwandan returnees (DGIE, 2009).

7. Additional services rendered by the Directorate include the issuance of Laissez-passers, the issuance of authorisation to circulate between CEPGL countries (Burundi, DRC and Rwanda), the review and issuance of applications for citizenship; border management; the accreditation of international non-governmental organisations, and the issuance of identity cards for foreign nationals residing legally in Rwanda.

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Chapter 3

Immigrant integration in Rwanda: Labour market outcomes and human capital

This chapter examines the development of the Rwandan labour market between the years 2002 and 2012. It also explores how immigrant and native-born workers differ according to a number of key indicators of the labour market. Following sections on the volume and nature of employment, the chapter addresses occupational change using a demographic decomposition method. Comparisons are made between the human capital of native-born and foreign-born workers, including with regard to skills mismatch.

In 2000, the Government of Rwanda adopted the Vision 2020 framework for development, aimed at moving Rwanda from a low- to a middle-income country (Government of Rwanda, 2012). Since then, the country has experienced considerable economic growth, increasing gross domestic product (GDP) per capita from USD 486 in 1994 to USD 1 718 in 2015 (ibid.). Rwanda's GDP also grew explosively from USD 1.6 million to 7.2 million between 2002 and 2012 (World Bank, 2017), coinciding with a strong process of urbanisation and growth in the services sector.

While migration has not significantly shaped the labour market, Rwanda's Economic Development and Poverty Reduction Strategy 2008-12 (Government of Rwanda, 2007) and Vision 2020 framework emphasise leveraging international talent to supplement local skills. They also promote increasing the role of the private sector in human development and basic social services, improving education outcomes and gender equality, and transitioning to a knowledge-based service economy. These serve as medium- and long-term objectives to achieve growth and alleviate poverty as part of the country's development goals.

In this and the following chapters, unless otherwise stated, an immigrant is defined as someone who was born abroad and is currently living in Rwanda.[1]

Foreign-born employment makes up about 4.7% of the total working-age population (aged 15 and over) in Rwanda. In comparison with the Rwandan-born workforce, the foreign-born tend to be older and less employed, but also higher educated, less often in vulnerable employment and better paid. While employment rates are still high and unemployment rates low in Rwanda, an observation which likely masks high underemployment rates, labour market outcomes for Rwandan-born workers improved steadily between 2002 and 2012, approaching, if not converging with, outcomes for foreign-born workers. Though this does not prove that immigrant workers contribute directly to growth or improve the labour market outcomes of native-born workers, it does align with the government's long-term development plans.

Particularly in light of Rwanda's Vision 2020 (see Chapter 2), the overrepresentation of foreign-born workers in the services sector is noteworthy. The large differences in employment shares between Rwandan- and foreign-born workers in some service subsectors suggest there is a great demand for skills in these sectors, in particular with respect to high-skilled and

non-vulnerable jobs. As the Rwandan-born workforce does not have sufficient qualifications to adequately meet these demands, foreign-born workers fill part of the gap.

Labour force participation and employment rates are improving for Rwandan-born workers

Between 2002 and 2012, Rwanda's working-age population grew from 4.3 million to 5.9 million (Table 3.1). As the labour force, including subsistence farmers, also grew by 0.9 million people during that time span (from 3.3 to 4.2 million people, attributable mostly to the entrance of male workers into the labour force), this equates to a 5.3 percentage point drop in the labour force participation rate. The number of employed grew from about 3.3 million in 2002 to 4 million in 2012, while the employment-to-population ratio fell from 75.3% to 68.1% (Annex Table 3.A1.3). At the same time, the unemployment rate rose from 0.8% to 3.6% (Figure 3.2 and Annex Table 3.A1.4a).[2]

Table 3.1. **Rwanda's labour force grew while participation rates dropped**
Working-age population, labour force and labour force participation rate, by sex, 2002 and 2012

	All			Men			Women		
	2002	2012	Change 2002-12	2002	2012	Change 2002–12	2002	2012	Change 2002-12
Working age population (15+) (million)	4.3	5.9	1.6	1.9	2.7	0.8	2.4	3.2	0.8
Labour force (15+) (million)	3.3	4.2	0.9	1.5	2.0	0.5	1.8	2.2	0.4
Labour force participation rate (% or percentage points change)	75.9	70.6	-5.3	75.9	72.6	-3.3	75.9	68.9	-7.0

Source: Authors' own work based on the Rwandan Population and Housing Censuses 2002 and 2012 (NISR, 2002, 2012), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Between 2002 and 2012, the foreign-born working-age population grew from 215.5 thousand to 280.9 thousand (see Annex Table 3.A1.2), representing about 4.7% of the working-age population in 2012. The foreign-born labour force also grew, from about 112.7 thousand to 161.2 thousand people, or from 3.4% to 3.8% of the labour force. In contrast to the decline in the Rwandan-born labour force participation rate between 2002 and 2012, the commensurate foreign-born rate increased by 5.1 percentage points (from 52.3% to 57.4%, see Figure 3.2).

While much of Rwanda's labour force was still engaged in rural agriculture in 2012, between 2002 and 2012 the continuing urbanisation trend of the

previous decade can be observed particularly in and around the capital Kigali, in the northern half of the Eastern Province, and the urban areas of Musanze, Ngororero, Rubavu and Ruhango Districts (see Figure 3.1A). Foreign-born workers are also present in higher concentrations in urban areas, likely due to the fact that more and better quality non-agricultural jobs are predominantly found there. In 2012, most of the foreign-born labour force is concentrated in and around urban centres, particularly Kigali (where foreign-born workers account for over 10% of the labour force), in Rubavu District in the Western Province and throughout parts of the Eastern Province (NISR/MINECOFIN, 2012; see Figure 3.1B).

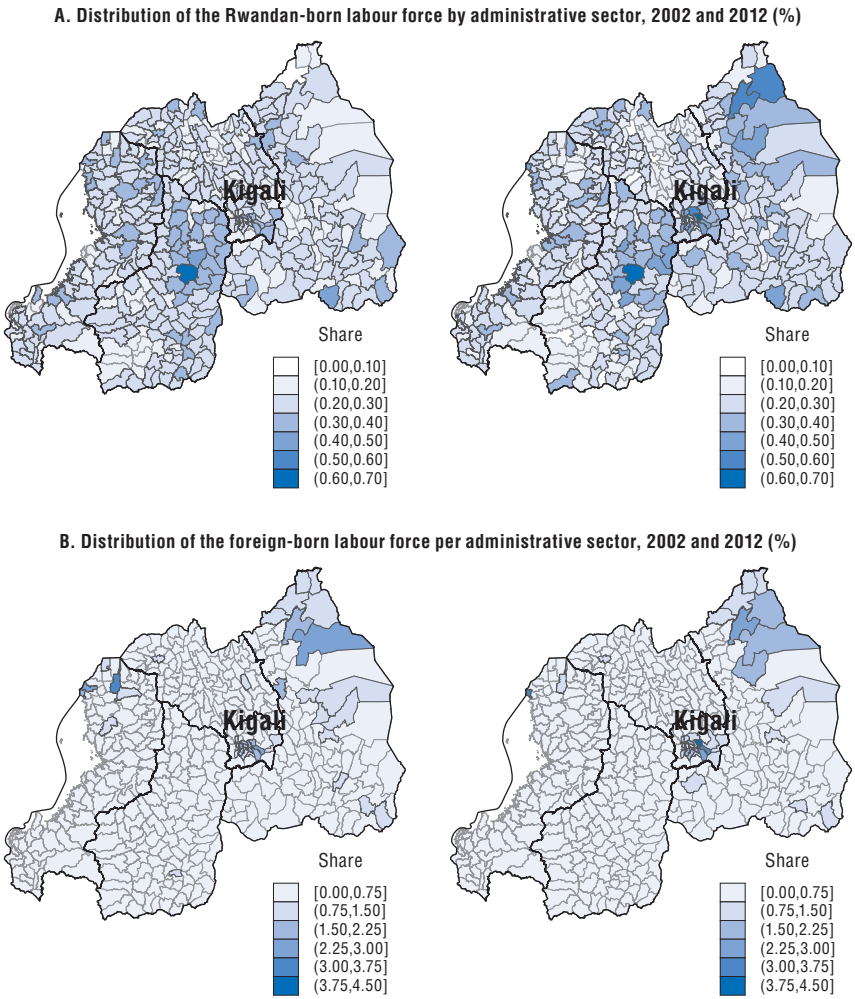
Box 3.1. **Migration statistics and definitions in the Rwandan Population and Housing Census, 2012**

To meet its own objectives the National Institute of Statistics of Rwanda (NISR) takes a deliberately broad approach in assessing immigration in Rwanda. The 2012 Rwandan Population and Housing Census (RPHC) looks at both internal and international migration. Importantly, the NISR defines an immigrant as any person whose place of birth is not the same as the current place of residence (both within and outside Rwanda). Furthermore, it distinguishes between lifetime immigrants and recent immigrants, the former being people whose place of birth is not their current place of residence and the latter those lifetime migrants who have last moved the previous five years. It is important to keep in mind that this definition includes Rwandan nationals who may have been born or lived abroad in recent years. Indeed, the NISR's thematic report on migration and spatial mobility notes that the "majority of lifetime immigrants (about 84%) have Rwandan nationality and about 5% have Rwandan nationality in addition to another nationality (i.e. dual nationality)" (NISR, 2014).

With this caveat, *the Rwanda Fourth Population and Housing Census (RPHC4) Thematic Report* asserts that there were 370 231 international lifetime immigrants and 65 763 international recent immigrants in Rwanda in 2012, with the share of each in relation to the population at large being 3.50% and 0.60% respectively. Clearly, even when applying the more generous definition of an immigrant, including certain Rwandan nationals, the scale of immigration in Rwanda is particularly small. Moreover, the data does not distinguish between labour migration and refugee inflows. According to the United Nations High Commissioner for Refugees (UNHCR), there were nearly 60 000 officially recognised refugees in Rwanda in 2012, most of whom originated from the Democratic Republic of the Congo (DRC). In the years since, the number of refugees hosted by Rwanda has more than doubled as a result of further unrest in the eastern part of the DRC as well as neighbouring Burundi (UNHCR, 2016).

Figure 3.1. **The foreign-born labour force is distributed similarly to the overall labour force**

Maps of Rwanda by province and administrative sector

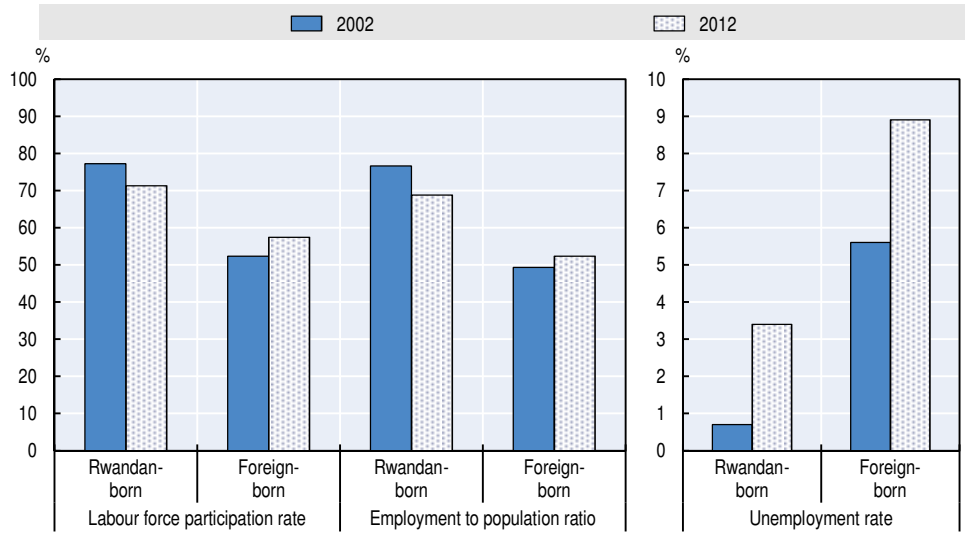


Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*, *Rwanda GIS Data for all Districts and Provinces of Rwanda*. National Institute of Statistics of Rwanda.

Between 2002 and 2012, the employment-to-population ratio of Rwandan-born workers dropped from 76.6% to 68.8%, but increased from 49.3% to 52.3% for foreign-born workers. While a high employment-to-population ratio is usually considered positive in high-income countries, in Rwanda the observed drop in that ratio for Rwandan-born workers might be cause for cautious optimism, as it coincides with an improvement in the quality of employment (see section on status in employment below).

Figure 3.2. **More foreign-born workers are unemployed and less are employed than Rwandan-workers**

Labour force participation, employment and unemployment by origin, 2002 and 2012 (%)



Note: See also Annex Tables 3.A1.2-3.A1.4a.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Both the labour force participation rate and the employment-to-population ratio of foreign-born workers were lower than those of Rwandan-born workers (see Figure 3.2), but increased over the period 2002-12. Unemployment rates are on average higher among foreign-born workers than among Rwandan-born workers. For instance, in 2012, the unemployment rate of foreign-born workers was 5.5 percentage points higher than that for Rwandan-born workers.

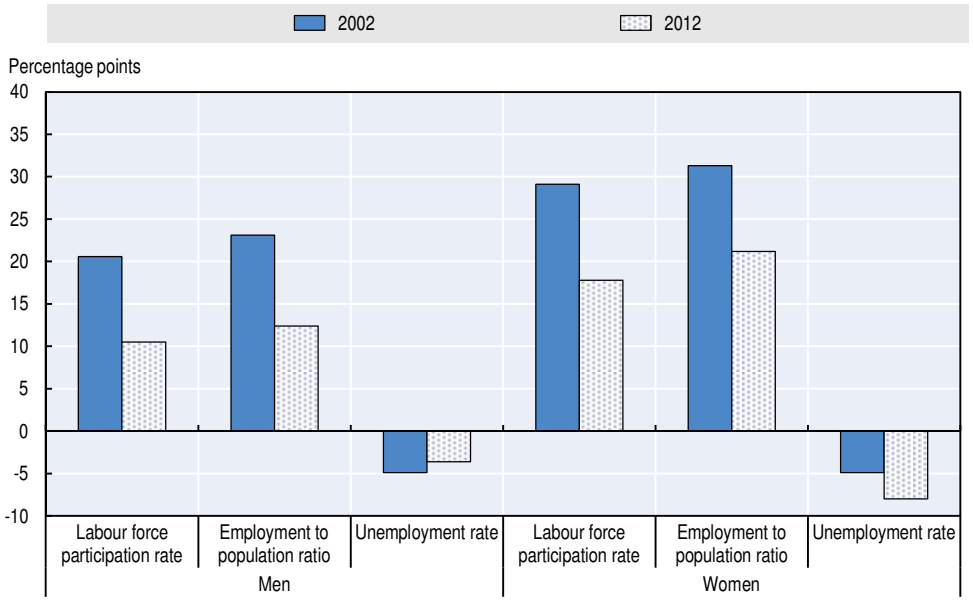
The rise in the unemployment rate between 2002 and 2012 may be related to gradual improvements in job quality, as workers become more selective in accepting work. Unemployment rates for foreign-born workers rose from 5.6% to 8.9% between 2002 and 2012. Most of this rise is due to the unemployment rate of female foreign-born workers, which rose from 5.4% to 12.0%, while that of foreign-born men rose from 5.8% to 6.3% (Annex Table 3.A1.4a).

Differences between Rwandan-born and foreign-born workers in terms of the labour force participation rate, employment-to-population ratio and unemployment rate can be considerable. Foreign-born workers appear to fare worse than their Rwandan-born counterparts in all metrics, and this difference is most marked among women. For instance, whereas the difference between the labour force participation rates of Rwandan-born versus foreign-born men in 2012 was 10.5 percentage points in favour of Rwandan-born men, this

difference among women was 17.8 percentage points. Similarly, not only was the difference in the unemployment rate of Rwandan-born and foreign-born women in 2012 higher than that of men, it grew over time, while that of men reduced slightly (Figure 3.3). These findings again demonstrate that there are important differences in terms of labour market outcomes between foreign-born and Rwandan-born workers and across genders.

Figure 3.3. **Large gender differences remain in key labour market indicators**

Differences between labour force participation (LFPR), employment (EPR) and unemployment (UNR) rates by origin and sex (percentage points)



Note: The figure shows the rate for Rwandan-born workers minus the rate for foreign-born workers for each of the three indicators. See Annex Tables 3.A1.2-3.A1.4a.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Foreign-born workers tend to be older than Rwandan-born workers

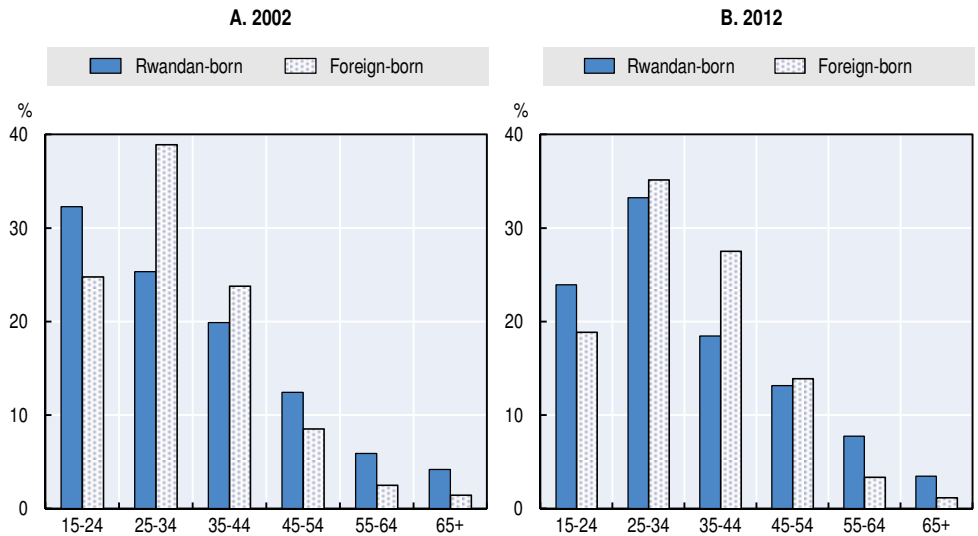
In 2002, the average age of the labour force in Rwanda was 34.2 years, which increased slightly to 35.5 years in 2012. The average age of the foreign-born labour force increased from 32.6 to 34.9 years between 2002 and 2012, and thus remained below the average age of the Rwandan-born labour force in both years.

In 2002, the foreign-born labour force was overrepresented in the age groups 25-34 and 35-44, and underrepresented in all other age groups (see Figure 3.4A). By 2012, the average ages of the foreign- and Rwandan-born labour forces had converged slightly, as on average the foreign-born labour

force aged more rapidly than the Rwandan-born labour force. The lower share of foreign-born workers in the age group 15-24 in 2012 in comparison with 2002 suggests that the inflow of young foreign-born workers declined between these two years. But the decreasing share of young workers in the labour force is also explained by the mandatory primary and (up to three years of) secondary schooling under the Economic Development and Poverty Reduction Strategy II (World Bank, 2011).

Figure 3.4. **Foreign-born workers are overrepresented among prime-age workers**

Labour force by age group and origin (%)



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Youth unemployment rates in Rwanda are low, commensurate with overall unemployment rates (Table 3.2). The youth share in unemployment for all workers was 31.0% in 2012, much lower than in 2002, which is to an important extent due to the decrease in the share of this age group in the labour force. Youth-to-adult unemployment rate ratios for both Rwandan-born and foreign-born workers are below the sub-Saharan Africa average of 1.9 (ILO, 2015a). This suggests that young workers and new entrants to the labour market are not disproportionately disadvantaged in finding employment in Rwanda in comparison with other countries in the region. As noted earlier, unemployment increased between 2002 and 2012, but it affects all workers largely irrespective of age. At the same time, the share of youth not in employment, education or training decreased from 14.9% in 2002 to about 10.5% in 2012 (see Annex Table 3.A1.4c).

Nevertheless, the increase in the youth unemployment rate to 4.4% in 2012, and the rising share of unemployed youth as a share of the youth population, should be of concern to policy makers. Unemployment rates for young foreign-born workers tend to be much higher than those for young Rwandan-born workers, while the ratio of youth-to-adult unemployment rates also slightly increased for foreign-born workers. Possible reasons for the different position of foreign-born youth will be discussed in later sections.

Table 3.2. **Youth unemployment remains an important issue to tackle**
Youth unemployment statistics, by origin, 2002 and 2012

	All workers			Rwandan-born			Foreign-born		
	2002	2012	Change 2002-12	2002	2012	Change 2002-12	2002	2012	Change 2002-12
Youth unemployment rate (%)	1.1	4.7	3.6	0.9	4.4	3.5	4.2	13.8	9.6
Youth-to-adult unemployment rate ratio	1.6	1.5	-0.1	1.5	1.4	-0.1	1.5	1.8	0.3
Youth share in unemployment (%)	41.9	31.0	-10.9	44.4	31.0	-13.4	33.3	29.4	-3.9
Unemployed youth as a share of youth population (%)	0.6	2.2	1.6	0.6	2.1	1.5	2.1	3.7	1.6

Note: See Annex Table 3.A1.4b.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

More workers are finding wage employment, particularly in the services industry

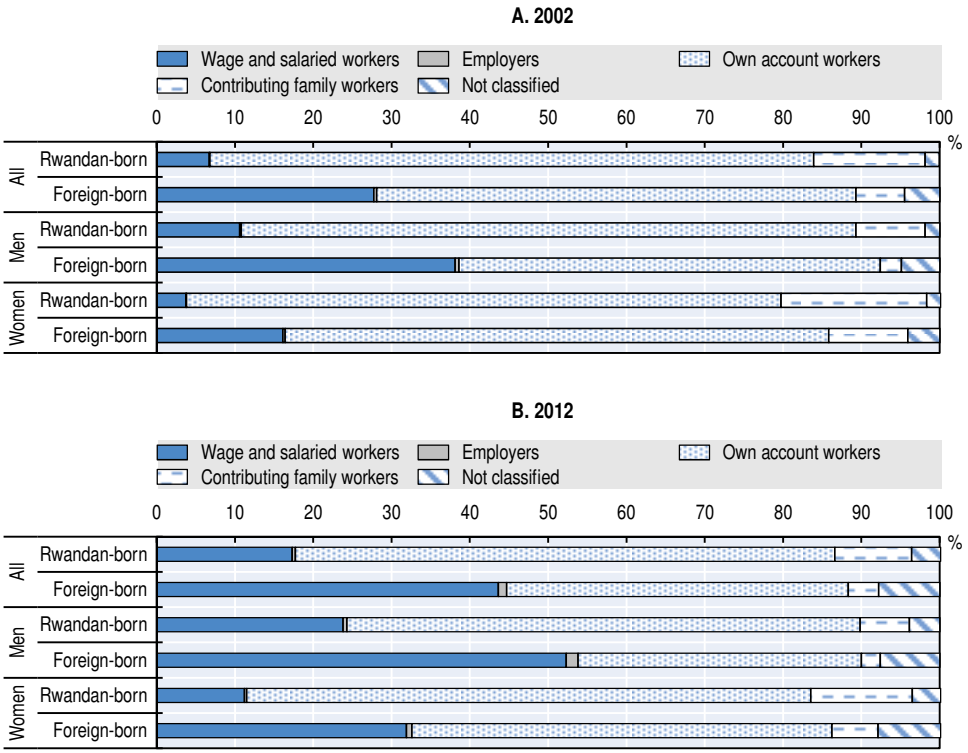
The share of wage workers among Rwandan-born workers increased from 6.7% in 2002 to 17.3% in 2012 (see Figure 3.5). This falls short of the increase in the share of wage workers among foreign-born workers, which was 16 percentage points over the same period and reached 43.6% in 2012. While the proportion of employers also grew among both Rwandan-born and foreign-born workers, there are in both years proportionally more employers among foreign-born workers than among Rwandan-born workers (1.1% and 0.4% respectively in 2012). Own-account workers are the largest single group for both Rwandan-born and foreign-born workers, which constitute 68.9% of Rwandan-born employment and 43.6% of foreign-born employment. The share of contributing family workers is also lower among foreign-born workers than among Rwandan-born workers.

A widely used method to assess the quality of jobs is to consider vulnerable and nonvulnerable employment. Own-account workers and contributing family workers, taken together, constitute those workers who are considered to be in vulnerable employment, as they are less likely to have a formal work arrangement, and are therefore more likely to lack decent working conditions,

adequate social protection and recourse to effective social dialogue mechanisms (ILO, 2016; Sparreboom and Albee, 2011). Vulnerable employment in low-income countries is often characterised by low earnings, low productivity and difficult conditions of work. But it is also important to look at vulnerable employment alongside other labour market information.

Figure 3.5. **The share of wage workers has increased for both Rwandan- and foreign-born workers**

Status in employment by origin (%), 2002 and 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*; see also Annex Tables 3.A1.5.

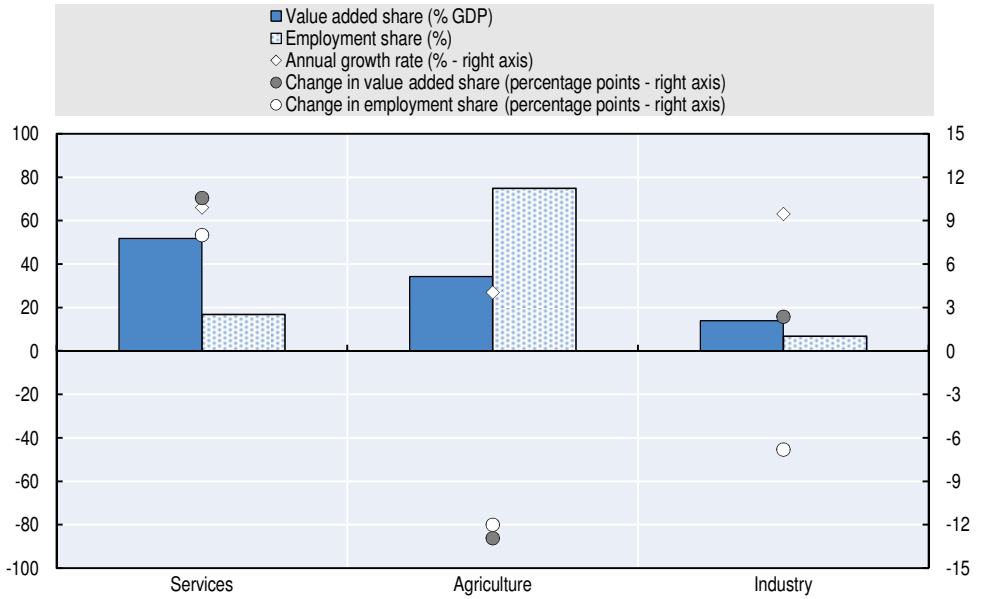
While the majority of workers are still in vulnerable employment, there has been improvement due to a rise in wage employment. The vulnerable employment rate decreased from 91% of Rwandan-born workers in 2002 to 79% in 2012. The non-vulnerable employment rate among Rwandan-born workers, conversely, almost tripled, from 7% to 18% (the remainder could not be classified due to lack of information). The vulnerable employment rate for foreign-born workers, in comparison, stood at 48% in 2012. For both

Rwandan-born and foreign-born workers, men tend to be overrepresented in wage employment, while the same is true for women in contributing family work.

As described in Chapter 1, Rwanda's economy saw much structural change between 2002 and 2012. Not only did GDP growth average almost 8% per year over the period (World Bank, 2017), the share of services sectors in GDP grew by more than ten percentage points, at the expense of the share of agriculture, which fell by 13 percentage points (see Figure 3.6). The share of workers in agriculture also fell by 12 percentage points, while shares of workers in services and industry grew by 8 and 4 percentage points respectively. In 2012, agriculture contributed 34% to Rwandan GDP yet still employed 75% of all workers. At the same time, the services sectors were responsible for 52% of Rwanda's GDP while only accounting for 17% of employment. Industry employed 7% of Rwandan-born workers and accounted for about 14% of GDP.

Figure 3.6. **Services have the greatest value added, while agriculture still employs the most workers**

Sectoral value added, employment share and annual economic growth rate by broad sector, 2002-12



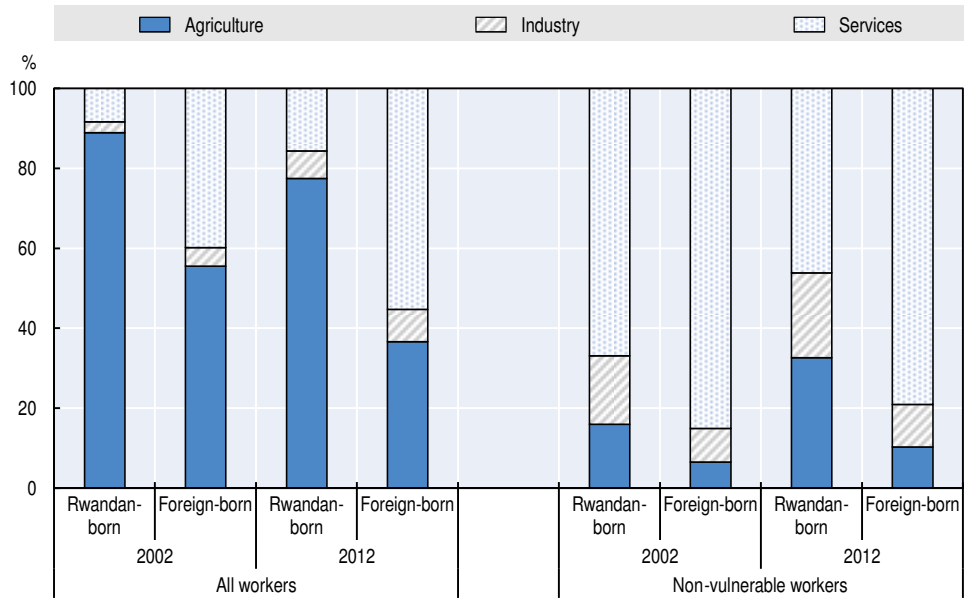
Note: The right axis indicates annual economic growth, change in employment share and change in value added share.
Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

While the government is actively promoting the transition to a service-based economy, much of the workforce in Rwanda is still agrarian, particularly

outside the urban centre Kigali. Employment among Rwandan-born workers in agriculture dropped by 12 percentage points (from 88.4% to 76.4%) between 2002 and 2012. The share of foreign-born workers employed in the agricultural sector was already much lower in 2002, at 54.7%, and fell to 35.5% in 2012. The employment of Rwandan-born workers in services grew from 8.3% to 15.4%, while that of foreign-born workers was 39.2% in 2002 and grew to 53.5% in 2012. The share of workers in industry grew by 3-4 percentage points among both Rwandan-born and foreign-born workers, reaching 6.8% and 7.8% respectively in 2012 (Figure 3.7).

Among workers in non-vulnerable employment trends are notably different. Most non-vulnerable employment among both Rwandan-born and foreign-born workers was in the services sectors in both 2002 and 2012 (Figure 3.7). The relative decline in employment and value added shares of the agriculture and industry sectors is not reflected in non-vulnerable employment, as both sectors have become more important over time, particularly among Rwandan-born workers. Furthermore, an improvement in the quality of jobs can be observed across all three broad sectors, due to the increase in the share of workers in non-vulnerable employment in each sector (Figure 3.8).

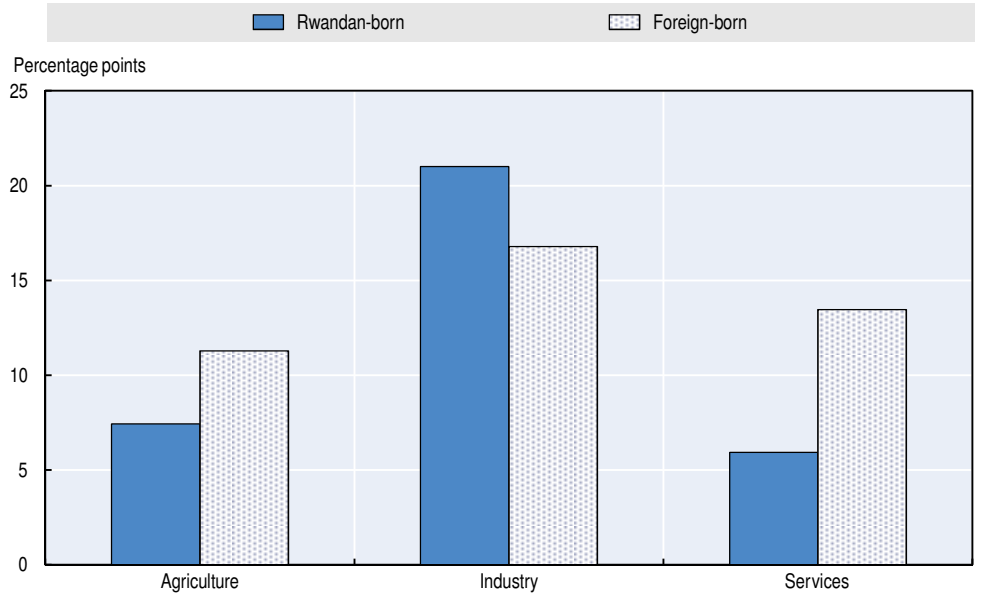
Figure 3.7. **Foreign-born workers are overrepresented in the services sector**
Distribution of employment by broad sector and origin (%)



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Figure 3.8. **Non-vulnerable employment has increased in all sectors**

Change in share of non-vulnerable employment by broad sector, 2002-12
(percentage points)



Note: The figure shows the difference between the share of non-vulnerable sectoral employment in 2012 and 2002, for Rwandan-born and foreign-born workers separately. A positive value indicates an increase in the share of non-vulnerable employment in the sector.

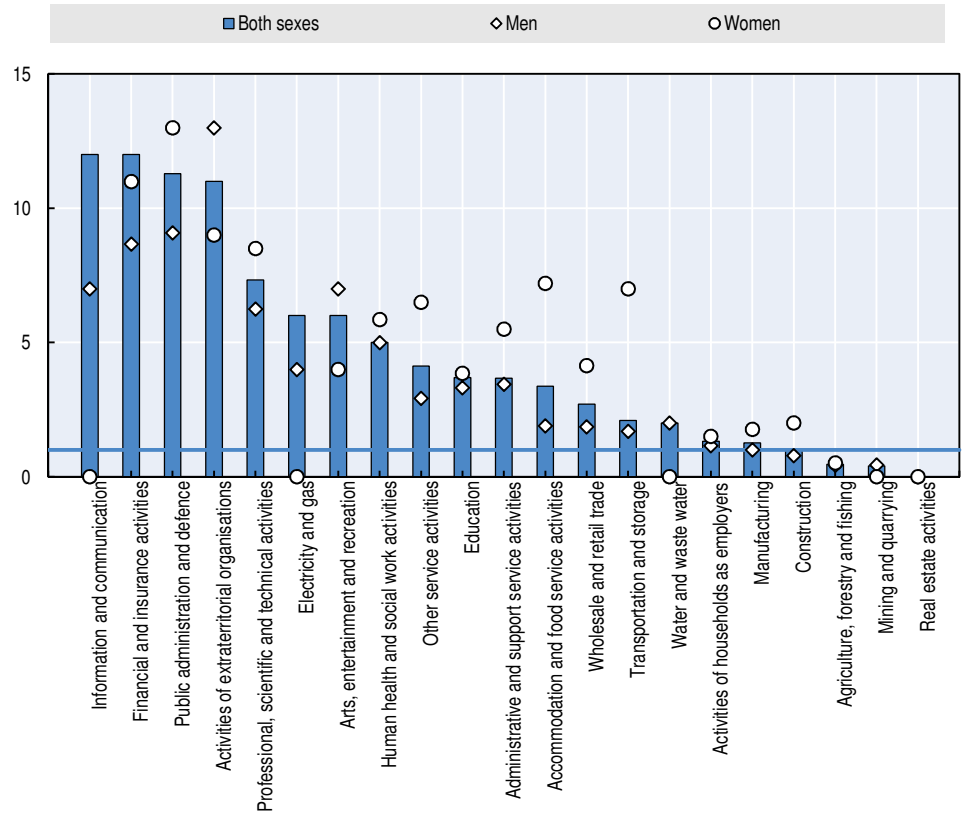
Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

The sectoral employment distribution of Rwandan- and foreign-born workers in Figure 3.9 further illustrates the differences discussed above. In 2012, foreign-born workers were highly overrepresented in services, particularly in information and communication, financial and insurance services, public administration, and activities of extra-territorial organisations. In some sectors, such as public administration, professional, scientific and technical activities, and accommodation and hospitality, foreign-born women in particular were overrepresented.

One way to summarise differences in sectoral distributions between Rwandan-born and foreign-born workers is to calculate the index of dissimilarity based on differences in their respective sectoral shares (see Annex 3.A1 for details). The index increased from 0.34 in 2002 to 0.41 in 2012 (Figure 3.10), meaning that the segregation between foreign- and native-born workers across sectors increased over the period. This 7.5 percentage point increase in the index of dissimilarity was almost exclusively driven by the departure of foreign-born workers from the agricultural sector, for which the difference in shares between groups grew by 7.2 percentage points over the period. When

excluding agriculture, the index increases from 0.17 in 2002 to 0.21 in 2012 (see Figure 3.10). At a difference of 3.9 percentage points, this change still illustrates the increase in sectoral segregation between Rwandan-born and foreign-born workers. The sectors in which there was the largest decrease in dissimilarity were manufacturing, education and transportation.

Figure 3.9. **Foreign-born workers are overrepresented in services sectors**
Ratio of foreign-born and Rwandan-born sectoral employment shares, 2012

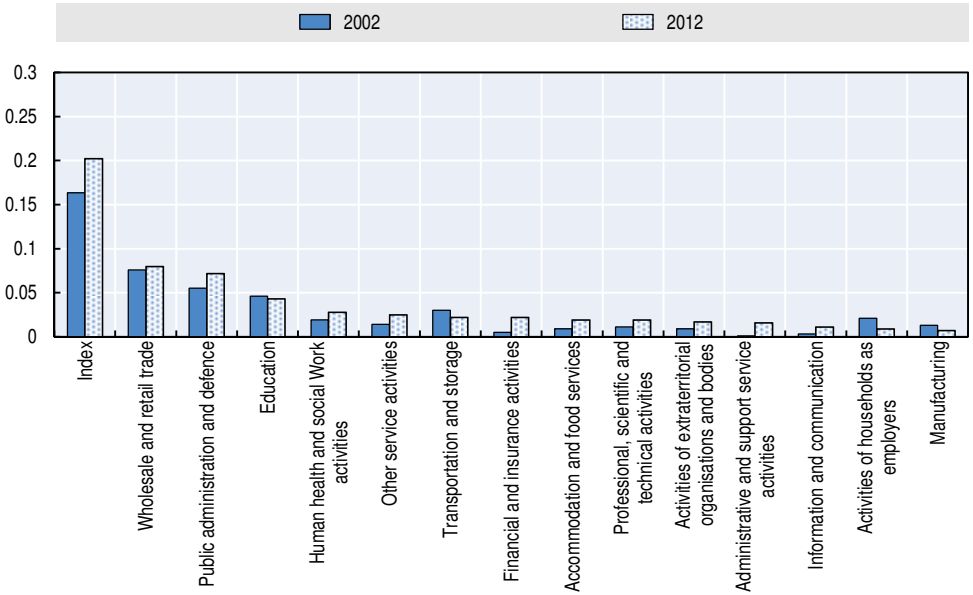


Note: The figure shows the sectoral employment share of foreign-born workers divided by the same share of Rwandan-born workers. A value above one, i.e. above the horizontal line, implies foreign-born workers are overrepresented in that sector.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Figure 3.10. **Sectoral dissimilarity increased between 2002 and 2012**

Absolute value of the differences in sectoral employment of native- and foreign-born workers and index of dissimilarity, 2002 and 2012



Note: The column "Index" represents the index of dissimilarity for the years 2002 and 2012. The remaining columns represent the absolute value of the difference between the native-born and foreign-born sectoral employment shares. Agriculture is excluded from the calculation of the index. Values shown in the figure are for 2012.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Foreign-born workers were overrepresented in all of the fast growing occupational groups

While Rwandan-born (and to a lesser extent foreign-born) workers were still heavily concentrated in the skilled agricultural and fishery workers occupations in 2012, this occupational group showed almost no employment growth between 2002 and 2012 (Figure 3.11), in line with agriculture's declining contribution to Rwandan GDP. Over the period there has been a marked growth in the plant and machine operators and service and sales workers occupational groups, the latter of which encompasses the largest number of both Rwandan-born and foreign-born workers after skilled agricultural workers.

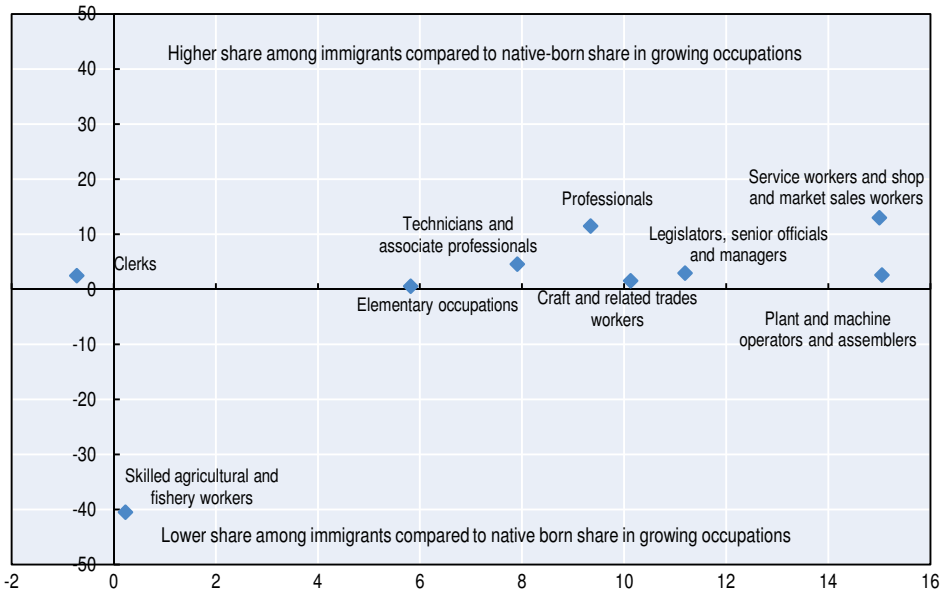
Following ILO (2014), one can distinguish between high-, medium- and low-skill occupations. Average annual growth rates of these three groups between 2002 and 2012 were 9.2, 1.6, and 5.8% respectively, compared to an average of 2.1% across all occupations (reflecting the weight of the medium-skill occupational group). While it plays only a small role in the Rwandan economy, employment in manufacturing saw steady growth between 2002 and 2012, which helps explain the growth in plant and machine operators. Given the strong growth in employment of this group, together with service workers and craft and trade workers, the lagging growth in the medium-skill occupations can be almost entirely attributed to the lack of growth in skilled agricultural occupations.

In 2012, foreign-born workers were overrepresented in all of the fast growing occupational groups. In the two stagnant occupational groups, foreign-born workers were overrepresented among clerks and underrepresented among skilled agricultural workers. The relatively low share of foreign-born workers in agricultural occupations, despite the fact that the majority of Rwandan-born workers were in these occupations, helps explain the overrepresentation in the other major groups. Nevertheless, the role of labour demand for the employment of foreign-born workers in fast growing occupations is also visible in the occupational structure of non-vulnerable workers. Figure 3.11 shows that foreign-born workers in non-vulnerable employment are overrepresented in all of the fast growing occupations except for craft and trade workers and elementary occupations. Regarding Rwandan-born workers, while the largest share of workers in non-vulnerable employment remained in skilled agricultural occupations, this share was considerably smaller than that of the entire working population (74% versus 23%).

Growth in non-vulnerable employment was the strongest among plant and machine operators, service and sales workers, and legislators and senior officials. The share of Rwandan-born agricultural workers in non-vulnerable employment increased by 7.4 percentage points between 2002 and 2012 (Figure 3.8), suggesting an improvement not only in the types of occupations Rwandan-born workers fill, but also an improvement in the quality of jobs within this occupational group. While the share of professional occupations in non-vulnerable employment fell by 4 percentage points for Rwandan-born workers over that period, the commensurate share of foreign-born workers rose by 3 percentage points.

Figure 3.11. **Foreign-born workers are overrepresented in most growing occupations**

Differences in shares of employment by major occupational group and origin, 2012 (%)



Note: The horizontal-axis represents the foreign-born share minus the native-born share in the respective occupational groups. The vertical axis represents the average annual growth rate in the respective occupations.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

New immigrants enter high-skill occupations much more frequently than other workers

A different way of examining the role of foreign-born workers in labour markets is to consider the development of occupational structures from a demographic perspective. Based on a demographic accounting framework, net occupational change between 2002 and 2012 can be decomposed into contributions from young workers (new non-migrant entrants), new immigrants,[3] prime-age workers and older workers (retirees). These age-related components of the net change are estimated by comparing the situation of "pseudo age cohorts" in 2002 with those of 2012, respectively (see Annex 3.A1 for methodological details). This approach implicitly includes the effect of emigration and mortality, as well as the possibility of multiple occupational changes that may have occurred during the period, as only the situations in 2002 and 2012 are observed.

Age-related decompositions for the major occupational groups (excluding armed forces) show growth in all groups except for clerks. Growth in all occupations is mostly the result of new entrants to the labour market, with relatively small occupational movements among prime-age or older workers in

most groups. The only exception to this is the skilled agricultural occupations, where the turnover between the entry of new entrants, departure of large numbers of older workers and movement of prime-age workers to other occupations results in almost no growth.

Figure 3.12. **Almost all occupational growth is due to new labour market entrants**

Demographic components of net occupational change by major occupational group, 2002-12

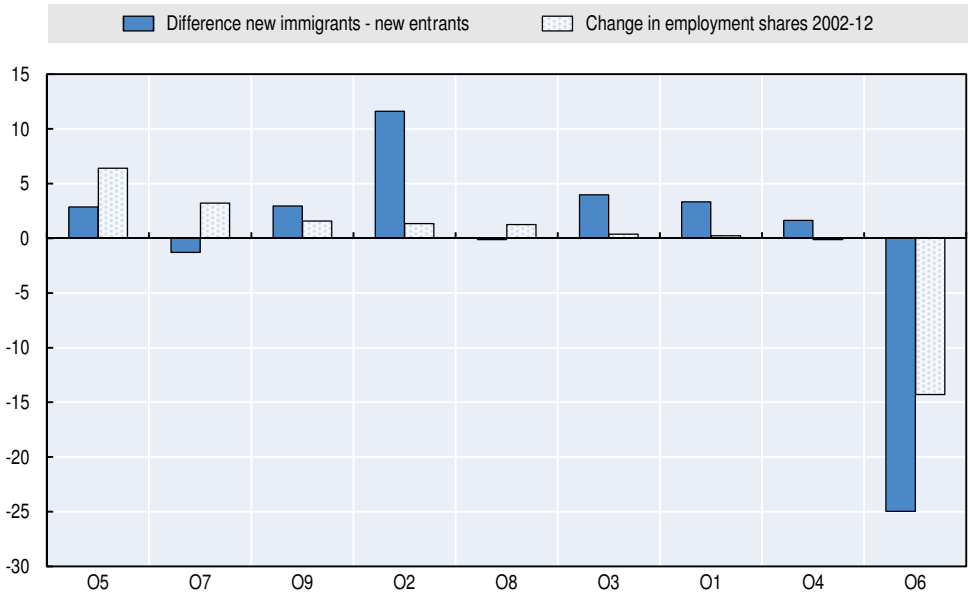
Note: See Annex 3.A1 for methodological details on the demographic decomposition.
1. Legislators, senior officials and managers
2. Professionals
3. Technicians and associate professionals
4. Clerks
5. Service workers and shop and market sales
6. Skilled agricultural and fishery workers
7. Craft and related trades workers
8. Plant and machine operators and assemblers
9. Elementary occupations

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

In almost all occupations with an increasing share of employment, the share of new immigrants entering exceeded the commensurate share of new entrants, except among craft workers and plant and machine operators (Figure 3.13). Among agricultural workers, that saw a large decrease in the share of employment, the share of new entrants also surpassed that of new immigrants. Recent immigrants are able to respond to occupation demand to a greater extent than young non-immigrant workers. The difference between new immigrants and young workers was the greatest among professional

occupations, lending further strength to the idea that a certain degree of niche formation is taking place among new immigrant workers.

Figure 3.13. **More immigrants than new entrants tend to enter growing occupations**
Entries of new immigrants and new entrants into growing and declining occupational groups (percentage points)



Note: The horizontal axis shows the share of new immigrants minus the share of new entrants in each major group. A positive difference in shares means that proportionally more new immigrants entered the group. The vertical axis represents average annual growth of employment.
1. Legislators, senior officials and managers
2. Professionals
3. Technicians and associate professionals
4. Clerks
5. Service workers and shop and market sales
6. Skilled agricultural and fishery workers
7. Craft and related trades workers
8. Plant and machine operators and assemblers
9. Elementary occupations

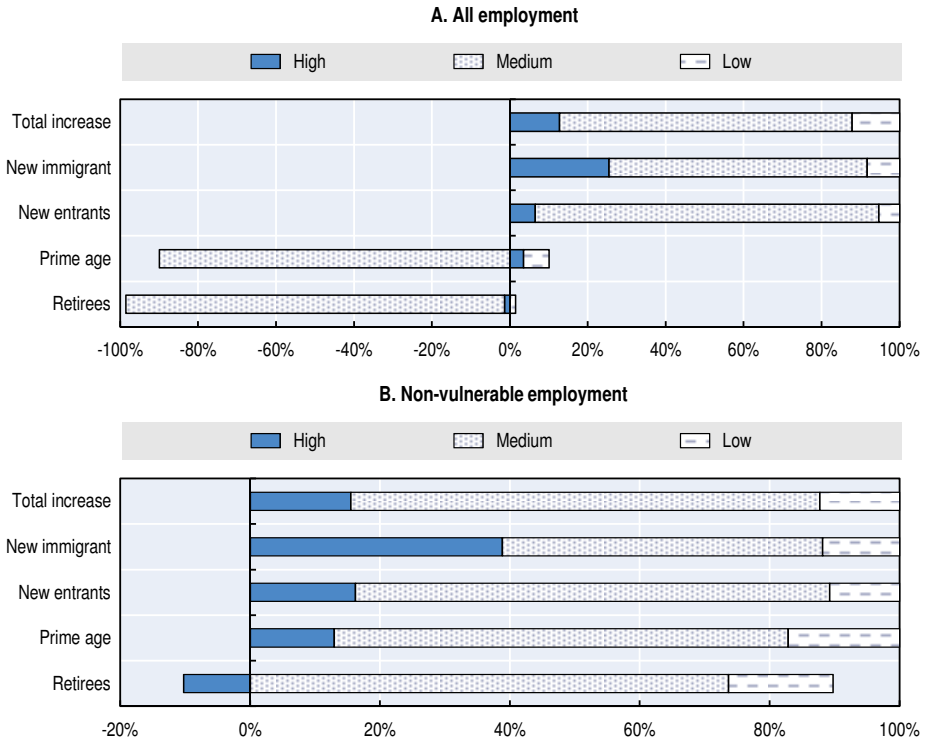
Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

The decomposition of entries to and exits from major occupational groups by skill level demonstrates that new immigrants enter high-skill occupations much more frequently than other groups of workers (Figure 3.14A). Prime-age and older workers left medium-skill occupations in large numbers, but rarely moved to either low- or high-skill occupations. The entry into high-skill occupations becomes more important when considering non-vulnerable employment (Figure 3.14B). High-skill entries account for about 16% of all entries into non-vulnerable employment, and this reflects an entry of 39% of new immigrants, 16% of new entrants and 13% of prime-age workers, and a

departure of 13% of older workers. While in total employment the difference in the proportion of entries into high-skill occupations between new immigrants and new entrants is 19 percentage points, in non-vulnerable employment this difference increases to 23 percentage points.

Figure 3.14. **Immigrants enter higher-skill occupations more often than native-born workers**

Skill level composition of occupational entries or exits, by demographic group, 2002-12 (%)



Note: See Annex 3.A1 for methodological details on the demographic decomposition.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Among prime-age workers there is a relatively large share of workers entering in low-skill occupations (compared to new entrants and new immigrants), and the same is true for older workers. Aside from moving to higher-skill occupations, prime-aged and older workers also seem to be moving into non-vulnerable employment (Figures 3.14A and 3.14B). While total employment for these two groups fell by 30% and 39% respectively between 2002 and 2012, the commensurate non-vulnerable employment grew by 18% and 3%. Similarly, the rate of new immigrants and new entrants entering high-skill occupations in non-vulnerable employment was 13 and 9 percentage points higher, respectively, than commensurate rates in total employment.[4]

Increasing educational achievement is mostly due to improvements among Rwandan-born workers

Education and skills of workers are important factors affecting not only the occupational choices and changes discussed above, but productivity of workers and of the economy as a whole. This section will examine changes in educational and skill distributions of both Rwandan-born and foreign-born workers. It will do so particularly in light of the Rwandan government's focus on increasing mandatory education and vocational training nationwide.

In 2002, over 90% of the native-born employed population had at most a primary school education, while this proportion stood at 66% for the foreign-born employed (Figure 3.15A). The foreign-born employed tended to have higher education levels, particularly among adults (aged 25 and above). The share of the tertiary educated Rwandan-born employed was negligible, compared to a share of 7.1% of foreign-born employed with tertiary education (9% for adult foreign-born employed).

By 2012, educational attainment nationwide had improved vastly. While the largest share of the Rwandan-born employed still had only completed primary education or less (88%), the distribution of educational attainment shifted markedly. Among younger workers the share with at least a secondary education grew considerably – 10.4% and 0.4% completed secondary and tertiary education, respectively. At the other end of the spectrum, the share of Rwandan-born adults with less than a primary education had decreased to 29.4% (from 43.2% in 2002). As in 2002, in 2012 the educational attainment of the foreign-born employed was higher than among the Rwandan-born employed, with 29.1% and 22.1% of the foreign-born employed having completed secondary and tertiary education, respectively.

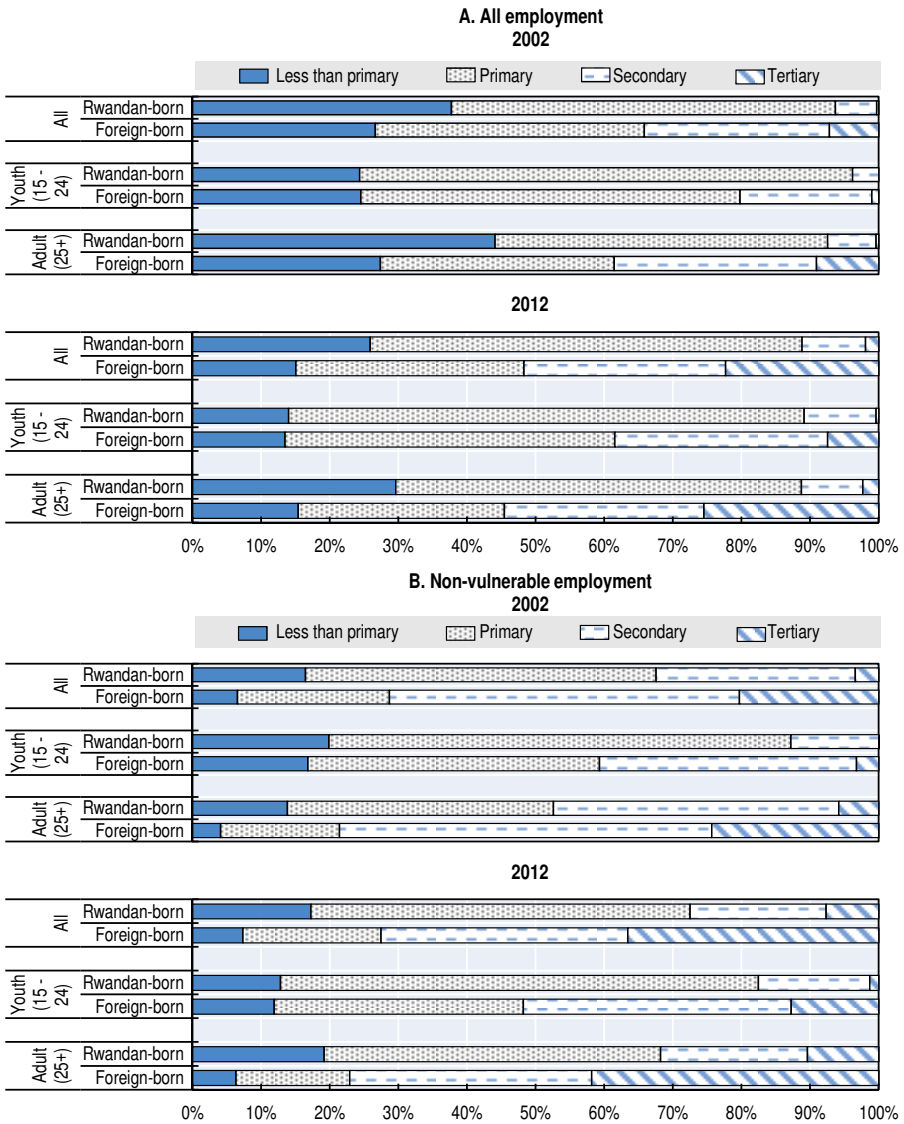
Given the abundance of workers with a low education among both native-born and foreign-born workers and the overrepresentation of foreign-born workers with a higher education, the distribution of educational attainment of foreign-born employed seemingly addresses a demand for high-skilled workers on the Rwandan labour market. This can be seen even more clearly in the educational distribution of workers in non-vulnerable employment; workers with at least a secondary education make up 71.6% of the foreign-born employed in this group in 2012. The shares of secondary and tertiary educated workers among those in non-vulnerable employment are much higher than for all employed workers, and are also much more stable between 2002 and 2012 (Figure 3.15B). This suggests that increases in the educational attainment of employed workers are largely due to improvements in the education of workers in vulnerable employment, mostly among the Rwandan-born.

The increasing educational attainment of the workers can also be seen in the demographic decomposition of the labour force by education level (Figure 3.16). While there were large outflows of prime-age and older workers from mainly primary or lower education levels, new entrants with primary or lower levels

continued to contribute to the growth in this group. This stands in contrast to new immigrants, who constitute only 3% of inflows with primary or lower education. At higher education levels, new immigrants contribute much more, and they made up 12% of the growth of the tertiary educated labour force. More than 50% of new immigrants had a secondary or higher education.

Figure 3.15. **Foreign-born workers tend to be higher educated than native-born workers**

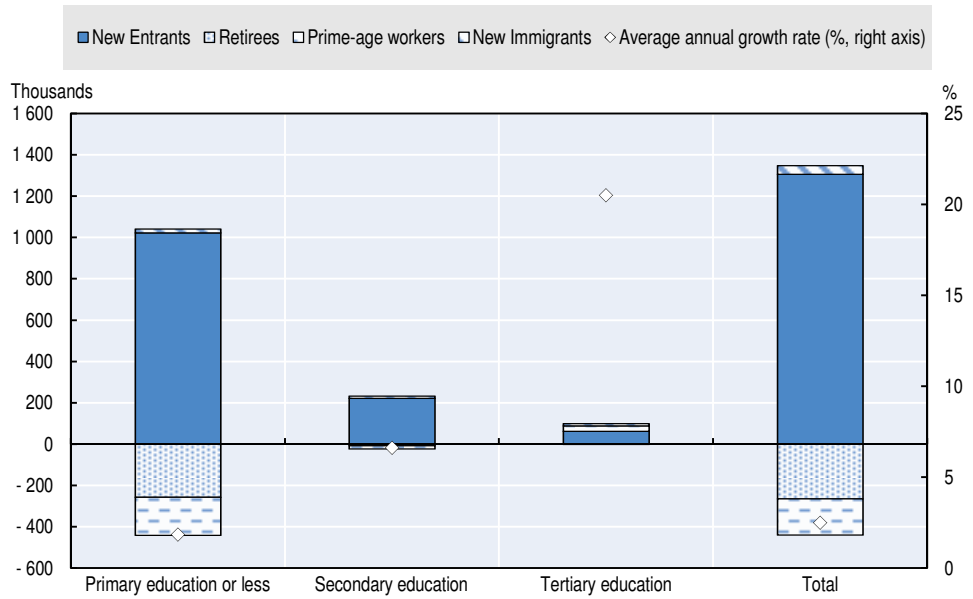
Employment by education, origin and age group, 2002 and 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Figure 3.16. **Prime-age workers with primary education are leaving the labour market**

Demographic components of changes in the educational attainment of the labour force, 2002-12



Note: See Annex 3.A1 for methodological details on the demographic decomposition.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

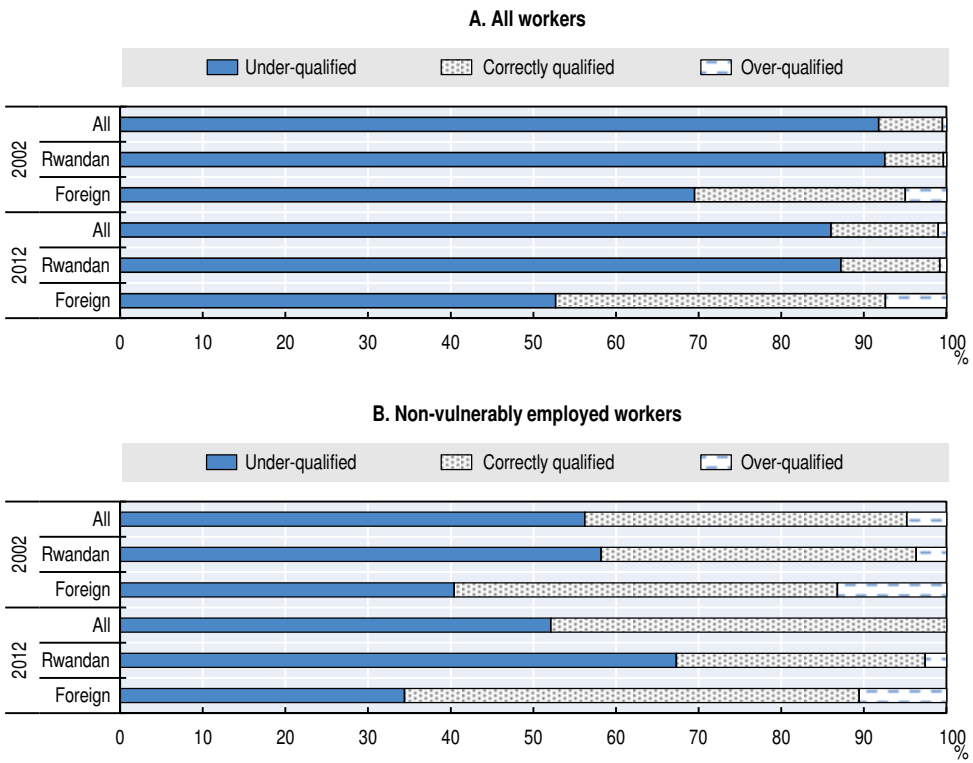
If the skill requirements of a job do not match the worker's level of education, a skills mismatch may arise. When a worker's broad educational achievement is higher than that required by the job (as measured by broad occupational skill requirements), that worker is said to be over-qualified. Conversely, when a worker's educational achievement is lower than that required by the job, the worker is said to be under-qualified. Over-qualification is often a concern when there is an abundance of tertiary educated workers who are employed in jobs previously held by workers with lower educational attainments. On the other hand, widespread under-qualification points to the need for more education, even if it occurs alongside relatively high unemployment rates of tertiary educated workers. Research suggests that mismatches between jobs held by workers and the qualifications they possess have negative consequences for workers, enterprises and the economy (Quintini, 2011).

Over-qualification of Rwandan-born workers was almost non-existent in both 2002 and 2012, at less than 1% of all employed people, while this stood at about 5% and 7%, respectively, for foreign-born workers (see Figure 3.17). Given initially low rates of over-qualification, an increase in over-qualification rates between 2002 and 2012, particularly among Rwandan-born workers, reflects in

part increasing education levels. The rates of over-qualification were higher for both Rwandan-born and foreign-born workers in non-vulnerable employment (compared to all workers). Although the rates of over-qualification in non-vulnerable employment were on average lower in 2012 than in 2002, these results were largely driven by workers in agricultural occupations. In other words, patterns of over-qualification seem similar in vulnerable and non-vulnerable employment, although levels were higher in the latter.

Figure 3.17. **Under-qualification is considerable among both Rwandan- and foreign-born workers**

Over-qualification and under-qualification rates, by place of birth, 2002 and 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Under-qualification rates in Rwanda were high in both 2002 and 2012, particularly among Rwandan-born workers. The rate for Rwandan-born employed in 2012 was generally higher than for foreign-born workers (87% and 53%, respectively, see Figure 3.17A). The rate fell for all workers during the period observed, and dropped more for foreign-born workers. Furthermore, under-qualification increased for Rwandan-born workers in non-vulnerable

employment, but decreased for foreign-born workers (Figure 3.17B). These findings again suggest that foreign-born workers are important to meet the demand for skills. It is also important to note that among the entire labour force, workers who are "correctly" qualified for their job level increased between 2002 and 2012.

Foreign-born workers are at a slight advantage in the labour market

Chapter 3 presents a number of differences and similarities in the labour market outcomes of Rwandan-born and foreign-born workers. In 2012, about 90% of Rwandan agricultural workers were own-account workers or contributing family workers, suggesting that most rural employment is still subsistence agriculture. And while one can observe a considerable decline in the size of the agricultural sector and own-account work in Rwanda between 2002 and 2012, in 2012 agriculture still represented almost 80% of employment and 38% of GDP while own-account work accounted for 69% of all Rwandan-born employment.

Lower labour force participation rates, lower employment-to-population ratios and higher unemployment rates would suggest a weak labour market position for foreign-born workers compared to their Rwandan-born counterparts. Foreign-born workers are overrepresented in non-vulnerable employment and in high productivity sectors (i.e. services), and on average have more years of education than Rwandan-born workers. This suggests that foreign-born workers are actually at a slight advantage in the labour market.

Rwandan-born workers are much more active in the labour market than foreign-born workers. One of the main reasons behind the discrepancy between labour force participation (and hence inactivity) of Rwandan-born workers versus foreign-born workers could be due to the productivity of the sectors and occupations in which each group tends to concentrate. Rwandan-born workers are more likely to be in vulnerable employment, in the agricultural sector and in lower-skill occupations, and hence are likely not able to remain unemployed as long as foreign-born workers in paid employment might.

Similarly, while a high employment-to-population ratio is considered positive in high-income countries, in Rwanda the drop in this ratio coincided with an increase in the share of non-vulnerable employment. This points to an improvement in the quality of employment. It also suggests that Rwanda's investment in skills development and in transitioning to a service-based economy is having a positive impact on the labour market in terms of improved access to decent work and is increasing productivity.

Extremely low unemployment rates, such as those observed in Rwanda, may well mask substantial poverty and underemployment. While most workers are employed, many of the Rwandan-born workers could be maintaining

several poor quality jobs at the same time, as they simply cannot afford to be unemployed. Furthermore, foreign-born workers, who are more likely to be in non-vulnerable employment (waged employment or employer), also have a higher likelihood of enjoying some form of employment protection and savings. However, despite their vastly different labour market outcomes, there does appear to be a slow but sustained trend towards equalisation in the outcomes of Rwandan-born and foreign-born workers, particularly when considering the development of educational attainment and skills.

The average age of the employed in Rwanda increased between 2002 and 2012. This mostly results from the decrease in the employment rate of young workers (ages 15-34), itself likely due to longer schooling spells and improvements in educational attainment. At the same time, the share of prime-age (25-54 years) workers is more strongly downwardly affected by the political unrest of the 1990s in 2002 than in 2012, as most of the prime-age cohort in 2012 (those aged 25-44) were not yet born at that time.

The large differences in employment shares between Rwandan- and foreign-born workers in some service subsectors suggest there is still a great demand for labour and skills in these sectors. This is particularly so with respect to high-skilled and non-vulnerable jobs, for which the Rwandan-born workforce lacks sufficient qualifications. While employed foreign-born workers represented less than 5% of the workforce in 2012, their employment in terms of sectoral, occupational and educational distributions does fill gaps in the labour market. This suggests that foreign-born workers continue to play an important role in contributing to Rwanda's economic growth and to achieving the country's goal of transitioning to a services-based economy by 2020.

Notes

1. See Box 1.2 on the definitions of immigrants, Box 3.1 on migration statistics in the 2012 Rwandan Population and Housing Census, and Annex 3.A2 for disaggregations based on citizenship status.
2. Rural workers in subsistence agriculture are considered as employed, regardless of income, in accordance with the International Conference of Labour Statisticians (ICLS) Resolution concerning statistics of the economically active population, employment, unemployment and underemployment of 1982 and 2008. In 2013, the ICLS adopted the Resolution concerning statistics of work, employment and labour underutilisation, in which subsistence foodstuff producers are not considered to be in employment. Using the new definition, a pilot labour force survey carried out in Rwanda in 2016 finds a labour force participation rate of 49.3%, an employment-to-population ratio of 42.8% and an unemployment rate of 13.2% (NISR, 2016).
3. New immigrants are defined as those foreign-born workers who have resided in their current place of residence for at most ten years, as explained in Annex 3.A1.
4. The large exit of prime-age medium-skilled workers is likely due to displacement of these workers by new entrants and changes from more vulnerable forms of employment to (lower-skilled) non-vulnerable forms of employment.

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ANNEX 3.A1

Data, methodologies and additional tables

Data

The empirical analysis in this chapter is based on the 2002 and 2012 Rwandan Population and Housing Censuses, conducted by the National Institute of Statistics of Rwanda, which are made available to users by the institute on request.

In this chapter, immigrant workers are defined by place of birth, meaning that the foreign-born population, i.e. all workers born outside Rwanda, are considered immigrant workers.

Unless stated differently, indicators are defined in accordance with ILO (2015b).

Methodology to assess sectoral and occupational employment patterns

The similarity of sectoral employment patterns between native- and foreign-born workers can be assessed using an index of dissimilarity. The index represents the proportion of a group, either native- or foreign-born, that would need to move in order to create an equal distribution. The index is calculated based on the following equation:

$$D = \frac{1}{2}\sum_{i=1}^{s}\left|\frac{n_i}{N_T} - \frac{f_i}{F_T}\right|$$

in which case n_i is the number of native-born workers per sector, N_T is the total number of native-born workers across all sectors, f_i is the number of foreign-born workers per sector and F_T is the total number of foreign-born workers across all sectors (s). The same index can be applied to occupational distributions.

Methodology of demographic decomposition

Following Chapters 3 and 4 by the OECD/European Union (2014), the decomposition used in this chapter is based on a demographic accounting method, applied to changes in the distribution of workers by level of education and by occupation.

This method builds on the following equation concerning the measure of change in a particular variable between two points in time:

$$\Delta(T) = E + I + \Delta(PA) - R$$

$\Delta(T)$ = the total change observed in the variable over the period

E = non-immigrant new young entrants over the period

I = new immigrants who arrived over the period

$\Delta(PA)$ = change in the non-immigrant prime-age group over the period

R = non-immigrant retirees over the period.

This equation shows that total change over the period equals inflows minus outflows, while deaths and emigration are included implicitly. The table below summarises how these components are obtained based on 2002 and 2012 population census data on the labour force.

Table 3.A1.1. **Definition of components for the demographic accounting decomposition**

(1) = (2) - (3)	(2) Labour force per the 2012 population census	(3) Labour force per the 2002 population census
Non-immigrant entrants (E)	Aged 15-34 excluding foreign-born without long-term residence	Aged 15-24
Retirees (-R)	Aged 55+ excluding foreign-born without long-term residence	Aged 45+
Change in the prime-age group (Δ(PA))	Aged 35-54 excluding foreign-born without long-term residence	Aged 25-44
New immigrants (I)	Foreign-born without long-term residence aged 15+	0
Total change: $\Delta(T) = E + I + \Delta(PA) - R$	Aged 15+	Aged 15+

Non-immigrant entrants to the labour market are calculated by subtracting the labour force aged 15-24 in 2002 from the labour force aged 15-34 in 2012, which thus assumes that all people 15-24 who were part of the labour force in 2002 are still in the labour force ten years later (when they are 25-34 years of age). Similarly, retirees are those in the labour force who were aged 45 and above in 2002 minus those aged 55 and above in 2012 (temporary withdrawals and re-entries prior to definitive retirement are implicitly netted out). The change in the size of the prime-age group equals the labour force aged 35-54 in 2012 minus the labour force aged 25-44 in 2002. Finally, the number of new immigrants is calculated as immigrants with a duration of residence of ten years or less, and those immigrants are excluded from the other components to avoid double counting. As can be verified from the table, these four components add up to the labour force in both 2002 and 2012. The same methodology can be used to decompose sub-groups of the labour force (such as the employed, educational and occupational groups).

Table 3.A1.2. **Labour force participation rate, by sex and age group**

Year	Origin	Sex	Age	Active ('000)	Population ('000)	Active (%)
2002	All	MF	15+	3 287.0	4 328.9	75.9
2002	Rwandan-born	MF	15+	3 174.4	4 113.4	77.2
2002	Foreign-born	MF	15+	112.7	215.5	52.3
2002	All	M	15+	1 469.4	1 935.6	75.9
2002	Rwandan-born	M	15+	1 409.7	1 830.0	77.0
2002	Foreign-born	M	15+	59.6	105.6	56.4
2002	All	F	15+	1 817.6	2 393.3	75.9
2002	Rwandan-born	F	15+	1 764.6	2 283.4	77.3
2002	Foreign-born	F	15+	53.0	109.9	48.2
2002	All	MF	15-24	1 052.5	1 809.2	58.2
2002	Rwandan-born	MF	15-24	1 024.6	1 707.2	60.0
2002	Foreign-born	MF	15-24	27.9	102.0	27.4
2002	All	M	15-24	491.5	859.8	57.2
2002	Rwandan-born	M	15-24	478.3	811.1	59.0
2002	Foreign-born	M	15-24	13.2	48.7	27.2
2002	All	F	15-24	561.0	949.4	59.1
2002	Rwandan-born	F	15-24	546.3	896.1	61.0
2002	Foreign-born	F	15-24	14.7	53.3	27.5
2002	All	MF	25+	2 234.5	2 519.7	88.7
2002	Rwandan-born	MF	25+	2 149.8	2 406.2	89.3
2002	Foreign-born	MF	25+	84.7	113.5	74.6
2002	All	M	25+	977.8	1 075.8	90.9
2002	Rwandan-born	M	25+	931.4	1 018.9	91.4
2002	Foreign-born	M	25+	46.4	56.9	81.5
2002	All	F	25+	1 256.7	1 443.9	87.0
2002	Rwandan-born	F	25+	1 218.4	1 387.3	87.8
2002	Foreign-born	F	25+	38.3	56.6	67.7
2012	All	MF	15+	4 182.4	5 924.7	70.6
2012	Rwandan-born	MF	15+	4 021.2	5 643.8	71.3
2012	Foreign-born	MF	15+	161.2	280.9	57.4
2012	All	M	15+	2 002.4	2 759.8	72.6
2012	Rwandan-born	M	15+	1 912.7	2 616.6	73.1
2012	Foreign-born	M	15+	89.7	143.2	62.6
2012	All	F	15+	2 180.1	3 164.9	68.9
2012	Rwandan-born	F	15+	2 108.5	3 027.2	69.7
2012	Foreign-born	F	15+	71.5	137.7	51.9
2012	All	MF	15-24	992.7	2 080.6	47.7
2012	Rwandan-born	MF	15-24	962.2	1 967.3	48.9
2012	Foreign-born	MF	15-24	30.4	113.3	26.9
2012	All	M	15-24	483.6	1 015.1	47.6
2012	Rwandan-born	M	15-24	467.8	959.4	48.8
2012	Foreign-born	M	15-24	15.8	55.8	28.3
2012	All	F	15-24	509.1	1 065.5	47.8
2012	Rwandan-born	F	15-24	494.4	1 008.0	49.1
2012	Foreign-born	F	15-24	14.6	57.5	25.5

Table 3.A1.2. **Labour force participation rate, by sex and age group** *(cont.)*

Year	Origin	Sex	Age	Active ('000)	Population ('000)	Active (%)
2012	All	MF	25+	3 189.8	3 844.1	83.0
2012	Rwandan-born	MF	25+	3 059.0	3 676.4	83.2
2012	Foreign-born	MF	25+	130.8	167.6	78.0
2012	All	M	25+	1 518.8	1 744.6	87.1
2012	Rwandan-born	M	25+	1 444.9	1 657.3	87.2
2012	Foreign-born	M	25+	73.9	87.4	84.6
2012	All	F	25+	1 671.0	2 099.4	79.6
2012	Rwandan-born	F	25+	1 614.1	2 019.2	79.9
2012	Foreign-born	F	25+	56.9	80.2	70.9

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 3.A1.3. **Employment-to-population ratio, by sex and age group**

Year	Origin	Sex	Age	Employed ('000)	Population ('000)	Employed (%)
2002	All	MF	15+	3 259.1	4 328.9	75.3
2002	Rwandan-born	MF	15+	3 152.8	4 113.4	76.6
2002	Foreign-born	MF	15+	106.3	215.5	49.3
2002	All	M	15+	1 453.1	1 935.6	75.1
2002	Rwandan-born	M	15+	1 397.0	1 830.0	76.3
2002	Foreign-born	M	15+	56.2	105.6	53.2
2002	All	F	15+	1 805.9	2 393.3	75.5
2002	Rwandan-born	F	15+	1 755.8	2 283.4	76.9
2002	Foreign-born	F	15+	50.1	109.9	45.6
2002	All	MF	15-24	1 040.8	1 809.2	57.5
2002	Rwandan-born	MF	15-24	1 015.0	1 707.2	59.5
2002	Foreign-born	MF	15-24	25.8	102.0	25.3
2002	All	M	15-24	485.3	859.8	56.4
2002	Rwandan-born	M	15-24	473.0	811.1	58.3
2002	Foreign-born	M	15-24	12.3	48.7	25.3
2002	All	F	15-24	555.5	949.4	58.5
2002	Rwandan-born	F	15-24	542.0	896.1	60.5
2002	Foreign-born	F	15-24	13.5	53.3	25.3
2002	All	MF	25+	2 218.3	2 519.7	88.0
2002	Rwandan-born	MF	25+	2 137.8	2 406.2	88.8
2002	Foreign-born	MF	25+	80.5	113.5	70.9
2002	All	M	25+	967.9	1 075.8	90.0
2002	Rwandan-born	M	25+	924.0	1 018.9	90.7
2002	Foreign-born	M	25+	43.9	56.9	77.0
2002	All	F	25+	1 250.4	1 443.9	86.6
2002	Rwandan-born	F	25+	1 213.8	1 387.3	87.5
2002	Foreign-born	F	25+	36.6	56.6	64.7
2012	All	MF	15+	4 032.5	5 924.7	68.1
2012	Rwandan-born	MF	15+	3 885.6	5 643.8	68.8
2012	Foreign-born	MF	15+	146.9	280.9	52.3
2012	All	M	15+	1 944.7	2 759.8	70.5
2012	Rwandan-born	M	15+	1 860.7	2 616.6	71.1
2012	Foreign-born	M	15+	84.0	143.2	58.7

Table 3.A1.3. **Employment-to-population ratio, by sex and age group** *(cont.)*

Year	Origin	Sex	Age	Employed (thousand)	Population (thousand)	Employed (%)
2012	All	F	15+	2 087.8	3 164.9	66.0
2012	Rwandan-born	F	15+	2 024.9	3 027.2	66.9
2012	Foreign-born	F	15+	62.9	137.7	45.7
2012	All	MF	15-24	946.3	2 080.6	45.5
2012	Rwandan-born	MF	15-24	920.1	1 967.3	46.8
2012	Foreign-born	MF	15-24	26.2	113.3	23.1
2012	All	M	15-24	465.4	1 015.1	45.8
2012	Rwandan-born	M	15-24	451.4	959.4	47.0
2012	Foreign-born	M	15-24	14.1	55.8	25.2
2012	All	F	15-24	480.9	1 065.5	45.1
2012	Rwandan-born	F	15-24	468.7	1 008.0	46.5
2012	Foreign-born	F	15-24	12.1	57.5	21.1
2012	All	MF	25+	3 086.3	3 844.1	80.3
2012	Rwandan-born	MF	25+	2 965.5	3 676.4	80.7
2012	Foreign-born	MF	25+	120.7	167.6	72.0
2012	All	M	25+	1 479.3	1 744.6	84.8
2012	Rwandan-born	M	25+	1 409.4	1 657.3	85.0
2012	Foreign-born	M	25+	69.9	87.4	80.0
2012	All	F	25+	1 607.0	2 099.4	76.5
2012	Rwandan-born	F	25+	1 556.2	2 019.2	77.1
2012	Foreign-born	F	25+	50.8	80.2	63.3

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 3.A1.4a. **Unemployment, by sex**

Year	Origin	Sex	Employed (%)	Unemployed (%)
2002	All	MF	99.2	0.8
2002	Rwandan-born	MF	99.3	0.7
2002	Foreign-born	MF	94.4	5.6
2002	All	M	98.9	1.1
2002	Rwandan-born	M	99.1	0.9
2002	Foreign-born	M	94.2	5.8
2002	All	F	99.4	0.6
2002	Rwandan-born	F	99.5	0.5
2002	Foreign-born	F	94.6	5.4
2012	All	MF	96.4	3.6
2012	Rwandan-born	MF	96.6	3.4
2012	Foreign-born	MF	91.1	8.9
2012	All	M	97.1	2.9
2012	Rwandan-born	M	97.3	2.7
2012	Foreign-born	M	93.7	6.3
2012	All	F	95.8	4.2
2012	Rwandan-born	F	96.0	4.0
2012	Foreign-born	F	88.0	12.0

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 3.A1.4b. **Unemployment, by sex and age group**

Year	Origin	Sex	Youth unemployed (%)	Ratio of youth unemployment rate to adult unemployment rate	Share of youth unemployed in total unemployed (%)	Share of youth unemployed in youth population (%)
2002	All	MF	1.1	1.6	41.9	0.6
2002	Rwandan-born	MF	0.9	1.5	44.4	0.6
2002	Foreign-born	MF	7.5	1.5	33.3	2.1
2002	All	M	1.3	1.3	38.9	0.7
2002	Rwandan-born	M	1.1	1.4	41.4	0.7
2002	Foreign-born	M	6.8	1.3	25.7	1.8
2002	All	F	1.0	2.0	46.2	0.6
2002	Rwandan-born	F	0.8	2.0	47.7	0.5
2002	Foreign-born	F	8.2	1.9	41.4	2.3
2012	All	MF	4.7	1.5	31.0	2.2
2012	Rwandan-born	MF	4.4	1.4	31.0	2.1
2012	Foreign-born	MF	13.8	1.8	29.4	3.7
2012	All	M	3.7	1.4	31.4	1.8
2012	Rwandan-born	M	3.5	1.4	31.6	1.7
2012	Foreign-born	M	10.8	2.0	29.8	3.0
2012	All	F	5.5	1.4	30.6	2.6
2012	Rwandan-born	F	5.2	1.4	30.7	2.5
2012	Foreign-born	F	17.1	1.6	29.1	4.3

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 3.A1.4c. **Youth not in employment, education or training (NEET), by sex**

Year	Origin	Sex	NEET (%)
2002	All	MF	14.9
2002	Rwandan-born	MF	14.9
2002	Foreign-born	MF	13.8
2002	All	M	14.0
2002	Rwandan-born	M	14.3
2002	Foreign-born	M	9.9
2002	All	F	15.6
2002	Rwandan-born	F	15.5
2002	Foreign-born	F	17.4
2012	All	MF	10.5
2012	Rwandan-born	MF	10.6
2012	Foreign-born	MF	10.4
2012	All	M	8.7
2012	Rwandan-born	M	8.7
2012	Foreign-born	M	8.0
2012	All	F	12.3
2012	Rwandan-born	F	12.3
2012	Foreign-born	F	12.7

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 3.A1.5. **Status in employment, by sex**

Year	Origin	Sex	Wage and salaried workers (%)	Employers (%)	Own-account workers (%)	Contributing family members (%)	Not classified (%)
2002	All	MF	7.4	0.1	76.6	14.0	1.9
2002	Rwandan-born	MF	6.7	0.1	77.1	14.2	1.8
2002	Foreign-born	MF	27.7	0.4	61.2	6.2	4.5
2002	All	M	11.7	0.2	77.6	8.6	2.0
2002	Rwandan-born	M	10.6	0.2	78.5	8.8	1.9
2002	Foreign-born	M	38.1	0.5	53.8	2.7	4.9
2002	All	F	4.0	0.1	75.8	18.3	1.8
2002	Rwandan-born	F	3.7	0.1	75.9	18.6	1.8
2002	Foreign-born	F	16.1	0.3	69.4	10.1	4.1
2012	All	MF	18.2	0.4	67.9	9.5	3.9
2012	Rwandan-born	MF	17.3	0.4	68.9	9.8	3.7
2012	Foreign-born	MF	43.6	1.1	43.6	3.9	7.8
2012	All	M	25.1	0.6	64.2	6.1	4.1
2012	Rwandan-born	M	23.8	0.5	65.5	6.3	3.9
2012	Foreign-born	M	52.3	1.5	36.2	2.4	7.6
2012	All	F	11.8	0.3	71.4	12.8	3.7
2012	Rwandan-born	F	11.2	0.3	72.0	13.0	3.6
2012	Foreign-born	F	31.9	0.7	53.6	5.9	8.0

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

ANNEX 3.A2

Selected KILM indicators disaggregated by citizenship status

The term "immigrant" is defined in Chapter 3 as a foreign-born person. In order to illustrate how outcomes might change using a different definition, labour force participation rates, employment-to-population ratios and unemployment rates are presented here disaggregated on the basis of citizenship.

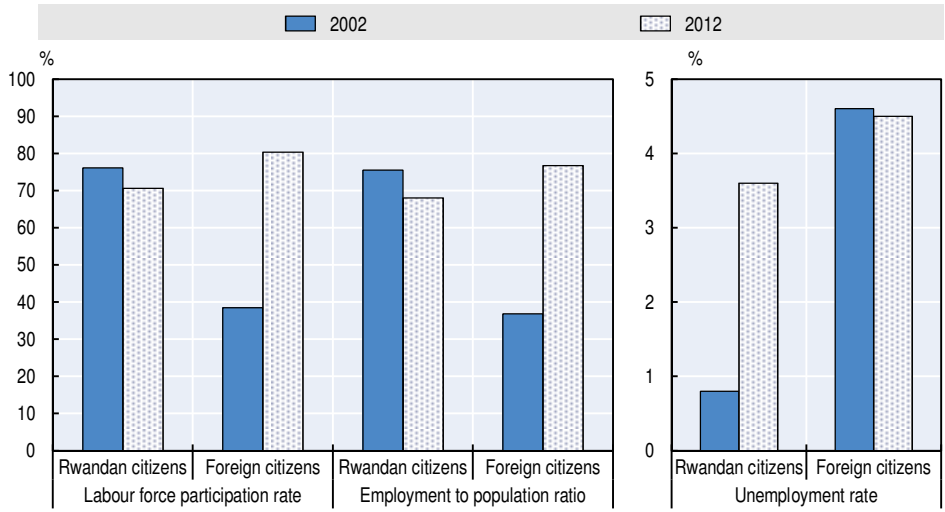
As suggested in Chapter 1, the scarcity of economic migration to Rwanda is reflected strongly by the minute number of foreign citizens present in the Rwandan labour force. In fact, between 2002 and 2012, foreign citizens of working-age decreased from 26 200 to 25 200, representing about 0.4% of the working-age population in 2012. While these figures alone illustrate the scale of foreign presence in Rwanda, they also make it challenging to assess foreign citizens' labour market outcomes on the basis of statistical data.[1]

While the foreign labour force grew between 2002 and 2012, from about 10 100 to 20 200 workers, this only represents a growth from 0.3% to 0.5% of the labour force.[2] Nonetheless, in contrast to the slight decline in the Rwandan labour force participation rate between 2002 and 2012, the commensurate rate for foreign citizens increased by an impressive 41.8 percentage points (from 38.5% to 80.3%, see Figure 3.A2.1).

Between 2002 and 2012, the employment-to-population ratio of Rwandan workers decreased slightly from 76.1% to 70.6%, but increased sharply from 38.5% to 80.3% for foreign workers. At the same time, unemployment rates of Rwandan workers increased considerably over the ten-year period while foreign workers' unemployment rates remained consistently higher and stable. By 2012, the unemployment rate of Rwandan workers, at 3.6%, caught up considerably with the 4.5% unemployment rate of foreign workers (see Figure 3.A2.1).

Figure 3.A2.1. **Foreign workers are more often employed but also more often unemployed than Rwandan workers**

Labour force participation, employment and unemployment by citizenship status, 2002 and 2012 (%)



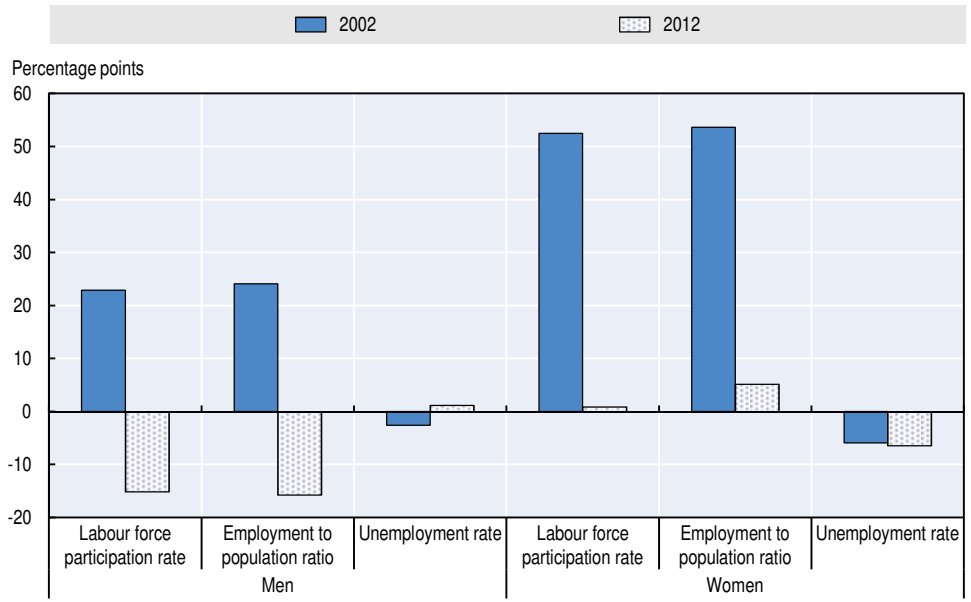
Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Both the labour force participation rate and the employment-to-population ratio of foreign workers were lower than those of Rwandan workers in 2002 (Figure 3.A2.1), but this trend reversed by 2012. Together with a slight rise in Rwandan unemployment (suggesting an improvement in job quality), these trends suggest that Rwandan and foreign workers' labour market outcomes are increasingly aligning.

Figure 3.A2.2 shows differences between Rwandan- and foreign workers in terms of the labour force participation rate, employment-to-population ratio and unemployment rate, disaggregated by sex. Foreign workers appear to fare worse than their Rwandan counterparts in all metrics. While this difference is most marked among women, trends over time appear to be similar for both men and women. For instance, whereas the difference between the labour force participation rates of Rwandan- and foreign men in 2012 was 22.9 percentage points in favour of Rwandan men, this difference among women was 52.5 percentage points. However, the decrease from 2002 was 38 and 52 percentage points, respectively. Only unemployment rates show different trends between men and women. Whereas the gap in unemployment rates between Rwandan and foreign men increased, it decreased marginally for women.

Figure 3.A2.2. **Gender differences remain apparent, but do not seem to vary greatly by citizenship status**

Differences between labour force participation, employment and unemployment by citizenship status and sex (percentage points), 2002 and 2012



Note: The figure shows the rate for Rwandan-born workers minus the rate for foreign-born workers for each of the indicators.

Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

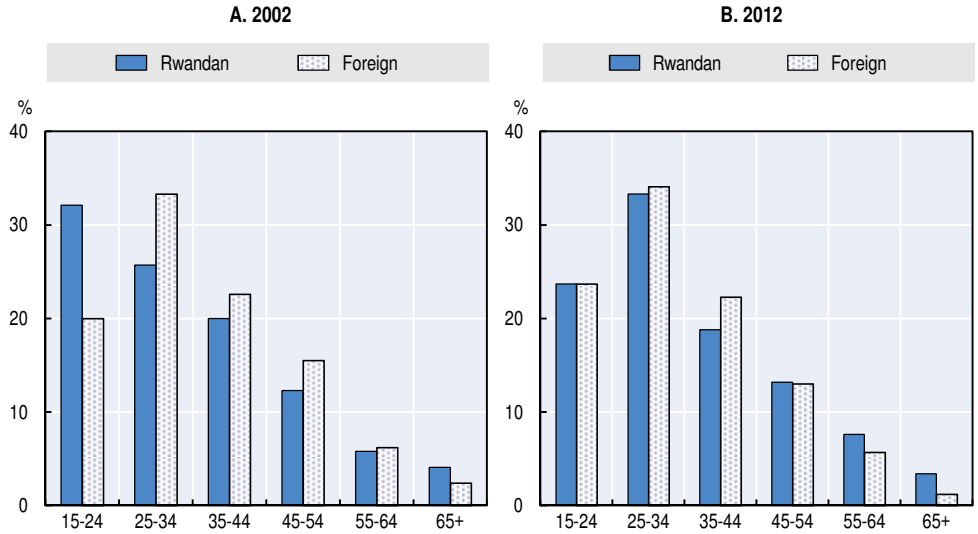
Foreign workers are more often of working age than Rwandan workers

In 2002, the average age of the labour force in Rwanda was 34.2 years, which increased slightly to 35.5 years in 2012. The average age of the foreign labour force decreased from 35.7 to 34.0 years between 2002 and 2012, and thus became younger than the Rwandan labour force by 2012.

In 2002, the foreign labour force was overrepresented in the age group 25-64, and underrepresented among only the youngest and oldest groups (see Figure 3.A2.3). By 2012, the average ages of the foreign and Rwandan labour forces converged considerably, as the Rwandan labour force aged more rapidly than the foreign labour force. The decreasing share of young Rwandan workers by 2012 could be explained by the mandatory primary and (up to three years of) secondary schooling under the Economic Development and Poverty Reduction Strategy (World Bank, 2011).

Figure 3.A2.3. **Foreign workers are overrepresented among prime-age workers**

Labour force by age group and citizenship status (%), 2002 and 2012



Source: Authors' own work based on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*

Notes

1. The 2012 figure represents 2 528 observations in the census microdata. Such a small number presents a major challenge when constructing the key labour market indicators, as with more subdivision (i.e. gender, age, employment status) the number of observations per subdivision is reduced. Thus estimates become more sensitive to statistical noise and hence errors. Figures based on such small numbers of observations should be interpreted cautiously.
2. Calculations based on the Rwandan Population and Housing Censuses 2002 and 2012 (NISR, 2002, 2012).

Chapter 4

How immigrants affect the labour market in Rwanda

When considering how immigration affects an economy, a key concern is whether native-born individuals lose their jobs or get paid less because of the increased competition by foreign-born workers. This chapter addresses this question based on an econometric approach.

Rwanda has a long and oftentimes contentious history of migration, as discussed in Chapters 2 and 3. Many immigrants in Rwanda are not necessarily motivated by a search for work; but the differences between the labour market outcomes of immigrant and native-born workers analysed in Chapter 3 suggest that immigrant workers, particularly those recently arrived, respond well to labour market needs. In fact, their role in the labour market is embraced by the government in national development policies. The employment and skills of immigrant workers are being leveraged in policy tools to improve skill levels of national workers, reflecting the government's intention to use migration policy to the maximum benefit for the national economy. It is therefore important to consider to what extent the presence of immigrant workers is beneficial or detrimental to the employment and wages of native-born workers.

This chapter looks into this question and finds that the presence of immigrant workers is only weakly associated with a reduced rate of employment of native-born workers. Their presence does not appear to be associated with reduced wage employment of native-born workers nor with an increase in vulnerable employment of native-born workers. However, at the national level, wages of those workers in wage employment do seem to be positively correlated with the presence of immigrant workers.

Wage gaps between native-born and immigrant workers remain considerable

The lower labour force participation and higher unemployment rate of foreign-born workers compared to native-born workers suggests that the former tend to find more decent and higher-quality employment than the latter, as described in Chapter 3. This is also evidenced by the fact that the foreign-born are more likely to be employers and less likely to be vulnerably employed than native-born workers.

This trend is also reflected in average wage levels. Overall, foreign-born workers tend to earn higher wages than Rwandan-born workers, while only among Rwandan-born workers do men appear to earn considerably higher wages than women. Wages of employed Rwandan- and foreign-born men and women as estimated based on four Integrated Household Living Conditions Survey rounds between 2000 and 2014 show considerable differences between Rwandan-born and foreign-born workers. This could be due to the relatively large difference in proportions of male and female Rwandan-born workers in

agriculture, compared to far smaller commensurate differences for foreign-born workers. Over all years and both sexes, average monthly wages of foreign-born workers are over twice as high as for native-born workers. Those of foreign-born women are on average even higher than those of foreign-born men (Table 4.1).

Table 4.1. **Foreign-born workers earn more than Rwandan-born workers**
Average monthly wages by place of birth, sex and year (2010 RWF)

	Rwandan-born			Foreign-born		
	Men	Women	Total	Men	Women	Total
2000	46 561	30 084	41 010	92 955	148 599	110 013
2005	41 545	32 580	39 258	120 750	113 031	118 749
2011	71 722	47 375	65 658	169 512	165 873	168 387
2014	48 985	32 358	42 918	106 272	145 023	119 579
Total	55 012	35 805	49 042	124 741	145 712	131 305

Note: Wages are reported in real 2010 RWF.

Source: Authors' own work based on National Institute of Statistics, *Integrated Household Living Conditions Survey 2000, 2005, 2011 and 2014 microdata* (NISR, 2000, 2005, 2011, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*.

Part of the differences in wages between Rwandan-born and foreign-born employees can be attributed to different personal characteristics, such as education, sex, relationship status (married or cohabitating versus being single), age, occupation and place of residence. Table 4.2 shows the results of several regressions (models 1-12), in which the natural log of wages is regressed on various controlling variables.[1] Foreign-born employees appear to earn on average about 12% more than similar Rwandan-born individuals (controlling for sex, broad education level and experience – model 1).

When controlling for broad occupational category, this difference appears to increase to around 15% (model 2), suggesting that there are considerable differences in wages between Rwandan-born and foreign-born workers within certain occupations. However, foreign-born workers also tend to be highly concentrated in Kigali and other urban centres. When accounting for urban location, wage differences again decrease slightly, to 14%. This comes as no surprise, given that the majority of non-agricultural jobs are in urban centres, and as such there is a sizeable wage difference between rural and urban workers which is likely not affected by the place of birth of the worker.

The remaining differences in wages might be explained by other compositional effects, such as differences in the wages of foreign-born men and women, or other skill differences, such as English language proficiency. Accounting for wage differences between foreign-born men and foreign-born women indeed reduces the immigrant wage gap to 7% (model 5).

Finally, having a good command of the English language can be a significant advantage in terms of obtaining higher wages. In Rwanda, English became an

official language in 2008, and has since been used almost exclusively in government and as the language of primary education. Net of any general educational effects, English language proficiency significantly affects wage differences, making any remaining differences due to place of birth insignificant (model 6).[2]

Wages by level of skills (based on broad occupational category) are examined as well, though this disaggregation, or breakdown, leads to insufficient observations for meaningful interpretation in some cases. Taking data limitations into account, in all occupational groups, there are significant differences in wages of Rwandan- and foreign-born workers, even when controlling for sex, age and education (models 7-12). Among low-skill (i.e. elementary) occupations, wages appear to be 29% higher for foreign-born workers with English language proficiency compared to their Rwandan-born counterparts within regions and urban areas (model 8). Among medium-skill occupations (clerks, service workers, agricultural workers, craft workers and machine operators), any significant wage differences between Rwandan-born and foreign-born employees are explained by the urban location of the job (model 10), suggesting that medium-skill occupations tend to be better paid in urban areas compared to rural areas, irrespective of the employee's place of birth. Among higher-skill occupations (legislators, senior officials and managers, professionals, and technicians and associate professionals), only once English language proficiency is taken into account do the wage differences between Rwandan-born and foreign-born workers disappear.[3]

Given that the geographic location of a job, even within occupational groups, does not fully explain wage differences, it is interesting to note that English language proficiency does account for some of the differences between workers' wages. In fact, when looking at high-skill occupations, proficiency in English reduces the differences in wages between Rwandan-born and foreign-born workers, while among low-skill occupations, having proficiency in English actually increases those wage differences. The latter might be a consequence of a higher degree of over-qualification among foreign-born workers with unrecognised foreign qualifications taking up work in elementary occupations.

The dominant language in Rwanda is Kinyarwanda, spoken by most Rwandans. However, the change of the language of education and of that used by the government from French to English in 2008 could have had palpable effects on the labour market, particularly among young entrants and new immigrants, who are more likely than the resident Rwandan population to have received an Anglophone education. This is particularly visible in wage differences between Rwandan-born and foreign-born employees with English language proficiency. Among employees in high-skill occupations, speaking English works as an 'equaliser' between the two groups, whereas among employees in low-skill occupations, foreign-born people who speak English earn almost a third more than their Rwandan-born counterparts.

Table 4.2. **Language proficiency can have a strong impact on wage differentials**

Regressions of log labour income on place of birth, Models 1-12

	All workers						Low-skill occupations		Medium-skill occupations		High-skill occupations	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES												
Foreign-born	0.12***	0.15***	0.15***	0.14***	0.07*	0.11	0.11**	0.29*	0.08*	-0.03	0.09*	0.28
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.07)	(0.05)	(0.16)	(0.05)	(0.09)	(0.05)	(0.39)
Experience	0.06***	0.06***	0.06***	0.06***	0.06***	0.07***	0.05***	0.04***	0.08***	0.09***	0.02***	0.06
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)	(0.01)	(0.01)	(0.05)
Secondary education	0.77***	0.73***	0.73***	0.71***	0.71***	0.63***	0.44***	0.52***	0.84***	0.84***	0.91***	0.64
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.16)	(0.03)	(0.12)	(0.04)	(0.27)	(0.09)	(0.44)
Tertiary education	1.96***	1.88***	1.88***	1.83***	1.83***	2.17***	1.65***		1.96***	2.46***	1.85***	
	(0.03)	(0.04)	(0.04)	(0.05)	(0.05)	(0.07)	(0.08)		(0.09)	(0.17)	(0.10)	
Other education	-0.21	-0.27	-0.27	-0.29	-0.29	-0.82***	-0.48		-0.40	-0.71***		
	(0.47)	(0.47)	(0.47)	(0.46)	(0.46)	(0.08)	(0.61)		(0.35)	(0.09)		
Female	-0.21***	-0.20***	-0.20***	-0.21***	-0.23***	-0.21***	-0.29***	-0.28***	-0.04	-0.00	0.00	0.28
	(0.04)	(0.04)	(0.04)	(0.04)	(0.04)	(0.05)	(0.05)	(0.09)	(0.04)	(0.06)	(0.05)	(0.41)
Constant	9.32***	9.49***	9.49***	9.41***	9.41***	9.57***	10.28***	10.27***	8.95***	8.88***	9.80***	9.24***
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.06)	(0.13)	(0.18)	(0.08)	(0.10)	(0.16)	(0.45)
Observations	17 990	17 990	17 990	17 990	17,990	4,373	9 458	1 714	6 044	2 489	2 344	110
R-squared	0.39	0.40	0.40	0.40	0.41	0.29	0.29	0.21	0.48	0.29	0.45	0.56
Time and area fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation fixed effect	.	Yes	Yes	Yes	Yes	Yes	.	.	.	.	.	.
Urban fixed effect	.	.	.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Female-foreign-born interaction	.	.	.	.	Yes	.						
English fixed effect	.	.	.	.	.	Yes	.	Yes	.	Yes	.	Yes

Note: * p < 0.1, ** p < 0.05, *** p < 0.01. Robust standard errors in parentheses.

Source: Authors' own work based on National Institute of Statistics, *Integrated Household Living Conditions Survey 2000, 2005, 2011 and 2014 microdata* (NISR, 2000, 2005, 2011, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*.

Labour market outcomes of native-born workers are not strongly affected by foreign-born workers

Relatively little research has focused on the impacts of immigration on labour market outcomes of native-born workers in developing countries. However, there exists ample research on the impacts in developed economies (e.g. Borjas, 2003; Card, 2001; Friedberg and Hunt, 1995; Hanson, 2008; Kerr and Kerr, 2011). In recent decades, immigration outside of high-income countries

has become increasingly important in development circles and national policy debates, resulting in a new and growing body of literature on immigration in developing countries (e.g. Facchini, Mayda and Mendola, 2013; Gindling, 2008; Pholphirul and Kamlai, 2014).

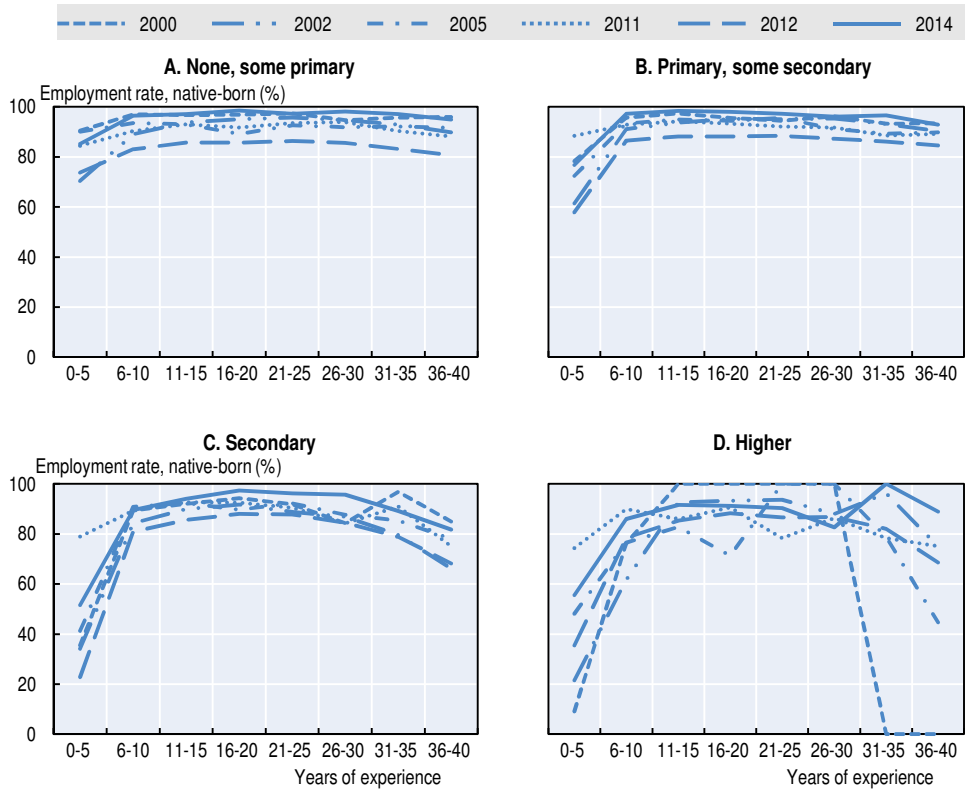
There is little consensus among researchers and policy makers on immigration's impact on labour markets, even in developed countries. Generally, effects are quantitatively small and often not statistically significant (Longhi, Nijkamp and Poot, 2008). While small effects on wages are sometimes reported (more often negative than positive), most empirical studies conclude there is little or no adverse effect of immigration on native-born workers' employment. However, certain sub-populations, such as low-skilled workers or earlier immigrants, might be more strongly affected by immigration in the short-run than the general population. Nonetheless, given the heterogeneous nature of migration histories and governance in low- and middle-income countries, it is difficult to predict the labour market impacts of immigration in developing countries. In the case of Rwanda, one might argue that, due to the high levels of education of foreign-born workers, there should be little negative impact of immigration on low-skilled native-born workers. Some positive effects might be expected, resulting from the presence of immigrants indirectly stimulating investment in more productive sectors, which leads to the employment of more Rwandan-born workers.

Employment rates for Rwandan-born workers depend mostly on years of experience

The overall employment-to-population ratio of Rwandan-born workers is 68.8%, as seen in Chapter 3. When disaggregating across education and experience cells, it becomes evident that this ratio is much higher for a large part of the workforce. Also a drop in ratios can be seen in all education groups only at the fringes of the experience range – there are relatively less employed Rwandan-born workers with very little or extensive experience compared to workers in the middle of the range (Figure 4.1). This is not necessarily surprising, as workers early in their careers are more likely to be (cyclically) unemployed as they search for the right kind of job or take up further education, particularly in higher education categories; while more experienced workers start retiring, in some cases before they leave the working-age population (ages 15-64) (again, particularly among the two higher educated categories). Moreover, about 25% of the working-age population consist of young workers (ages 15-24) (see Chapter 3, Figure 3.4). This helps explain the lower overall employment-to-population ratio that Figure 4.2 seems to show. While average education levels in Rwanda are rising over time, in absolute numbers there remains a dearth of Rwandan-born workers with a higher than primary level of education.

Figure 4.1. **Employment-to-population ratios are high regardless of education or experience level**

Rwandan-born employment-to-population ratio by experience and education levels and by year



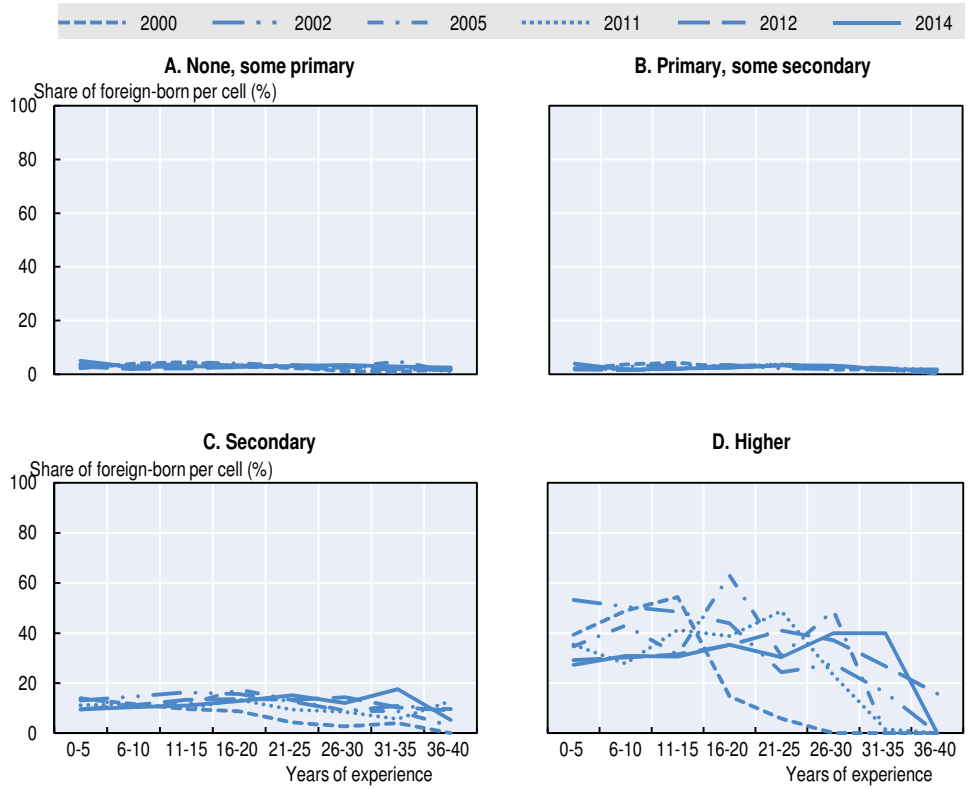
Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2000, 2012).

The distribution of foreign-born workers across skill cells is highly skewed in the direction of higher education (Figure 4.2). In all the years analysed there were almost no immigrants with less than a secondary level of education (and immigrants represented less than 2% of the labour force with a secondary education). The average foreign-born share of the labour force with a higher education is much higher, and in 2005 reached 60% (among those with 16-20 years of work experience). This suggests a continued dependence of the labour market on foreign-born workers for higher skills. In the years leading up to and following 2012, the average share of foreign-born workers with a tertiary education decreased slightly (peaking at 40% for those with 21-25 years of experience). This is further evidence in support of the rising capabilities of Rwandan-born workers and conforms with the Vision 2020 plan.

Figure 4.2. **Most foreign-born workers in Rwanda are highly educated**

Foreign-born share of economically active workers in Rwanda by experience and education levels and by year



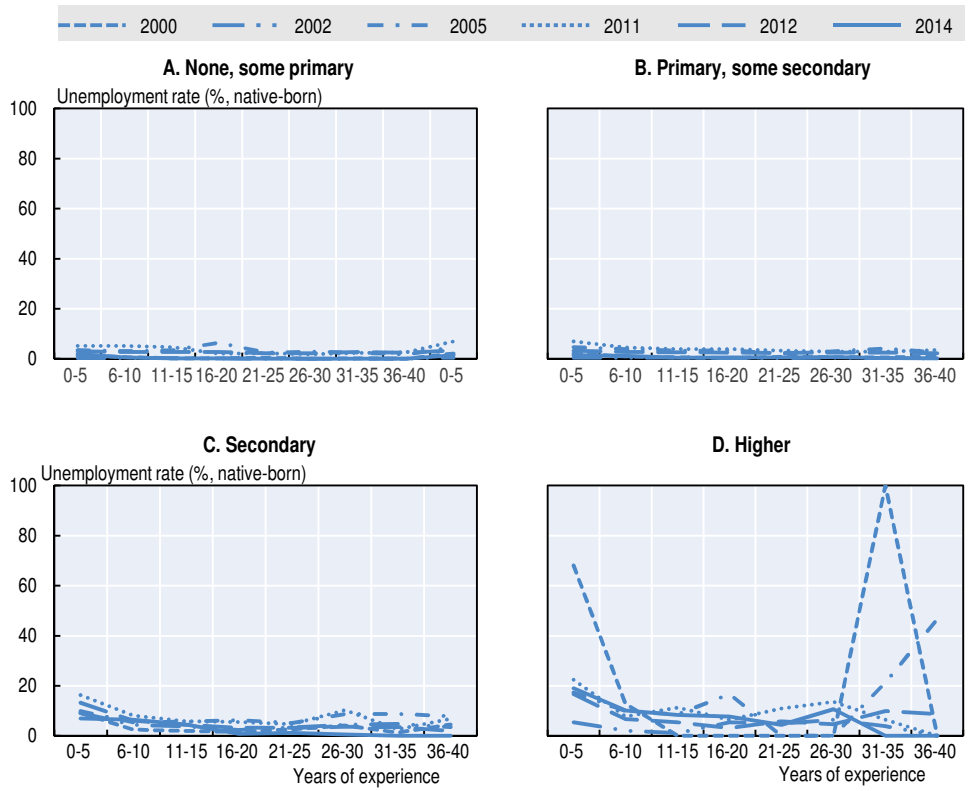
Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

The unemployment rate of Rwandan-born workers is extremely low at around 2% for those with less than a secondary education, and around 5% for those with higher education levels). Yet, it increases slightly with education and remains relatively stable across experience levels (Figure 4.3). As discussed in Chapters 2 and 3, such low rates of unemployment likely relate to a large share of the population's dependence on subsistence agriculture and high rates of poverty, both of which are less prevalent among workers with higher than secondary education. The latter can find more decent forms of employment and are less likely to depend on several low-quality jobs at once.

Figure 4.3. **Unemployment rates are low across all levels of education and experience**

Rwandan-born unemployment rate by experience and education levels and by year



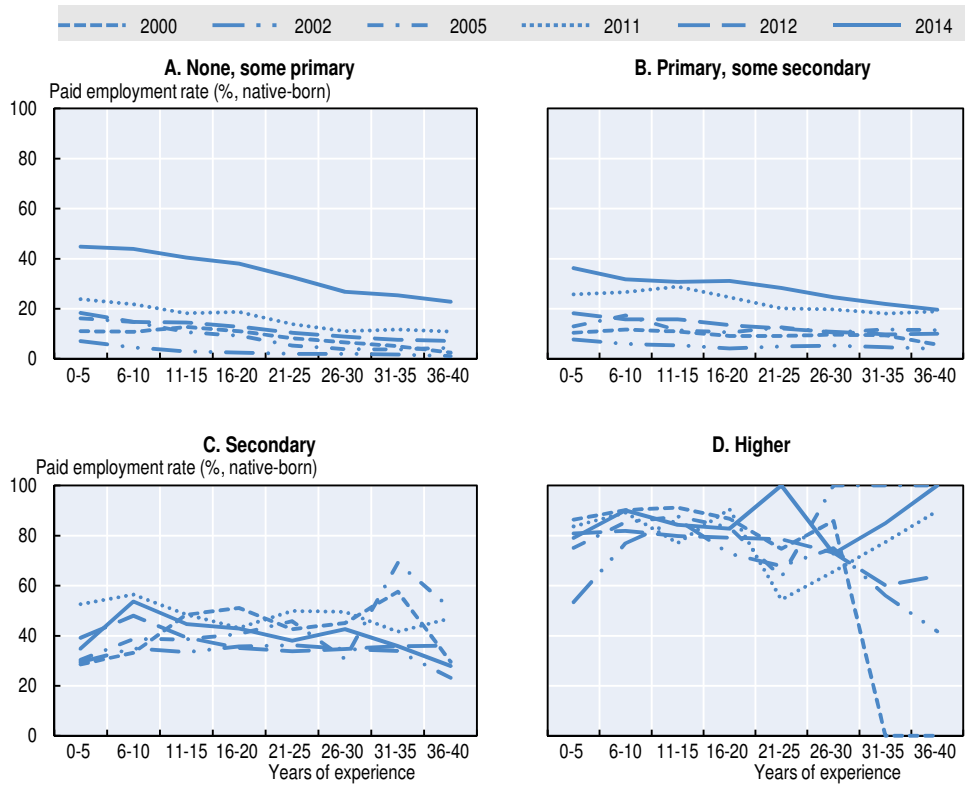
Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

Paid employment rates in Rwanda have increased over time, particularly among those workers with lower than a secondary level of education (Figure 4.4). Rates also rise steadily with higher levels of education, reaching an average of 40% among secondary educated workers and 76% among tertiary educated workers (though small sample sizes in these categories make estimates less reliable). Work experience seems to only be weakly related to whether a worker is in paid employment or not, though it is mostly lower educated workers who tend to move out of paid employment as they gain work experience.

Figure 4.4. **Paid employment rates have increased over time and with education**

Rwandan-born paid employment rate by experience and education levels and by year



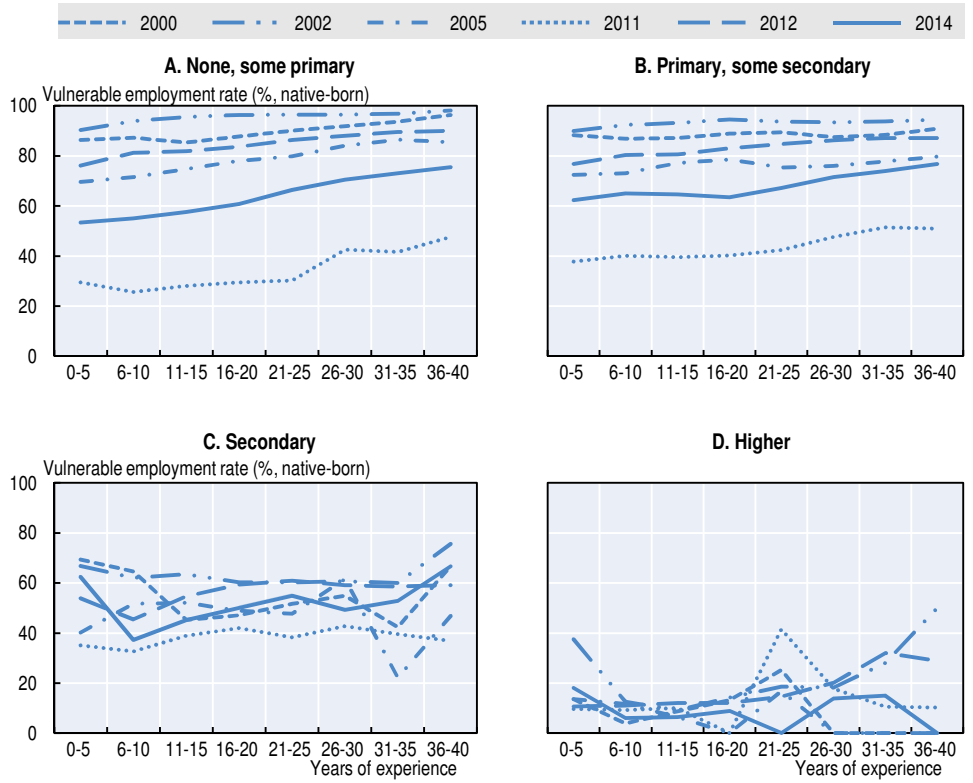
Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

Vulnerable employment rates of Rwandan-born workers decrease with education, but tend to increase slightly with experience, particularly for the lowest educated workers (Figure 4.5).

Figure 4.5. **Vulnerable employment rates decrease with education level**

Rwandan-born vulnerable employment rate by experience and education levels and by year



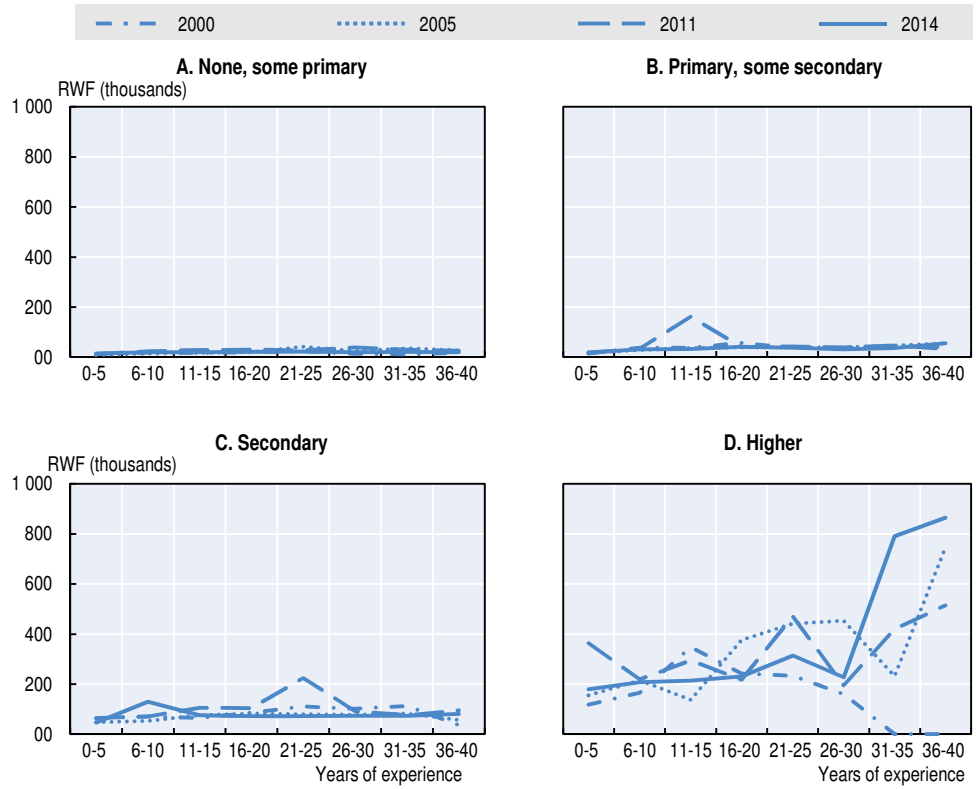
Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

Finally, real wages of Rwandan-born workers appear to increase only slightly with education for workers with a secondary or lower level of education, but increase exponentially for those with a tertiary or higher education. The same observation is valid for working experience. Real wages of Rwandan-born workers increase with work experience, most strongly after the first five years of working, and again when workers start approaching 40 years of work experience (Figure 4.6).

Figure 4.6. **Real wages of Rwandan-born workers increase with education and experience**

Real wages of Rwandan-born workers by experience and education levels and by year



Note: The irregular trends observed in Panel D likely result from the relatively fewer observations on which rates in those cells are based.

Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

The presence of immigrants is related to a lower native-born employment rate and higher wages

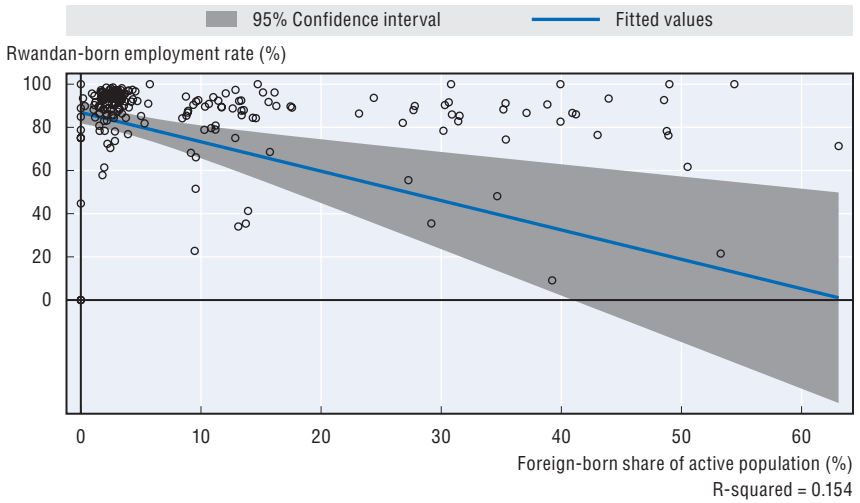
When comparing the two variables directly, the employment rate of Rwandan-born workers per skill level and per year decreases when the immigrant share of economically active workers increases (Figure 4.7). However, this apparent relationship is very weak and might be driven by factors which affect groups differently or in some unobserved way. For instance, foreign-born workers might be attracted to sectors or occupations where there are shortages because native-born workers either lack the necessary skills or are less suitable for other unobserved reasons.

The correlation between the log of real wages of Rwandan-born workers and the share of foreign-born workers per skill cell per year is positive[4] (Figure 4.8). Again, the apparent relationship could be driven by a number of unobserved values, and can therefore not conclusively demonstrate that the presence of immigrants has an effect on native-born wages.

The following section will empirically examine these relationships, among others. It will compare Rwandan-born workers with economically active immigrants with a comparable level of skill in the labour market, using the Rwandan Population and Housing Census (NISR, 2002, 2012) and Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) data. The methodology is presented in detail in Annex 4.A1.

Figure 4.7. **Rwandan-born employment-to-population ratios show a weak relation to immigrant shares**

Rwandan-born employment-to-population ratio versus foreign-born share of economically active population, by skill cell and year

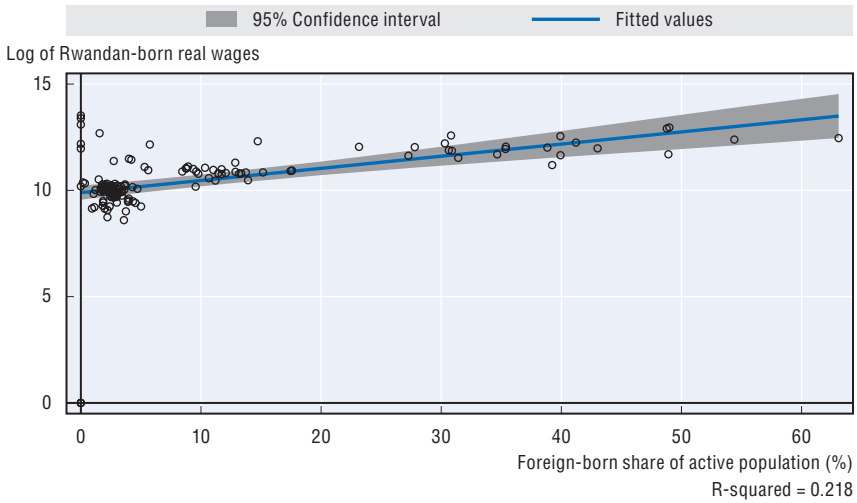


Source: Authors' own work based on the Integrated Household Living Conditions Survey (NISR, 2000, 2005, 2011, 2014) and Rwandan Population and Housing Census data (NISR, 2002, 2012).

The results of the regression analysis are summarised in Table 4.3 (regression results are shown in Table 4.A2.1).[5] The relationship between the immigrant share of economically active workers and the employment-to-population ratio of Rwandan-born workers is significant and negative at the national level. This means that a one percentage point increase in the share of foreign-born workers in a skill cell is associated with a 0.44 percentage point decrease in the employment-to-population ratio of Rwandan-born workers (see Tables 4.3 and 4.A2.1).

Figure 4.8. **Real wages of Rwandan-born workers increase slightly with the presence of immigrants**

Log of real wages of Rwandan-born workers versus foreign-born share of economically active population, by skill cell and year



Source: Authors' own work based on the Integrated Household Living Conditions Survey data (NISR, 2000, 2005, 2011, 2014).

There does not seem to be any correlation between the share of foreign-born workers and the Rwandan-born unemployment rate per cell (see Tables 4.3 and 4.A2.1). Given the low Rwandan-born unemployment rates, particularly among the lower education levels, this is not surprising. In most cells unemployment rates simply cannot fall any lower, regardless of how many immigrants are present. In line with a significant negative effect on the employment-to-population ratio, the presence of immigrants might increase unemployment rates. However, also in this case, unemployment rates are so low that they suggest large rates of hidden underemployment, which might in fact absorb any potential effect on unemployment.[6] The presence of immigrants is not correlated with the paid or vulnerable employment rates of Rwandan-born workers at the national level.

The analysis does find that the presence of immigrants is positively correlated with the wages of Rwandan-born workers at the national level. A one percentage point increase in the share of immigrants is associated with 3.4% higher wages of Rwandan-born workers. This might be due largely to the wages of workers (both native- and foreign-born) with a tertiary or higher level of education. As noted above, wages rise sharply for those workers compared to less educated workers, and it is among these workers that foreign-born are largely overrepresented.

Table 4.3. **Migration affects employment rates and wages of Rwandan-born workers**
Summary of results of regressions of several Rwandan-born labour market outcomes and foreign-born share

Variables	All workers National	All workers Regional	Men	Men (controlling for women)	Women	New immigrants
(1) Employment-to-population ratio of Rwandan-born workers	-	o	-	-	o	-
(2) Unemployment rate of Rwandan-born workers	o	-	o	o	o	+
(3) Paid employment rate of Rwandan-born workers	o	o	o	o	o	o
(4) Vulnerable employment rate of Rwandan-born workers	o	o	o	o	o	o
(5) Log of real wages of Rwandan-born workers	+	-	o	o	o	o

Note: The table reports the sign of the immigrants' share variables from regressions where the dependent variable is the mean Rwandan-born labour market outcome for an education*experience group at a particular point in time. o = no significant effect; + = a significant positive effect; - = a significant negative effect.

Source: Authors' own work based on the Rwandan Population and Housing Censuses 2002 and 2012 (NISR, 2002, 2012), and the Integrated Household Living Conditions Survey, 2000, 2005, 2011 and 2014 (NISR, 2000, 2005, 2011, 2014).

When excluding the most inexperienced workers from the analysis (not shown), the effect of immigrants on the employment-to-population ratio of Rwandan-born workers diminishes considerably. This suggests that inexperienced workers not only have the lowest employment rates of all Rwandan-born workers, but they are likely more strongly affected by the presence of immigrants than more experienced and more settled workers. Together with foreign-born young workers from contiguous countries, many second-generation Rwandans, born and educated abroad and fluent in English, are returning to Rwanda as entrepreneurs, leaders and highly-skilled professionals. Whether or not they come with the explicit intention of addressing a post-conflict society's paucity of human resources, their substitutability for non-returnee workers is likely quite large, leading to the observed negative effect.

At the district level,[7] the presence of economically active immigrants does not significantly reduce the employment-to-population ratio of Rwandan-born workers (Table 4.A2.2) but interestingly, it does do so for the unemployment rate. This suggests that there is more complementarity between Rwandan-born and foreign-born workers in those districts where more immigrants are present. Foreign-born workers have no effect on the paid or vulnerable employment rates of Rwandan-born workers at the district level. Finally, Rwandan-born wages are negatively correlated with the share of immigrants in a skill cell at the district level. The divergence between national and district level results likely stems from the large share of immigrants in the metropolitan area of Kigali (Kigali City and Southern and Western Provinces; see Table 4.A2.2) compared to the rest of the country.

When looking at immigration impacts on native-born men and women separately, results partly confirm findings at the national level. The pooled effects of the presence of immigrant men on labour market outcomes for

Rwandan-born men do not differ substantially from those for all native-born workers (see Table 4.3). Even when controlling for the presence of women in a skill cell,[8] the negative effect of the immigrant men's share on native-born men's employment-to-population ratios remains significant. The share of women correlates negatively with the unemployment and paid employment rates of Rwandan-born men, suggesting there is some competition between native-born men and women in terms of finding higher quality jobs. However, accounting for the presence of women does not change any of the effects of the share of foreign-born workers in each skill cell on Rwandan-born men's labour market outcomes. Labour market outcomes among native-born women are not significantly affected by the presence of immigrant women in a skill cell.

The analysis explores the degree that foreign-born workers integrate into the labour market over time. It examines the relationship between the presence of foreign-born workers with less than ten years of residence in the region (as a proxy for newly arrived immigrants) and labour market outcomes of native-born workers and those foreign-born workers with more than ten years of residence in the country). The presence of new immigrants per skill cell correlates negatively with the employment-to-population ratio and positively with the unemployment rates of resident workers.[9] However, new immigrants do not have any effect on the quality of employment of Rwandan-born workers, either through paid employment rates or vulnerable employment rates.

Employment-to-population ratios of native-born workers fall and wages rise in the presence of more foreign-born workers

Overall, the findings of this analysis suggest that the presence of immigrants does not have an unequivocal effect on the labour market outcomes of Rwandan-born workers. The following paragraphs will highlight some of the main conclusions and areas on which future research can improve the analysis.

Across all years analysed, Rwandan-born workers are both displaced in terms of employment and receive higher wages in the presence of more foreign-born workers. One should consider, however, that Rwandan- and foreign-born workers still appear to occupy different positions in the labour market. This is evidenced by the following:

- The large disparities in average education levels between Rwandan-born and foreign-born workers.
- The strong geographic dispersion of Rwandan- and foreign-born workers. A large majority of Rwandan-born workers still depend on subsistence agriculture in rural areas while foreign-born workers are mostly concentrated in non-agricultural jobs in Kigali and a few other urban centres.
- Higher education levels.
- Generally better working conditions of foreign-born workers.

The district level analysis does not lend itself to a clear interpretation, suggesting that the effect of the presence of foreign-born workers can differ greatly between districts. This is likely due to the overrepresentation of highly-skilled foreign-born workers in urbanised areas (where the availability of better quality jobs is higher) where foreign-born workers represent about 12% of the labour force, compared to about 2% of the rural labour force.[10] However, one can imagine a number of unobserved variable biases which could influence regional effects. For instance, the model cannot account for bias resulting from the mobility of Rwandan-born workers between districts. Previous research has repeatedly shown that endogenous migration of native-born workers can strongly bias results of geospatial analyses (Bodvarsson and van den Berg, 2009). Therefore, it should not be relied on to draw strong conclusions of immigration's effects on local labour market outcomes for native-born workers.

Differences in results based on foreign-born workers versus new immigrants suggest that such definitions can matter in terms of observed outcomes and policy responses. The foreign-born population used in the national level sample includes lifetime immigrants. They have possibly been in their current place of residence for decades and are thus likely well enough integrated into the local labour market as to be indistinguishable from native-born workers.

The new immigrant population probably also includes recent Rwandan returnees, who are generally not considered immigrants for social and political reasons. The 2002 census recorded a high proportion of recently arrived immigrants among the foreign-born population (65% arrived in the previous ten years, compared to an average of 18% in other datasets). The largest share of those who arrived before 2002 have been in the region for six to eight years, which likely corresponds with the return of Rwandan refugees over the foregoing eight years (between 1994 and 2002). It is also likely that these people are not primarily responding to labour demand in Rwanda, but returned with long-term intentions of resettling. On the other hand, in later years new immigrants are more likely to be responding to shorter-term labour market demands. These new immigrants are much more recent (less than three years in the same region, on average) compared to those of 2002.

The adjustment for women's experience on the labour market is based on the assumption made by de Brauw and Russell (2014). They presume that women's actual labour market experience is systematically lower than their maximum potential labour market experience due to domestic responsibilities traditionally and predominantly befalling women. They use a discrepancy of about 5.4 years between women's maximum potential[11] and actual labour market experience in the United States, combined with age-specific fertility rates, to cumulatively adjust for women's labour market experience between the ages of 19 and 40. For lack of more detailed data on actual labour market experience in Rwanda, this assumption is repeated here.[12]

However, the discrepancy between actual and potential labour market experience does not differ as strongly between men and women as it might have in the United States in the past (as argued by Borjas [2003] in his original formulation of the impact model). This is particularly the case of Rwanda, where high poverty rates, extremely low unemployment rates and high rates of vulnerable employment for both men and women suggest that individual household members can scarcely afford to be unemployed for long. Further adjustments to calculating women's labour market experience would not have a strong impact on the interpretation of current results, given that work experience for all workers is being approximated by maximum potential labour market experience. Hence, the current analysis would benefit from a more accurate approximation of actual work experience for both men and women.

This analysis has been limited to cross-sectional observations of certain key indicators of the labour market. It is conceivable that immigrants have an impact on other labour market indicators such as wages or hours worked, or affect the more "dynamic" aspects of the labour market, such as unemployment spells or occupational mobility.

More detailed data would be required to study such effects, and would greatly help to shed light on potential long-run effects of migration. Indeed, long-run impacts of immigration could, for instance, include feedback from potential changes in firm-level investments or changes in prices of housing or some kinds of goods and services. To date, there exists little research on immigration's effects on gross fixed capital formation and investment, particularly in developing countries, likely due to the rarity of micro-level data on investment and industry- or regionally-disaggregated data on capital stocks. The following chapter explores these gaps by looking at how migration and immigrant workers might affect GDP and the productivity of firms.

Notes

1. Wage and earnings data in the Integrated Household Living Conditions Survey is only collected for wage/salaried employees, hence no comparisons can be made between workers with a different status in employment. Regressions are weighted and standard errors are clustered by year and district.
2. The relatively small number of observations on English language proficiency make results of model 5 in Table 4.2 (and models 7, 9 and 11) less powerful than other models, and should hence be interpreted cautiously. The question was also not asked in 2014.
3. Even though the model is not powerful enough to find a significant effect of English language proficiency on wage differentials, the (statistically insignificant) 27% wage premium for foreign-born workers suggests further study into this group might be warranted.
4. The regression coefficient is 0.05 and is statistically significant, and with an R-squared of 0.23 this relationship has considerable explanatory value.

5. Regressions are run over samples defined at the national and regional levels for all workers, and for men and women separately at the national level. A final regression is run using the share of "new immigrants" (those having resided in Rwanda for less than ten years) instead of all foreign-born workers.

6. In a skill cell regression of time-related underemployment on the share of immigrants, the share of immigrants does not have any effect on the time-related underemployment rate per skill cell. However, *time-related* underemployment is measured as the share of employed persons whose hours of work (actual or usual) were below a certain cut-off point and who *wanted* and *were available* to work additional hours (ILO, 2015). If many Rwandan-born workers are indeed holding down several poor quality jobs at once, they may not be actively searching for or desiring additional hours of work, even if they are not actually in "full" employment.

7. In order to account for regional distributions of workers, a fixed area effect (at the district level) is added to the model being estimated, similar to the geospatial approach taken by other authors (e.g. Borjas, 2003; Facchini, Mayda and Mendola, 2013). However, due to the heavy data requirements of such an exercise in Rwanda (Rwanda consists of 30 districts * 32 skill cells * 6 years = 5 760 potential skill cells), replicating this analysis is problematic, given the relatively low share of foreign-born in the labour force and heavy concentration of those foreign-born in urban areas, likely leading to many empty cells in rural areas. Such a regression would almost certainly result in biased estimates. Therefore, skill cells were reduced to four categories (low and high education versus low and high experience; see Table 4.A2.2), leading to 30 * 4 * 6 = 720 potential skill cells. This makes the analysis slightly less informative, but allows for a simple illustration of the effect of immigrants on Rwandan-born labour market outcomes, while taking regional distributions of workers into account.

8. Results presented in Table 4.A2.1 include both male and female workers, while additionally examining men's labour market outcomes, controlling for the share of women (both native- and foreign-born) in a skill cell.

9. This could, however, be due to the fact that newly arrived foreign-born workers are strongly overrepresented among higher educated skill cells, in which workers likely find relatively more stable employment in the first place, and that native-born and resident foreign-born workers are more numerous in the lower educated skill cells, where cyclical employment is likely more common. Given that the largest cohort of new immigrants entered Rwanda in the years following 1994 but before 2002, and flows remained low and relatively constant afterwards, one might have expected the strongest effects to appear in or before 2002.

10. The small numbers of observations in many of the 120 geospatial skill cells might further lead to a bias in regression estimates favouring a few populous cells, which consist mostly of urban areas and a few densely populated districts in the Eastern Province.

11. Age minus 15 minus years of education.

12. Using a gap of four years between maximum potential and actual work experience.

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ANNEX 4.A1

Methodology for assessing labour market impacts

This chapter analyses immigration as an increase in the supply of labour which, following Borjas (2003), uses groups of workers who have been identified based on two dimensions: education and experience. As noted by Borjas (ibid.), both dimensions have been emphasised by the human capital theory (Becker, 1975; Mincer, 1974), and education and experience jointly determine the skill cells which are central to analysing immigration.

The skill cells are used to assess how labour market outcomes of Rwandan-born workers of a certain skill level are affected by the proportion of immigrant workers of the same skill level. Skill level is approximated by dividing the working age population of Rwanda into groups based on four levels of educational achievement and eight levels of years of experience. Subsequently, variations in the proportion of immigrants across skill cells are used to assess the impact of immigration on labour market outcomes.

Labour market outcomes included in the analysis are the employment-to-population ratio, the unemployment, paid employment, and vulnerable employment rate of Rwandan-born workers, and the natural log of real wages.

Following Borjas (2003), skill cells based on education and experience are used to assess how labour market outcomes of Rwandan-born workers of a certain skill level are affected by the proportion of immigrant workers of the same skill level. Accounting for any interactions between education and experience, and changes in these variables over time, the main equation to be estimated becomes:

$$Y_{ijt} = \beta m_{ijt} + e_i + w_j + c_t + (e_i * w_j) + (e_i * c_t) + (w_j * c_t) + u_{ijt} \quad (1)$$

where Y_{ijt} is the labour market outcome for a Rwandan-born worker with education i (i = 1...4) and work experience j (j = 1...8) for year t. Furthermore:

$$m_{ijt} = M_{ijt}/(M_{ijt} + N_{ijt}) \quad (2)$$

where M_{ijt} is the number of foreign-born workers with education i, work experience j at time t and N_{ijt} is the number of Rwandan-born workers with education i, work experience j at time t. The other explanatory variables are a

set of fixed effects that aim to take into account the education level (e_i), work experience (w_j) and the time period (c_t).

Contrary to previous research (see Borjas, 2003; Facchini, Mayda and Mendola, 2013), the data includes both men and women. Borjas (2003) argues in his analysis that work experience cannot be adequately calculated for both men and women in the United States' case, due to lower female labour force participation rates, particularly among older cohorts. While in the case of the United States, differences in the labour force participation rates of men and women between 1960 and 2000 might have a strong cultural component, this appears to be different in Rwanda. Differences in labour force participation rates in 2012, for example, were small, and women tend to be as present on the labour market as men, if not more so.[1]

In the analysis in this chapter, women's labour market experience is adjusted downwards by a maximum of 4 years, using age-specific fertility rates per year as cumulative weights to build up the 4-year gap between the ages of 15 and 49 (see de Brauw and Russell, 2014). In addition to this, the analysis can be extended to include the impact of women on labour market outcomes of Rwandan-born workers (see de Brauw and Russell, 2014), by including the women's share of each skill cell as a regressor:

$$w_{ijt} = W_{ijt}/(W_{ijt} + K_{ijt}) \tag{3}$$

where W_{ijt} is the number of women (both Rwandan- and foreign-born) with education i, work experience j, at time t and K_{ijt} is the number of men (both Rwandan- and foreign-born) with education i, work experience j, at time t.

The analysis can also be adjusted to take into account the regional distribution of immigrants along with their skill distribution (see Facchini, Mayda and Mendola, 2013). The equation to be estimated becomes:

$$Y_{klt} = \beta m_{klt} + d_k + s_l + c_t + (d_k * s_l) + (d_k * c_t) + (s_l * c_t) + u_{klt} \tag{4}$$

where Y_{klt} is the labour market outcome for a Rwandan-born worker in district k (k = 1…K), skill level l (l = 1…4)[2], at time t.

Data is aggregated at the level of skill cells, and regressions are weighted by the size of the economically active population per education*experience*year period.

The analysis is based on individual level data from the 2000, 2005, 2011 and 2014 waves of the Rwandan Integrated Household Living Conditions Survey (EICV) and the 2002 and 2012 census waves. The sample is restricted to individuals aged 15-64 who take an active part in the labour market (i.e. employed or unemployed, according to the relaxed definition of unemployment minus the relaxed criterion of seeking work).

Much of the Rwandan foreign-born population consists of returnees from contiguous countries following the events of the mid-1990s. These consist largely of Rwandan (including second-generation) refugees, who have usually been educated in the Anglophone countries bordering Rwanda or further abroad. While these people have been exposed to different conditions than Rwandan-born workers before entering the labour market – leading to potentially different outcomes on the labour market for similarly skilled workers – labelling these people as "immigrants" remains politically tenuous. Therefore, the analysis is repeated limiting the "immigrant" population to only those foreign-born workers residing in the region for less than ten years.

Notes

1. During the observed time period, particularly in early waves, women's labour force participation rates and employment-to-population ratios tend to be higher than the commensurate rate for men.
2. A simplified set of skill levels (j = 1… 4) is used (combining education and work experience) in order to reduce the overall number of cells when disaggregation includes a dimension for geographic region.

ANNEX 4.A2

Regression results

Table 4.A2.1. **Estimates of effects of the foreign-born on labour market outcomes of Rwandan-born workers, education*experience cells**

Variables	All workers National	All workers Regional	Men	Men (controlling for women)	Women	New immigrants
(1) Employment rate of Rwandan-born workers	-0. 436**	-0. 057	-0. 618***	-0. 606***	0. 043	-1. 254***
	(0. 203)	(0. 138)	(0. 169)	(0. 157)	(0. 229)	(0. 382)
(2) Unemployment rate of Rwandan-born workers	-0. 006	-0. 078**	-0. 033	-0. 029	-0. 026	0. 683**
	(0. 138)	(0. 035)	(0. 074)	(0. 073)	(0. 104)	(0. 327)
(3) Paid employment rate of Rwandan-born workers	-0. 092	-0. 009	-0. 335	-0. 310	0. 063	0. 404
	(0. 191)	(0. 171)	(0. 228)	(0. 196)	(0. 235)	(0. 272)
(4) Vulnerable employment rate of Rwandan-born workers	-0. 128	0. 128	0. 241	0. 211	-0. 155	-0. 491
	(0. 259)	(0. 161)	(0. 251)	(0. 214)	(0. 299)	(0. 344)
(5) Log of real wages of Rwandan-born workers	3. 402***	-7. 172*	-2. 539	-2. 280	0. 950	1. 294
	(1. 178)	(3. 824)	(3. 748)	(3. 100)	(3. 697)	(1. 791)
R-squared	0. 971	0. 956	0. 947	0. 952	0. 975	0. 978

Note: The table reports the coefficient of the immigrants' share variables from regressions where the dependent variable is the mean Rwandan-born labour market outcome for an education*experience group at a particular point in time. Stars indicate significance levels (* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$,). Robust standard errors are reported in parentheses. All regressions are based on the same 36 observations at the national level and 119 observations at the regional level per year and are weighted by the sample size of the education*experience*year cell. All regression models include education, experience, period fixed effects and a full set of two-way interactions.

Source: Authors' own work based on National Institute of Statistics, *Integrated Household Living Conditions Survey 2000, 2005, 2011 and 2014 microdata* (NISR, 2000, 2005, 2011, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*; and on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Table 4.A2.2. **Foreign-born share of the economically active by province (%)**

District	Skill level						
	2000	2002	2005	2011	2012	2014	Total
Kigali City	11.1	15.4	13.6	14.6	16.5	14.2	14.2
Southern Province	1.4	2.3	2.3	1.6	2.4	2.5	2.1
Western Province	2.2	6.3	6.5	5.4	5.5	7.2	5.6
Northern Province	1.9	3.5	3.2	2.2	2.4	3.3	2.8
Eastern Province	10.7	9.6	9.5	9.4	10.9	11.3	10.2
Total	4.9	6.5	6.2	5.7	6.5	6.9	6.1

Source: Authors' own work based on National Institute of Statistics, *Integrated Household Living Conditions Survey 2000, 2005, 2011 and 2014 microdata* (NISR, 2000, 2005, 2011, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*; and on National Institute of Statistics, *Rwandan Population and Housing Censuses 2002 and 2012 microdata* (NISR, 2002, 2012b), *http://www.statistics.gov.rw/datasource/population-and-housing-census*.

Chapter 5

Immigration and economic growth in Rwanda

Following chapters on the labour market characteristics of Rwandan- and foreign-born workers and on labour market impacts of immigration, this chapter explores how the presence of immigrant workers affects macroeconomic developments and firm-level productivity in Rwanda. It takes into account the educational attainment of foreign-born and native-born workers, the sectors in which they work, and their wages.

Rwanda's macro-economic success over the years has been well-documented (see Chapter 2), with official projections of continued GDP growth of around 7% through 2018 (World Bank, 2016). However, progress with respect to firm productivity is essential for Rwanda to sustain robust growth and transition from an agricultural-focused economy to one driven by industry and services as laid out in the governments Vision 2020 plan.

Immigrant workers contribute more to GDP than their employment share suggests

Rwanda's services sector contributed most strongly to GDP and to employment growth between 2002 and 2012 compared to other sectors as illustrated in Chapter 3 (see Figure 3.6). At the same time, foreign-born workers entered into the services sector more frequently than did native-born workers over the same period (see Figure 3.8). This would suggest that foreign-born workers' relative contribution to GDP growth is considerable.

While immigrant workers' productivity and contribution to growth can be difficult to isolate, one way of assessing the economic contribution of foreign-born workers to the Rwandan economy is by combining information on the sectoral employment distributions of Rwandan-born and foreign-born workers with average sectoral labour productivity for all workers. Using the simple employment share as a proxy for productivity, foreign-born workers can be said to account for about 4.7% of GDP (see Figure 5.1).

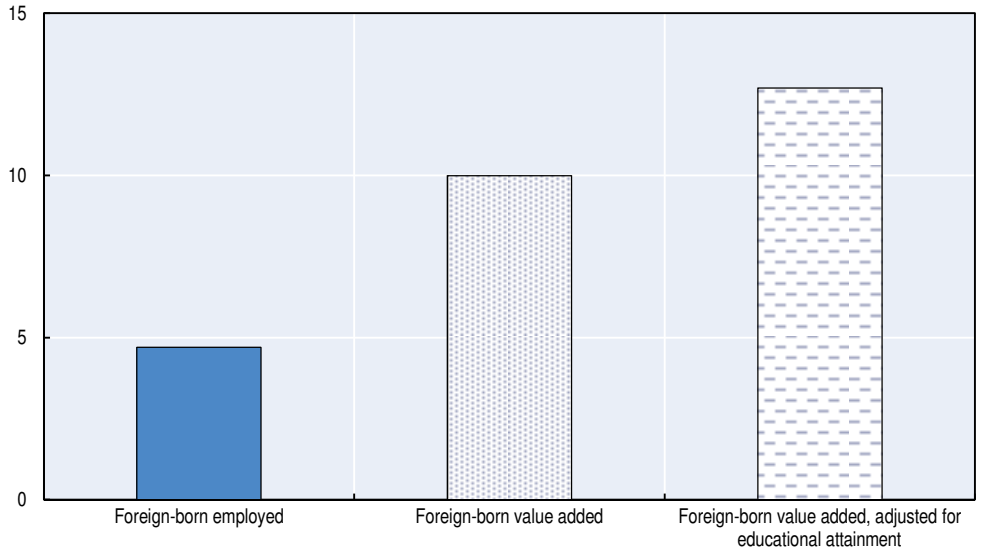
Taking into account sectoral distributions of both Rwandan- and foreign-born workers, the latter's contribution to GDP in 2012 was more than double its employment share, at 10% of GDP. The reason for this large difference is that foreign-born workers are overrepresented in sectors (and sub-sectors) with relatively high levels of productivity. These include information and communication, financial and insurance activities, and real estate activities. In addition, foreign-born workers are somewhat underrepresented in sectors with low levels of productivity such as agriculture and construction.

The estimate of foreign-born workers' economic contribution can be qualified further by taking into account differences between Rwandan- and foreign-born workers within each sector, for instance, by adjusting sectoral productivity on the basis of each group's years of education. On average, foreign-born workers had more years of education than Rwandan-born workers, both

across sectors and occupations (see Figure 5.2 and Figure 5.3), suggesting that labour productivity of the foreign-born is likely higher than that of Rwandan-born workers. Educational differences (in favour of the foreign-born) tend to be the greatest in sectors in which foreign-born workers are also overrepresented. This implies that the foreign-born also hold relatively higher-skilled positions especially in those sectors, and that a certain degree of sectoral niche formation might be taking place. As expected, when considering sectoral productivity and years of education, the contribution of foreign-born workers to Rwandan GDP rises, above the level suggested by sectoral productivity alone, to 12.7% (Figure 5.1).

Figure 5.1. **Foreign-born workers contribute more to gross domestic product than their share of employment**

Foreign-born employed (% of all employment) and foreign-born value added (% of GDP), 2012



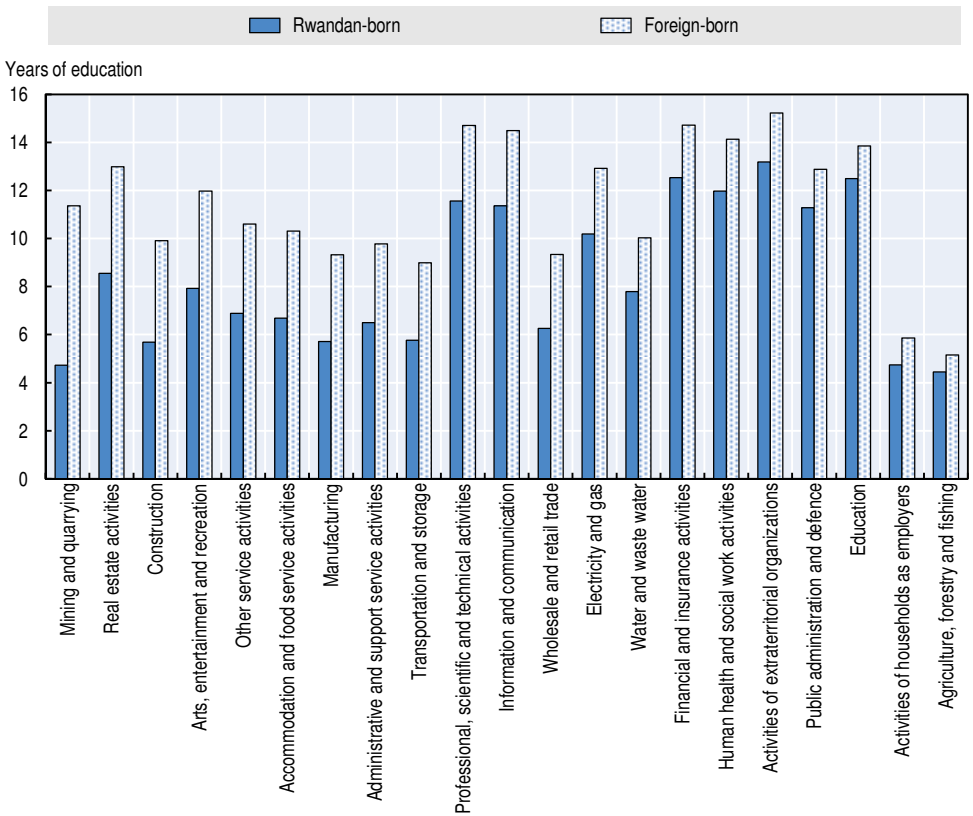
Source: Authors' own work based on population census data from the National Institute of Statistics of Rwanda (NISR, 2012) and National Accounts Official Country Data, UN Statistics Division (2017).

Foreign-born workers' economic contributions, calculated at more than double their employment share, is impressive despite new immigrants' relatively minor direct impact on both occupational and educational changes in the labour market as found in Chapter 3. This finding illustrates the important role that foreign-born workers play in the Rwandan economy, but it does not imply that GDP would necessarily be 12.7% lower if foreign-born workers did not participate in the economy.

Short- and longer-term impacts depend on more than the simple presence or absence of these workers. For instance, the calculations do not take into account the gradual replacement of certain categories of immigrant workers with local workers in the long term, as foreseen by the Vision 2020 plan. Nor does it account for possible spillover effects, for instance due to the transfer of skills which do not yet exist among local workers, or for how foreign-born workers affect the productivity of firms. The following section examines the distribution of workers among firms in the manufacturing sector in order to illustrate possible effects of immigration on firms in Rwanda.

Figure 5.2. **Foreign-born workers tend to be higher educated than Rwandan-born workers across all sectors**

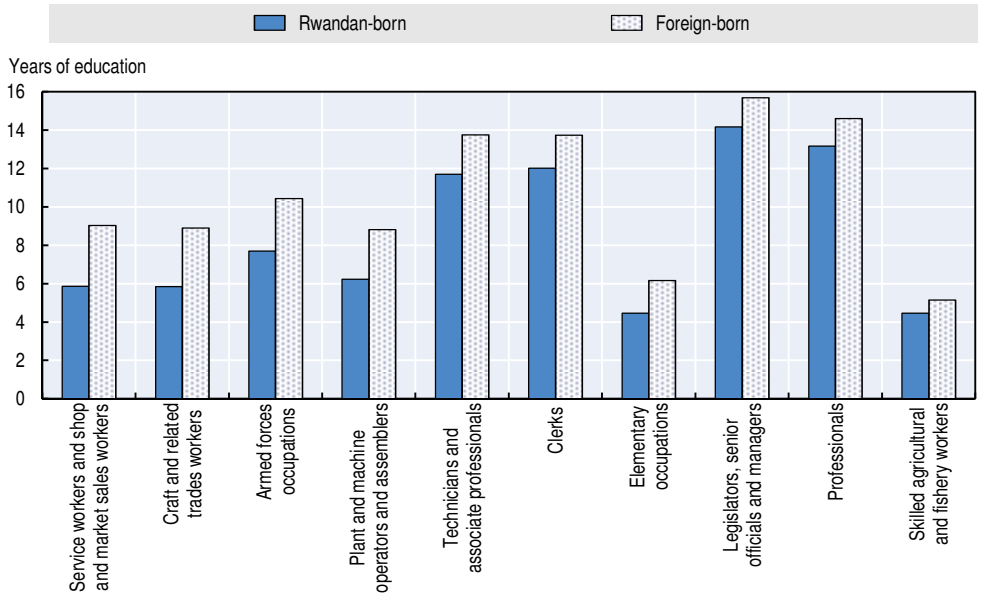
Years of education of the Rwandan-born and foreign-born employed by sector, 2012



Note: The figure is sorted by the difference between foreign-born and Rwandan-born average years of education.
Source: Authors' own work based on the Rwandan Population and Housing Censuses 2002 and 2012 (NISR, 2002, 2012).

Figure 5.3. **Foreign-born workers tend to be higher educated than Rwandan-born workers across all occupations**

Years of education of the Rwandan-born and foreign-born employed by occupation, 2012



Note: Graphs are sorted by difference between foreign-born and Rwandan-born average years of education.
Source: Authors' own work based on the Rwandan Population and Housing Censuses 2002 and 2012 (NISR, 2002, 2012).

Productivity of non-agricultural economic activities in Rwanda is limited

The following section describes the profiles of immigration and firms in Rwanda using two official sources of data: the Rwanda Fourth Population and Housing Census (RPHC4) and Establishment Census. After a brief review of the literature on firm productivity in Rwanda and an outline of some of the broad trends with respect to the nature of the business environment, it takes a closer look at private sector firms that employ at least one non-Rwandan-born worker, in order to gain insight into how they compare to those firms with a strictly native-born workforce.[1]

Links between economic growth and immigration flows are not sufficiently researched

Scholarly work on firm productivity in Rwanda is rather limited, although a few key studies provide insight. Investigating Rwanda's relatively small industrial sector, one study highlights the significant labour productivity differences between small and medium-sized enterprises and large firms (Kamarudeen and Söderbom, 2013). The results show that larger manufacturing firms are predominately foreign-owned and export-driven and have higher

capital stock per worker. In a similar vein, another study focuses on Rwanda's export sector and how this relates to the productivity levels of firms (Gathani, Stoelinga and Savini, 2013). In order to sustain rapid growth in production, the authors argue that Rwandan firms dealing in non-commodities need to diversify both products and destinations of export. Their argument follows the hypothesis that greater exposure to international markets and export-oriented growth will lead to greater firm productivity and higher levels of income.

Another comparative analysis looks at the relationship between regional trade, infrastructure and firm-level productivity across four countries in sub-Saharan Africa (Te Velde, 2015). In the case of Rwanda, the author finds that regional exporters have considerably higher levels of growth in productivity than non-exporters. The study also highlights the importance of regional infrastructure, including specifically trade- and transport-related infrastructure, for firm-level productivity.

From a slightly different perspective, others emphasise the macro-economic relationship between economic reform and aggregate productivity in the case of Rwanda (Coulibaly, Ezemenari and Duffy, 2008). Looking exclusively at the post-conflict period from 1995 to 2003, the authors demonstrate the contributions of trade and of financial and exchange-rate liberalisation to overall productivity growth to stimulate the economy. In addition, they provide evidence that official development assistance targeting human capital enhancement similarly played a role in putting the country back on a strong growth trajectory following conflict in the early 1990s.

While the literature on firm productivity in Rwanda is scarce, it nonetheless provides a general understanding of the constraints and opportunities facing the budding economic landscape. One factor missing from the discussion, however, is the influence of labour migration on both firm-level and aggregate productivity.

The two most recent rounds of the Establishment Census from 2011 and 2014 provide comprehensive information on the universe of enterprises throughout Rwanda, allowing a general snapshot of non-farm economic activity. In principle, the census covers all establishments in the private, public and mixed sectors as well as co-operatives and non-governmental organisations. The census also considers both formal and informal establishments. However it does not include those without a fixed and identifiable place of business such as motorbike and car taxis, construction sites, and street vendors.

In 2014, the Establishment Census enumerated 154 236 enterprises across the country, representing a 25% growth rate from the 123 256 covered in 2011. To put these numbers in perspective, employment within these establishments covered just 6% and 9%, respectively, of overall employment. This highlights the prevalence of agricultural activity in the Rwandan economy (excluding agriculture, employment in the two years of the Establishment Census covers

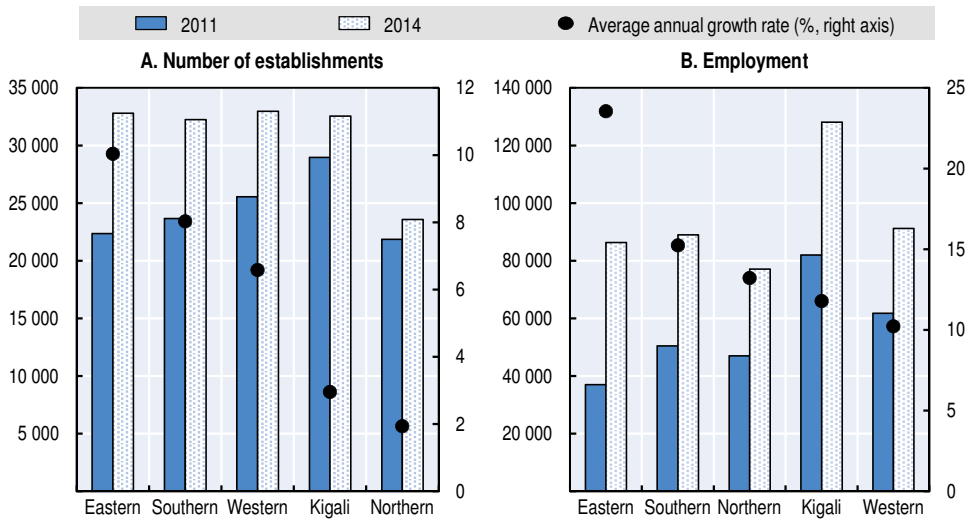
21% and 28%, respectively). The general trends related to these enterprises are described below in detail based on geographic location and firm characteristics.

Most firms are in Kigali, but the largest growth in the number of firm has been outside of Kigali

Notably growth in the absolute number of enterprises is in fact strongest outside of Kigali, except for the Northern Province (Figure 5.4A). Moreover, for the most part the number of firms has converged across provinces since 2014, with again the only exception being the Northern Province. On the other hand, Figure 5.4B shows that total employment in those firms remains predominately concentrated in Kigali. Employment growth, however, was robust in all five provinces over the three-year period.

Unsurprisingly, most establishments in both 2011 and 2014 are centred around the capital of Kigali, with districts there hosting more than 8 000 firms in the latter census (Figure 5.5). Beyond Kigali, a large share of establishments is likewise located in and around important secondary cities including Huye, Nyagatare, Muhanga, Rusizi, Rubavu and Musanze, among others. Lastly, it is interesting to note that some 62% of all enterprises are located in rural areas despite clear clustering around urban hubs, indicating the high degree of rural coverage across Rwanda. Indeed, the overall change from 2011 and 2014 reflects the spread of establishments throughout the country.

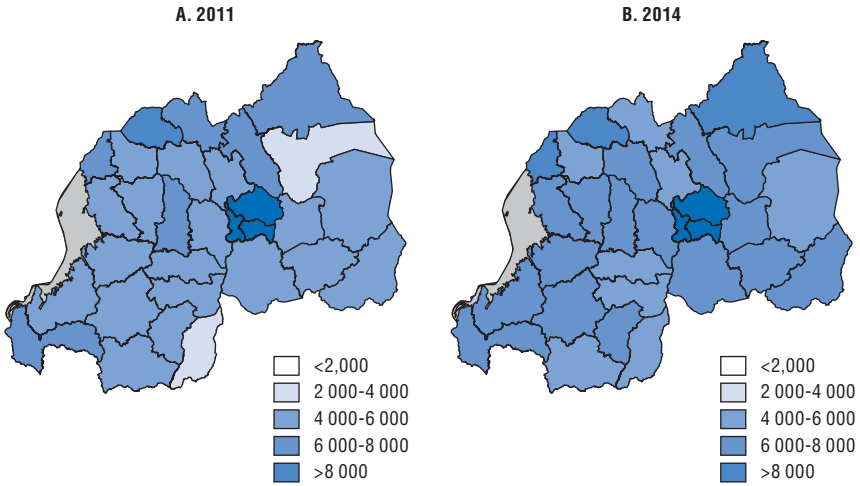
Figure 5.4. **Growth in the number of enterprises is strongest outside of Kigali while employment growth is largest within Kigali**



Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2011, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

Figure 5.5. **Firms are concentrated around Kigali and in the Northeast**

Establishments per district



Source: Authors' own work based on Establishment Census data from the National Institute of Statistics of Rwanda (NISR, 2011, 2014); *Rwanda GIS Data for all Districts and Provinces of Rwanda*. National Institute of Statistics of Rwanda.

Despite large turnover rates, there has been a strong growth in the number of establishments

Nearly all firms (96%) captured in the census are identified as private businesses, whereas the remaining few are government-related and mixed entities along with domestic and international non-governmental organisations. Similarly, 99% of firms are domestically owned. On the other hand, just 6% are considered formal based on whether they are registered with the Rwanda Revenue Authority and maintain regular accounts.

In terms of years in existence, the establishments in both censuses average four years, indicating that young firms dominate the business landscape. Moreover, more than two-thirds of enterprises in the 2014 round were established since 2012, suggesting that many firms open and close in short periods of time. In fact, comparing the share of firms in the 2014 census established before the 2011 round to the total number of firms in 2011 shows a 41% survival rate of establishments overall.

With respect to firm size, the importance of micro-firms is notable. Most establishments are comprised of less than three employees, a characteristic that did not change much between census rounds (Table 5.1). On the other hand, even though medium-sized and large firms are relatively scarce they increased significantly in absolute terms in the three years, which by definition reflects a large boost in employment. More specifically, there were 1 080 more medium-sized firms captured in the 2014 census in comparison to three years prior, and 176 more large firms. Using capital invested as an alternative measure of firm

size, it is also found that around 75% are considered micro in that they had less than 500 000 Rwandese francs (RWF) invested in the year prior to both censuses. Most other enterprises invested between RWF 500 000 and RWF 15 million, while just 1 094 and 1 520 firms reported having invested more than RWF 75 million in capital in 2011 and 2014 respectively.

Table 5.1. **Firms have grown in size but remain small overall**
Firm size and economic activity (%)

	2011	2014
Size based on number of employees*		
Micro (1-3)	92.58	90.12
Small (4-30)	6.92	8.67
Medium-sized (31-100)	0.41	1.03
Large (over 100)	0.08	0.18
***Capital invested** (in RWF)**		
Micro (less than 500 thousand)	74.59	75.65
Small (500 thousand-15 million)	22.80	22.24
Medium-sized (15-75 million)	1.70	1.08
Large (over 75 million)	0.91	1.02
Economic activity*		
Agriculture, forestry and fishing	0.55	0.49
Mining and quarrying	0.04	0.18
Manufacturing	7.55	6.97
Electricity, gas, steam, etc.	0.11	0.02
Water supply, sewerage, etc.	0.18	0.04
Construction	0.09	0.10
Wholesale and retail trade	52.34	50.91
Transportation and storage	0.21	0.19
Accommodation and food service	26.93	28.96
Information and communication	0.45	0.26
Financial and insurance	0.79	0.75
Real estate	0.02	0.00
Professional, scientific and technical	0.62	0.62
Administrative and support service	0.60	0.60
Public administration	0.00	0.00
Education	0.61	2.26
Human health and social work	0.42	0.80
Arts, entertainment and recreation	0.09	0.10
Other service	8.40	6.75
Activities for own use	0.01	0.00
Extraterritorial organisations	0.01	0.00

Note: Based on ISIC codes. * Statistically significant difference at 1% level between census rounds.
Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2011, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

As for economic activities, Table 5.1 shows that the composition of the economy has for the most part remained unchanged between census rounds. Around half of all firms are engaged in wholesale and retail trade (including the

repair of motor vehicles and motorcycles), while more than 25% are involved in accommodation and food service activities. Notably, the manufacturing sector makes up just 7% and 9% of the economy in each round respectively. In addition, only 2% of all firms are involved in any type of buying or selling of goods or services abroad.

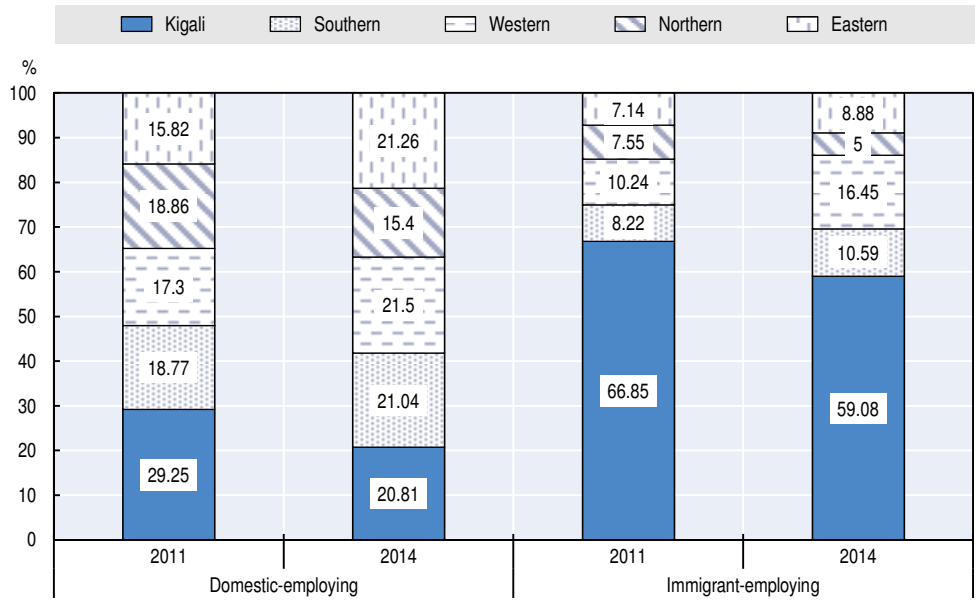
Private sector firms employing immigrants are relatively rare

This section closely examines those private sector firms who report having at least one non-Rwandan employee on staff. While overall they are few and far between – around 1% in both rounds–, the aim is to highlight their basic characteristics and compare them with those firms made up of only Rwandan nationals. In total there were 742 and 1 520 such firms in the 2011 and 2014 census rounds respectively, and the average number of non-Rwandan staff members in each of those firms is three.

Based on provincial location, those firms that have only Rwandan employees are clearly different from those that employ at least one immigrant (Figure 5.6). Indeed, the majority of immigrant-employing firms in both census rounds are located in Kigali Province, though the geographic dispersion grew over the three-year period. Moreover, most of these firms are located in urban centres, but again this figure shrank considerably between rounds, from 89% to 71%.

Figure 5.6. **The majority of immigrant-employing firms are located in Kigali**

Location of domestic- and immigrant-employing firms (%)



Source: Authors' own work based on Establishment Census data from the National Institute of Statistics of Rwanda (NISR, 2011, 2014).

Considering geographic dispersion, it is also possible to check for any statistical relationship between the average number of immigrants and the average number of immigrant-employing firms at the administrative sector level. Keeping in mind the reciprocal relationship between these two factors, a relatively moderate correlation coefficient of 0.50 is found. Similarly, when comparing the number of immigrant-employing firms per administrative sector controlling for the average number of immigrants per sector and province, one also finds a statistically significant and moderate positive coefficient of 0.20.

Notably, more than half of immigrant-employing firms are considered formal, based on whether they are registered with the Rwanda Revenue Authority and maintain regular accounts. This starkly contrasts with the less than 10% of domestic-employing enterprises across both rounds (Table 5.2). In addition, domestic-employing firms are overwhelmingly Rwandan-owned in both census rounds. However, around 35% and 50% of immigrant-employing firms are either partially or fully foreign-owned, respectively for each round.

Enterprises that employ at least one immigrant are typically older. The average time in existence is between seven and ten years depending on the census round, a clear difference from the average of three years for domestic-employing firms. Only 46% of those enterprises in the 2014 round of the census were established since 2012, indicating that immigrant-employing firms typically have a longer lifespan. Indeed, these types of firms have a much higher survival rate, about 89% in comparison to the 41% found previously for all firms.

In 2011, enterprises hiring domestic employees averaged 5 temporary and 2 permanent employees, whereas immigrant-employing firms averaged more than 50 temporary and around 20 permanent employees (Table 5.2).[2] In 2014, domestic-employing firms had just 1 unpaid and 5 paid employees on staff, while immigrant-employing firms had 2 unpaid and 43 paid employees.

Firms with at least one immigrant are on average larger both with respect to the number of employees and capital invested. In fact nearly half are comprised of 4-30 total employees, while around 5% have more than 100 employees on the payroll. More enterprises with over RWF 75 million invested hire immigrants than those that do not.

In terms of economic sectors, the main activity remains wholesale and retail trade, however there is much greater diversity across other economic activities. Manufacturing, for instance, makes up more than 10% of total activities for immigrant-employing firms in both rounds, whereas education is another principle sector for this sub-sample. What is more, about 30% of these firms are involved in buying or selling goods or services abroad in contrast to the less than 2% of domestic-employing firms, a measure that is reported in the 2014 census round only.

Table 5.2. **Immigrant-employing firms are more often formal and larger than domestic-employing firms**

Characteristics of domestic- and immigrant-employing firms

	Domestic-employing		Immigrant-employing	
	2011	2014	2011	2014
*Formal (%) **	8.85	4.94	52.96	55.59
*Ownership (%) **				
National	99.18	99.42	64.84	50.11
Partially foreign (joint)	0.31	0.21	5.38	5.03
Foreign	0.51	0.38	29.79	44.86
*Firm age (years) **	3.37	3.09	6.74	10.09
*Number of employees, by type **				
Temporary	4.67	NA	51.76	NA
Permanent	2.08	NA	19.56	NA
Unpaid	NA	1.40	NA	2.06
Paid	NA	4.95	NA	42.97
*Size based on number of employees (%) **				
Micro (1-3)	89.53	92.56	33.15	29.93
Small (4-30)	10.02	6.79	47.98	49.80
Medium-sized (31-100)	0.39	0.55	13.75	14.67
Large (over 100)	0.06	0.09	5.12	5.59
*Capital invested (in RWF) **				
Micro (less than 500 thousand)	68.20	76.09	25.07	27.29
Small (500 thousand-15 million)	28.29	22.10	35.88	38.53
Medium-sized (15-75 million)	2.22	0.97	16.14	13.87
Large (over 75 million)	1.29	0.85	22.91	20.31
*Economic activity (%) **				
Agriculture, forestry and fishing	0.68	0.48	0.27	1.12
Mining and quarrying	0.05	0.18	0.67	1.18
Manufacturing	9.55	7.10	12.94	11.18
Electricity, gas, steam, etc.	0.16	0.01	0.27	0.33
Water supply, sewerage, etc.	0.24	0.03	0.40	0.13
Construction	0.15	0.09	2.56	1.78
Wholesale and retail trade	50.37	52.51	27.09	25.66
Transportation and storage	0.31	0.18	1.35	1.32
Accommodation and food service	24.98	29.90	9.57	11.05
Information and communication	0.75	0.25	2.56	1.64
Financial and insurance	1.11	0.75	1.89	2.30
Real estate	0.03	0.00	0.13	0.00
Professional, scientific and technical	1.21	0.60	4.72	2.37
Administrative and support service	1.00	0.60	2.83	1.45
Education	1.06	1.29	16.17	20.07
Human health and social work	0.61	0.36	3.23	5.72
Arts, entertainment and recreation	0.13	0.08	0.27	0.72
Other service	7.58	5.59	13.07	11.97
Activities for own use	0.01	0.00	0.00	0.00
*Buy/sell abroad (%) **	NA	1.67	NA	29.70

Note: NA indicates not available. * Statistically significant difference at 1% level between domestic- and immigrant-employing firms, per the respective year.

Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2011, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

Employing immigrants is not a guarantee of higher turnover

Beyond providing a descriptive account of immigrant-employing firms, this section presents estimates of a simple regression analysis using annual turnover[3] recorded in the 2014 census only as a measure of firm performance[4] (Table 5.3).

Table 5.3. **Immigrant-employing firms tend to have higher annual turnover**
Annual turnover (in RWF), 2013

Annual turnover (in RWF)	Domestic-employing	Immigrant-employing
Less than 300 thousand	47 846	177
	56.05%	17.97%
300 thousand-12 million	34 377	336
	40.27%	34.11%
12-20 million	1 234	84
	1.45%	8.53%
20-50 million	697	91
	0.82%	9.24%
More than 50 million	1 204	297
	1.41%	30.15%

Note: The difference in annual turnover is statistically significant at 1% level across domestic- and immigrant-employing firms.
Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2011, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

As explained above, the absolute number of businesses with a non-Rwandan employee is minimal in comparison to domestic-employing businesses. Still, the relative frequency gives a general idea of how these firms differ with respect to annual turnover. More specifically, immigrant-employing enterprises are much more likely to have a higher annual turnover, notably of greater than RWF 50 million. Such a finding is of little surprise considering that these firms are on average much larger both with respect to the number of employees overall as well as capital invested, and more diverse in their economic activity (Table 5.2).

An immigrant-employing firm is less likely to be in the lowest two categories of annual turnover (less than 300 thousand and 300 thousand-12 million), than in the middle category (12-20 million). However, an immigrant-employing firm is more likely to be in the highest two categories (20-50 million and above) (Table 5.A1.1). These are the results of a model[5] that are statistically significant across all categories of annual turnover. When controlling for firm- and location-based characteristics, however, statistical significance disappears for all categories.[6] Thus, it is not possible to clearly identify the relationship between employing immigrants and having a comparatively high annual turnover.

The analysis goes a step further by focusing exclusively on immigrant-employing firms to gauge whether the number of immigrants is related to firm performance (results of the multinomial logit model can be found in Annex Table 5.A1.2). A statistically significant estimate is similar with respect to the number of immigrant employees in nearly all categories when not controlling for other factors. Yet statistical significance once again disappears when considering firm- and location-based factors. Therefore, the number of immigrants employed by an immigrant-employing firm is not associated with firm performance as measured by annual turnover.

Immigrants work in higher turnover firms, but do not increase firms' productivity

This chapter focused on the impact of immigration on macroeconomic growth and firm performance. Foreign-born workers' macroeconomic contributions were calculated to be between 4.7% and 12.7% of GDP, accounting for sectoral and educational distributions of Rwandan- and foreign-born workers, and reach more than double their employment share. This degree of contribution is impressive despite new immigrants' relatively minor direct impact on both occupational and educational changes in the labour market.

Tasked with identifying the relationship between labour immigration and firm-level performance, the authors used official data sources to outline broad trends on immigration and illustrate the nature of the business environment. A direct comparison of firms which do not hire immigrants and firms which hire at least one immigrant shows that the latter tend to be larger (i.e. employ more workers and more capital), older, more often formal and more export-oriented. At the same time, the overwhelming majority of firms which only employ Rwandan-born workers are micro-enterprises concentrated in wholesale and retail trade, and accommodation and food services. It appears thus, that immigrants tend to be overrepresented in more productive sectors and firms.

These observations illustrate the important role that employing foreign-born workers plays in Rwandan enterprises, but do not suggest that the work of immigrants is of a different quality than that of native-born workers. In fact, it seems more likely that more productive firms tend to hire immigrants simply because the skills required to fill essential positions are not readily available among the native-born population. These firms might not establish themselves in Rwanda were it not for the possibility of hiring foreign-born workers with adequate skills. An exploratory empirical analysis confirms this interpretation, by associating a private sector firm's annual turnover and whether it employs at least one immigrant. The results show no statistically significant relationship between having a comparatively high annual turnover and employing immigrants when controlling for a variety of firm- and location-based characteristics.

It is important to emphasise that the findings of this chapter are descriptive, and do not lend themselves to strong conclusive claims about the difference in the labour productivity of immigrant and native-born workers. As shown in Chapters 3 and 4, and in the present chapter, educational profiles of foreign-born workers tend to be higher than those of Rwandan-born workers; based on the assumption that higher labour productivity is reflected in higher educational achievement, foreign-born workers are argued to be more productive than Rwandan-born workers relative to their employment share. These signs indeed suggest that immigrants fill important gaps in the labour market where native-born workers simply are not present. But data used in this chapter is aggregated at the firm-level, meaning that differences between individual workers cannot be accounted for. In order to evaluate whether, net of any individual differences, immigrant employees have a different impact on the productivity of a firm than Rwandan employees requires data broken down at both the firm and employee levels. The Establishment Census data do not allow for such an analysis.

Based on these findings, a few policy-oriented points stand out. First, even the most recent data on immigration indicates that labour immigration is not a major occurrence in Rwanda. Indeed, one reason why no statistically significant relationship exists is probably the lack of variation in the data on immigrant-employing firms. Still, it is reasonable to assume that the considerable progress in Rwanda over the years with respect to economic development and regional integration within the East African Community will lead to more labour immigration in the short to medium term. In line with the government's Vision 2020 plan to move from a low-income agriculture-based economy to a knowledge-based service-oriented one, migration policies that emphasise skill and knowledge transfers should be considered indispensable to the country's sustainable development.

Second, even though non-farm economic activity in Rwanda is predominately considered private, the vast majority of non-agricultural firms are small-scale and located in the informal sector. Single-person ventures in which the manager is the sole employee, for instance, make up a large share of the non-farm economy, and have limited prospects to contribute to overall job creation. If the government is to fulfil its objective of developing the country through the private sector, policies that support micro-enterprises' expanding and moving into the formal sector need to be a top priority. Practical efforts to address market failures that often prevent small and medium-sized enterprises from growing might include programmes that increase access to credit or improve managers' fundamental business and financial skills.

On the other end of the spectrum, most of Rwanda's largest employers are public or mixed, even though these firms are few and far between. Policies to attract a greater number of large private firms from abroad are likely to create domestic jobs, if skills transfer and engagement of the local workforce

is encouraged in parallel. Such policies may likewise encourage the return of the high-skilled Rwandan diaspora from abroad, as well as lead to greater high-skilled labour immigration. In this regard, the announcement that a large foreign car manufacturer planned to set up assembly operations in the country is a good sign that such ideas are already being taken into consideration (The New Times, 2016).

Notes

1. Empirical findings in Section B of Chapter 5 are based on the Rwandan Establishment Census, which collects data on firm owners' and employees' nationality, without looking into place of birth. Contrary to Chapters 3 and 4, this section defines a migrant as a foreign citizen, and not a foreign-born person.
2. Table 5.2 reports the type of employee contracts per sub-group separately for each census round due to a slight revision in the formulation of the question in the questionnaire.
3. As NISR (2015, p. 41) defines in its report, annual turnover is "the value of all supplies that are made within a twelve-month period". It also identifies the potential for downward bias along this measure given the possible reluctance of respondents to provide correct information.
4. In order to minimise the potential bias due to downward reporting, the question on annual turnover was asked in a categorical manner and therefore a multinomial logit model was employed to estimate the likelihood of each response category relative to a base category.
5. The model controls for a variety of basic firm characteristics described earlier including age, size based on employees as well as capital invested, economic activity, and whether the firm operates abroad, is considered partially or fully foreign-owned, and is formal. In addition, geographic location is controlled for including whether the firm is situated in a rural locality and the firm's province. All estimates are in relation to the middle base category, RWF 12-20 million annual turnover. When reporting relative risk ratios, the direction of an estimate is positive if greater than one and negative if less than one.
6. Foreign-owned firms are included in the control group in order to control for potential hiring biases of foreign employers.

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ANNEX 5.A1

Regression results

Table 5.A1.1. **Annual turnover (in RWF) for all firms, 2013**

Base: RWF 12-20 million	Less than RWF 300 thousand			RWF 300 thousand-12 million			RWF 20-50 million			More than RWF 50 million		
Estimate: Relative risk ratios	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Immigrant-employing	0.05***	0.83	1.09	0.14***	0.77	0.91	1.92***	0.97	1.02	3.62***	1.04	1.00
	(0.01)	(0.19)	(0.25)	(0.02)	(0.14)	(0.17)	(0.30)	(0.19)	(0.20)	(0.47)	(0.20)	(0.19)
Firm-based controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Location-based controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Adjusted R-squared	0.01	0.32	0.34	0.01	0.32	0.34	0.01	0.32	0.34	0.01	0.32	0.34
Observations	86 343	86 183	86 183	86 343	86 183	86 183	86 343	86 183	86 183	86 343	86 183	86 342

Note: *p < 0.10; **p < .05. Standard errors in parentheses are robust. Firm-based controls include foreign ownership, formal, age, size based on employees, size based on capital employed, economic activity and buy/sell abroad. Location-based controls include rural and province.

Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

Table 5.A1.2. **Annual turnover (in RWF) for immigrant-employing firms only, 2013**

Base: RWF 12 -20 million	Less than RWF 300 thousand			RWF 300 thousand-12 million			RWF 20-50 million			More than RWF 50 million		
Estimate: Relative risk ratios	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
Number of immigrants employed	0.76***	0.99	0.99	0.88**	0.90	0.90	1.08	1.02	1.01	1.12***	0.98	0.97
	(0.07)	(0.06)	(0.06)	(0.05)	(0.06)	(0.06)	(0.05)	(0.05)	(0.06)	(0.05)	(0.05)	(0.05)
Firm-based controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Location-based controls	No	No	Yes	No	No	Yes	No	No	Yes	No	No	Yes
Adjusted R-squared	0.04	0.44	0.45	0.04	0.44	0.45	0.04	0.44	0.45	0.04	0.44	0.45
Observations	985	964	964	985	964	964	985	964	964	985	964	964

Note: *p < 0.10; **p < .05. Standard errors in parentheses are robust. Firm-based controls include foreign ownership, formal, age, size based on employees, size based on capital employed, economic activity and buy/sell abroad. Location-based controls include rural and province.

Source: Authors' own work based on National Institute of Statistics, *Establishment Census microdata* (NISR, 2014), *http://www.statistics.gov.rw/datasource/establishment-census*.

Chapter 6

Immigrants' contribution to public finance in Rwanda

This chapter investigates the role played by the immigrant population in Rwanda's fiscal balance in 2012. It uses a combination of administrative reports and household surveys and broadly applies the estimation approach developed by Dustmann and Frattini (2014). The difference between revenue contributions and the value of public expenditure made in favour of immigrants is estimated and compared to that of the native-born Rwandan population. The chapter starts with a brief overview of Rwanda's performance in the fiscal year 2012/13. This is followed by the structure of taxes, investment incentives and social security, and a description of how the various components of revenue and expenditure are calculated. The final section presents the results of the net fiscal contribution by each nationality category.

Two definitions of immigrants are used in this chapter: those born outside Rwanda and those whose self-reported nationality is non-Rwandan. Under both definitions, the study finds a positive net fiscal contribution of the immigrant population, with revenues doubling the value of public goods and services used by immigrants. However, the native-born population made a negative fiscal contribution, with the value of revenue collections covering slightly over half of the public expenditure made in their favour.

Rwanda's fiscal system in 2012/13: A deficit of 374.3 billion Rwandese francs

Between 1994 and 2010, Rwanda saw average economic growth above 6% due to the implementation of various structural reforms as well as the sustained investment by the government. Per capita income more than doubled from USD 200 to USD 540. Additionally private sector investments, both domestic and foreign, significantly increased, as did exports and imports. Consequently, the balance of trade deteriorated. Nevertheless, the economic transformation of Rwanda continued as its agricultural sector increased its productivity, and non-agricultural sectors developed simultaneously (IPAR, 2012).

As noted in Chapter 3, services are the main driver of Rwanda's strong growth performance. In 2013, inflation rates remained low (average of 3.9%) in comparison to other African nations. Furthermore, export growth has been 30% on average since the economic contraction in 2009 (Government of Rwanda, 2014). Nevertheless, Rwanda managed to retain a positive balance of payment from 2004 to 2011. This changed in 2012, as the country's fiscal position deteriorated to a deficit of 374.3 billion Rwandese Francs (hereafter abbreviated as RWF).

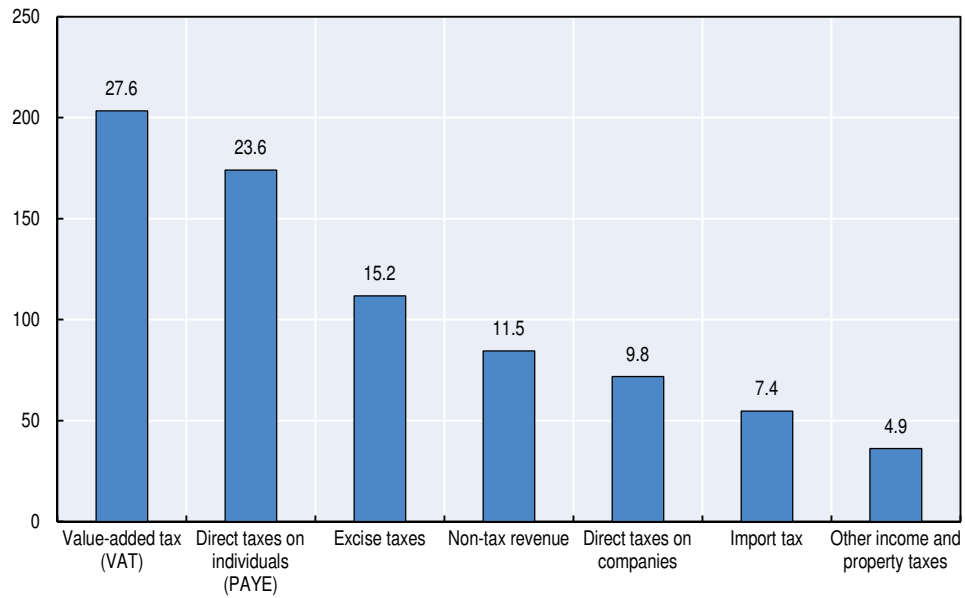
Public revenue

During the fiscal year 2012/13, the Government of Rwanda projected to collect revenue worth RWF 707.6 billion from all categories of taxes. The target was surpassed, with an actual collection of RWF 736.4 billion. This performance was partly attributed to tax administrative measures implemented by the Rwanda Revenue Authority (RRA). The measures included increasing import tax by 5% for construction materials, revising the investment code to cut exemptions, introducing an electronic system to register taxpayer transactions and track potential evaders, and introducing a gaming tax.[1]

A breakdown of tax revenue by the major tax categories is provided in Figure 6.1. Direct taxes (consisting of taxes on individuals and on companies, and other income and property taxes) added RWF 282 billion to the national treasury, approximately 38.3% of overall revenue, exclusive of grants. Of this figure, RWF 174.0 billion accrued from a pay-as-you-earn (PAYE) tax on individual incomes which accounted for 23.6% of fiscal revenue excluding grants. Taxes on companies yielded RWF 71.8 billion or approximately 9.8% of fiscal revenue excluding grants. Revenue collections from taxes on other income categories and properties amounted to RWF 36.20 billion, which is 4.9% of fiscal revenue exclusive of grants.

Figure 6.1. **Value added tax accounts for 27.6% of total revenue**

Planned and actual revenue collection in fiscal year 2012/13, billion RWF (left axis) and %



Note: The share of total revenue of each component is indicated above the bar.

Source: Authors' own work based on MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013).

Revenue from indirect taxes, i.e. value added tax (VAT) and excise duty, amounted to RWF 315.1 billion, which represents 42.8% of government revenue less grants. Of this amount, VAT contributed the largest portion: RWF 203.3 billion, approximately 27.6% of revenue exclusive of grants. Excise duty provided the national treasury RWF 111.8 billion, which is approximately 15.2% of fiscal revenue minus grants. This fell short of the RWF 340.1 billion planned from this tax category. This shortfall was compensated by above-target

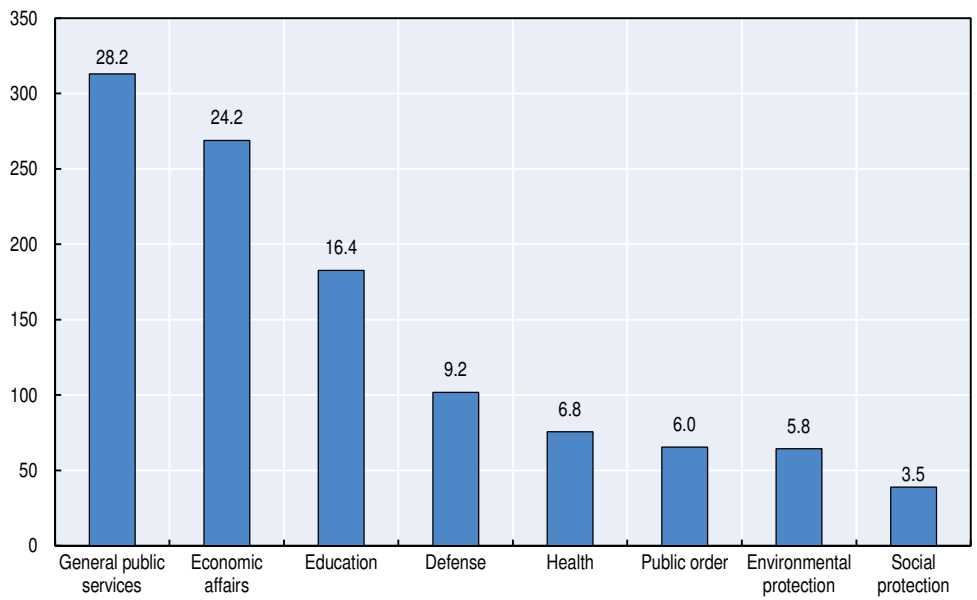
collections in the VAT and PAYE categories, which combined contributed 58% of the overall tax revenue collected by the central government during the 2012/13 fiscal year.

Taxes on international trade provided RWF 54.8 billion in government revenue, approximately 7.4% of total fiscal revenue exclusive of grants. Tax collections in the first half of the fiscal year – July-December 2012 – were RWF 3.2 billion lower than the anticipated collections, owing to an economic slowdown that followed aid cuts by major donor agencies. Non-tax revenue collections yielded RWF 84.5 billion, the biggest portion coming from peacekeeping operations; these collections amounted to 11.5% of fiscal revenue exclusive of grants.

Public expenditure

The overall expenditure of the central government was spread across the eight sectors of economic affairs, general public service, education, health, social protection, environmental protection, defence, and public order and safety. It totalled RWF 1 110.7 billion (Figure 6.2).

Figure 6.2. **General public services make up 28.2% of total expenditures**
Public expenditure in fiscal year 2012/13, in billion RWF (left axis) and %



Note: The share of total expenditure of each component is indicated above the bar.

Source: Authors' own work based on MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013).

A total sector budget of RWF 268.8 billion was spread across the sub-sectors of agriculture, trade, information and communication technology, transport, and fuel and energy. Overall, this accounted for approximately 24.2% of public expenditure. Approximately RWF 312.9 billion were spent on the general services sector, including executive and legislative organs. This sector accounted for 28.2% of total public expenditure less net lending. The total spending for the education sector was RWF 182.6 billion, mostly spent on teacher recruitment and equipping schools at the primary, secondary and tertiary levels. This was approximately 16.4% of public spending excluding net lending. The overall spending for the health sector was 75.9 billion, approximately 6.8% of public spending exclusive of net lending. This was devoted mainly to constructing health infrastructure and purchasing health equipment. Social protection activities cost the government a total of RWF 38.6 billion, amounting to 3.5% of public expenditure. Environmental protection cost the government RWF 64.0 billion, which accounted for 5.8% of government spending without net lending. The public order and safety sector spent RWF 66.2 billion, which amounts to 6.0% of public expenditure without net lending.

With regards to the defence sector, the government spent RWF 101.7 billion, slightly exceeding the budgeted RWF 97.6 billion, approximately 9.2% of total expenditure. The overspend was attributed mainly to increased spending on peacekeeping operations amounting to RWF 49.3 billion, against the budgeted RWF 45.3 billion. The United Nations reimbursed RWF 61.9 billion to cover part of the costs of running the peace keeping missions.

Contributions and expenditures according to immigrant status

This section profiles the contributions towards government revenue and various forms of public expenditure, broken down into native-born and immigrant components. As mentioned above, two definitions of immigrant are used: one based on country of birth and another on nationality. In the former, the key variables are compared between individuals who reported being born outside Rwanda versus those born in Rwanda. In the latter case, the comparison is between self-reported foreign nationals versus self-reported Rwandan nationals. The reason for these two alternative comparisons is that significant differences are observed in the Integrated Household Living Conditions Survey (EICV) with regards to the categorisation of immigrants, depending on the definition used.

Estimated contribution of immigrants to public revenue

Individual income

Estimates from the Fourth Integrated Household Living Conditions Survey (EICV4) indicate that monthly individual income averaged RWF 139 562 among individuals who were born abroad, compared to RWF 38 411 for individuals

born in Rwanda. Comparing foreign and Rwandan nationals, monthly income averaged RWF 77 098 and 42 384, respectively. Under both definitions, immigrants received higher monthly incomes than nationals (Table 6.1).

Table 6.1. **Personal income tax and social security contributions are much larger among the foreign-born**

Comparison of key variables by country of birth and nationality, 2012/13

Variable	Foreign-born	Rwandan-born	Difference	Foreign national	Rwandan national	Difference
Monthly individual income (RWF)	139 562	38 411	101 151***	77 098	42 384	34 714**
Monthly personal income tax (RWF)	68 745	25 965	42 780***	54 278	29 654	24 623
Monthly corporate income tax (RWF)	190 385	145 031	45 354	596 545	145 924	450 620
Social security contributions (RWF)	11 165	3 072	8 092***	6 167	3 390	2 222**
Defense expenditure (billion RWF)	3.50	98.20	94.70	0.31	101.40	101.10
Expenditure on public order and safety (billion RWF)	2.30	63.90	61.60	0.20	66.00	65.80
Expenditure on health services (billion RWF)	2.35	73.54	71.19	0.16	75.74	75.58
Expenditure on public primary education (billion RWF)	1.16	54.24	53.08	0.06	55.30	55.20
Expenditure on overall primary education (billion RWF)	1.03	54.37	53.34	0.12	55.28	55.16
Expenditure on public secondary and tertiary education (billion RWF)	15.26	111.94	96.68	0.13	127.07	126.69
Expenditure on overall secondary/tertiary education (billion RWF)	4.78	122.24	117.64	0.38	126.82	126.44

Note: Individual monthly income, personal income tax, corporate income tax and social security contributions are presented as per capita figures.

Source: Authors' own work based on EICV4 (NISR, 2014) and the Annual Economic Report 2012/13 (Government of Rwanda, 2013).

Personal income tax

An accurate estimation of individual income tax would require administrative data from the Rwanda Revenue Authority. However, in the absence of this data, individual income tax is deduced from self-reported incomes from household surveys (EICV4), under certain eligibility criteria and respective marginal tax rates as reported in Table 6.A2.1. Estimates reported in Table 6.1 indicate that individuals born outside Rwanda made a monthly contribution of RWF 68 745 in individual income tax. This equals RWF 824 940 on an annual basis, more than twice that of their counterparts born in Rwanda. A significant difference is also observed when comparing foreign and Rwandan nationals, with differences in absolute figures reflecting the relative representation of individuals by their nationalities.

Following Dustmann and Frattini (2014), the total tax revenue attributable to nationals and non-nationals is the sum of the estimated payments by respective taxpayers in all the tax categories. The EICV-based annual tax payments are disaggregated, or broken down, by country of birth and nationality of the tax payer (Table 6.2). Based on these estimates, the shares of each tax category attributable to individuals born outside Rwanda and those of foreign nationality are apportioned as the group's share in estimated total tax.

The share of personal income tax (PIT) attributable to foreign-born individuals was 0.207 while that attributable to foreign nationals was 0.011. To obtain an estimate of the overall PIT contributions attributable to taxpayers from each nationality category these shares are applied to the PIT revenue collection of RWF 174 billion reported in the Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013). Estimates reported in Table 6.4 indicate annual tax payments of RWF 36.02 billion for foreign-born individuals and RWF 137.98 billion for Rwandan-born individuals. For foreign and Rwandan nationals, the corresponding PIT payments were RWF 1.83 billion and RWF 172.17 billion, respectively.

Table 6.2. **Corporate income tax contributions make up the largest share of direct taxes**
Annual direct tax contributions by country of birth and nationality (average cost scenario, in RWF)

Tax/Contribution	Immigrant taxpayers			Native-born taxpayers			All taxpayers
	Average	Number of payers	Sub-total	Average	Number of payers	Sub-total	Total
Panel A: Categorisation by country of birth							
Personal income tax (20%)	143 432	254	36 431 728	136 403	4 156	566 890 868	603 322 596
Personal income tax (30%)	1 495 892	258	385 940 136	1 005 657	1 049	1 054 934 193	1 440 874 329
Personal income tax (total)		512	422 371 864		5 215	1 621 825 061	2 044 196 925
Corporate income tax (30%)	2 284 625	312	712 803 000	1 740 377	7 458	12 979 731 666	13 692 534 666
Panel B: Categorisation by nationality							
Personal income tax (20%)	158 703	19	3 015 357	136 713	4 391	600 306 783	603 322 140
Personal income tax (30%)	1 319 914	14	18 478 796	1 100 074	1 293	1 422 395 682	1 440 874 478
Personal income tax (total)		33	21 494 153		5 684	2 022 702 465	2 044 196 618
Corporate income tax (30%)	7 158 546	16	114 536 736	1 751 096	7 754	13 577 998 384	13 692 535 120

Source: Authors' own work based on EICV4 (NISR, 2014) and MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013)

Corporate income tax

Besides salary and wage income, the EICV survey elicits information on income derived from business activities. The self-reported turnover is used to calculate the potential corporate income tax (CIT) paid by the owners of the respective businesses. Given that CIT is paid at a 30% marginal rate irrespective of the nationality of the business owner, it is applied directly to the self-reported turnover on a monthly basis. Categorising by both country of

birth and nationality, non-nationals pay a higher CIT than nationals, though the difference is statistically insignificant. Estimates in Table 6.4 indicate that businesses whose main owner was born outside Rwanda paid a monthly average of RWF 190 385 in CIT compared to RWF 145 031 paid by those owned by Rwandan-born individuals.

The CIT payments as per the nationality categories are substantially higher, at RWF 596 545 and RWF 145 924 for foreign and Rwandan nationals, respectively. The difference remains statistically insignificant. This is partly due to small-sample bias which reduces the power of the mean-difference test, since only 16 business units are owned by foreign nationals.

Similar to PIT, the CIT payments were calculated on an annual basis using each category of tax payers in the EICV-based share of total CIT. Based on the figures in Table 6.3 the share of estimated CIT attributable to foreign-born individuals was 0.05 while that of foreign nationals was 0.01. These shares were then applied to administrative revenue collected from CIT which was RWF 71.8 billion as reported in the Budget Execution Report. Annual tax payments of RWF 3.7 billion from foreign-born individuals and RWF 68.1 billion from Rwandan-born individuals were potentially collected. For foreign and Rwandan nationals, the respective CIT payments were RWF 0.6 billion and RWF 71.2 billion (Table 6.4).

Taxes on goods and services: Value added tax and excise duty

Unlike direct taxes that apply clearly stipulated marginal rates to target income groups, estimating indirect taxes like VAT and excise duty is complicated by the fact that various consumption commodities are subject to different tax rates. Applying the 18% VAT rate on household consumption would thus create complications and perhaps reduce the accuracy of VAT estimates. Complications also arise when attempting to disentangle VAT from excise duty embedded in the various commodities consumed by individuals and households. Therefore, indirect taxes in this report are estimated in a three-step process using household consumption and administrative revenue received by the government from VAT and excise duty as reported in the Budget Execution Report for the fiscal year 2012/13. The EICV4 survey provides information on the annual household consumption expenditure per adult equivalent.

In the first step, the adult-equivalent consumption is added up by country of birth to obtain each category's total annual consumption expenditure. This provides the overall annual consumption expenditure of foreign-born and Rwandan-born individuals. The overall consumption expenditure of all survey respondents is also estimated in this step, by adding up their adult-equivalent consumption irrespective of country of birth or nationality.

In the second step, the consumption attributable to the country of birth categories – foreign-born and Rwandan-born – is estimated as the ratio of the total consumption of all respondents in each category to the overall total consumption expenditure. The same estimation process is applied to the alternative immigrant categories.

On average, people born outside Rwanda spent RWF 618 600 on an annual basis in the fiscal year 2012/13. Given that approximately 2 227 individuals were born abroad, the total consumption expenditure of foreign-born individuals was RWF 1 378 billion. The corresponding average consumption expenditure for Rwandan-born individuals was RWF 283 634 and the total annual consumption for all 63 854 Rwandan-born people was RWF 18.1 billion (Table 6.3). In terms of proportions, foreign-born individuals contributed approximately 7% of aggregate consumption for the fiscal year 2012/13 while the Rwandan-born contributed the remaining 93%. Under the nationality categories, the proportions of foreign and Rwandan nationals in the total consumption expenditure were 0.01 and 0.99, respectively.

Table 6.3. **Immigrants account for a much larger per capita expenditure than native-born individuals**

Annual consumption expenditure by country of birth and nationality, 2012/13

Immigrant			Native-born			All individuals
Average per capita	Number of people	Sub-total (billion RWF)	Average per capita	Number of people	Sub-total (billion RWF)	Total (billion RWF)
Panel A: Categorisation by country of birth						
618 600	2 227	1.4	283 634	63 854	18.1	19.5
Panel B: Categorisation by nationality						
953 105	200	0.2	292 925	65 881	19.3	19.5

Source: Authors' own work based on EICV4 (NISR, 2014).

In the third step, these contribution rates are multiplied by administrative VAT and excise duty revenue to obtain the shares of the two tax revenue categories. In the fiscal year 2012/13, the revenue collections from VAT and excise duty amounted to RWF 203.3 billion and RWF 111.8 billion, respectively. The estimated VAT payments made by all foreign-born individuals was RWF 14.2 billion, while a balance of RWF 189.1 billion is attributable to Rwandan-born individuals (Table 6.4). With regards to excise duty, RWF 10.1 billion were contributed by foreign-born consumers as compared to RWF 101.7 billion by their Rwandan-born counterparts. Under the nationality categories, foreign and Rwandan nationals respectively contributed RWF 2.0 billion and RWF 201.3 billion to VAT. The estimated revenue collections from excise duty were worth RWF 0.9 billion for foreign nationals while the remaining RWF 110.9 billion were collected from Rwandan national consumers.

Tax on international trade (import tax)

Import tax payments would be best determined using information on participation in import trade. However, this information is not available from the EICV4. Hence, import tax is estimated in this report using the proportion of foreign-born individuals in the total number of potential CIT payers. That number is then multiplied by the administrative import tax value reported in Table 6.4 – which is RWF 54.8 billion. Using a 0.17 proportion of potential foreign-born import tax payers, their share in import tax is estimated as RWF 9.3 billion while Rwandan-born taxpayers contributed RWF 45.5 billion. The respective payments for foreign and Rwandan nationals were RWF 0.4 billion and RWF 54.4 billion.

Other taxes and property tax

Given the lack of information on the composition of revenue from the "other taxes and property tax" category, the revenue received from each nationality category is computed by multiplying the reported administrative revenue by the share of the adult population in each respective nationality category (Dustmann and Frattini, 2014). The administrative tax revenue from other taxes and property tax for the fiscal year 2012/13 was RWF 36.2 billion and the share of foreign-born individuals in the adult population in the EICV4 was 5.12% (0.3% for foreign nationals). This implies that foreign-born individuals paid RWF 1.9 billion in "other taxes and property tax" compared to RWF 34.3 billion paid by the Rwandan-born. People of foreign and Rwandan nationalities paid "other taxes and property tax" amounting to RWF 0.1 billion and RWF 36.1 billion, respectively.

Non-tax revenue

Non-tax revenue, mainly originating from interest and dividends from public business entities as well as peacekeeping missions, amounted to RWF 84.5 billion in the fiscal year 2012/13. Similar to the case of "other taxes and property tax", the immigration categories of the adult population in the EICV4 are used to determine contributions to non-tax revenue. Under the average cost scenario, foreign-born individuals account for 5.12% of the adult population, implying a corresponding contribution of RWF 4.3 billion towards non-tax revenue (Table 6.4). Rwandan-born individuals potentially contributed to the balance of RWF 80.2 billion. Under the nationality categories, 0.3% of adults in the EICV4 reported being of foreign nationality. This implies that RWF 0.3 billion in non-tax revenue was potentially collected from foreigners, versus RWF 84.3 billion collected from Rwandan nationals. Under the marginal cost scenario (see section on public expenditure below), foreigners are assumed to contribute nothing towards non-tax revenue.

Table 6.4. **Average and marginal contributions of native-born individuals differ by less than 1%**

Total tax and non-tax revenue contributions by country of birth and nationality (billion RWF)

Tax category	Foreign-born	Rwandan-born	Foreign national	Rwandan national
Personal income tax	36.0	138.0	1.8	172.2
Corporate income tax	3.7	68.1	0.6	71.2
Other taxes and property tax	1.9	34.3	0.1	36.1
Value added tax	14.2	189.1	2.0	201.3
Excise duty	10.1	101.7	0.9	110.9
Import tax	9.3	45.5	0.4	54.4
Tax revenue sub-total				
Average cost scenario	75.2	576.7	5.9	646.0
Non-tax revenue				
Average cost scenario	4.3	80.2	0.3	84.3
Marginal cost scenario	0.0	84.5	0.0	84.5
Tax + non-tax revenue				
Average cost scenario	79.5	656.9	6.2	730.2
Marginal cost scenario	75.2	661.2	5.9	730.5

Note: The proportions are estimated based on EICV4 and applied to administrative records of revenue collections.

Source: EICV4 (NISR, 2014) and MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013).

Social security contributions

On a monthly basis, the imputed social security contributions from individuals not born in Rwanda averaged RWF 11 165, significantly higher than the RWF 3 072 contributed by those born in Rwanda (Table 6.1). The difference between foreign and Rwandan nationals is equally significant, although slightly smaller than between foreign-born and Rwandan-born individuals. Because of unavailable data, the annual share of social security contributions and benefits attributable to each immigration category is not estimated. Although contributions could be computed from individual income reported in household surveys under qualifying conditions and social security marginal rates, this estimation would not be meaningful unless accompanied by shares of each immigration category in social security benefits. Net social security contributions – contributions minus benefits – are therefore ignored in this report.

The share of public expenditure on immigrants

The estimation process for the share of immigrants in the overall public expenditure distinguishes between two broad categories of public goods and services: "pure" and "congestible". Pure public goods are those to which additional users can be added without reducing availability or quality (those whose consumption is non-rival) and for which expenditure does not increase with the number of users, in this case immigrants. In this study, all activities in the economic affairs, defence and general public services – including executive

and legislative organs – are categorised as pure public goods. Total expenditure under this category accounted for 61.5% of the public expenditure excluding net lending, and 50.8% including net lending.

All other government activities are categorised as congestible public goods, for which expenditure is deemed to increase with the number of users or, specifically, population size. The expenditure categories under this group include education, health, social protection, environmental protection and public order and safety. Congestible public goods accounted for 38.5% of overall expenditure excluding net lending, and 31.8% including net lending.

Following these categorisations, the share of immigrants in pure public goods is estimated under two scenarios. First, the average cost scenario assumes the cost of providing public goods to immigrants to be positive and equal to the average cost. Under this scenario, overall expenditure for each pure public good or service is divided by the number of individuals in each immigration category based on EICV4.[2] The category-specific share of expenditure is then calculated as the share of the category's total expenditure in overall expenditure.

In the alternative, marginal cost scenario, public goods and services are assumed to be provided to immigrants at zero marginal cost; hence, the overall expenditure on pure public goods and services is attributed to natives. While some studies prefer the latter scenario to estimate the net fiscal contribution of immigration (Rowthorn, 2008), the latter allows estimating the implicit savings for the native-born, as they share the burden of paying for pure public goods (Dustmann and Frattini, 2014). The expenditure shares attributed to each sector are reported in Table 6.5. Whereas the average cost scenario is applied to both pure and congestible public goods, only the marginal cost scenario is applicable to the former.

Economic affairs

The average cost scenario is used to determine the share of expenditure on economic affairs accrued to foreign-born individuals and those with foreign nationalities. This approach assumes that the average cost of providing economic affairs services to the native-born and foreigners is equal. This may be a strong assumption because, by virtue of their nationality and/or country of birth, individuals may disproportionately engage in certain economic activities. Nonetheless, this measure provides a second-best approximation in the absence of information on the actual utilisation of these services. According to this approach, RWF 9.1 billion were spent on economic activities for foreign-born people compared to RWF 259.7 billion spent for Rwandan-born individuals. Under the nationality categories, foreign nationals benefited from RWF 0.8 billion worth of economic services while the corresponding expenditure on Rwandan nationals was RWF 268.0 billion.

General public services

Applying the 3.4% share of foreign-born individuals in the EICV4 sample, the total expenditure on general public services of RWF 312.9 billion was RWF 10.6 billion for foreign-born people and RWF 302.3 billion for their Rwandan-born counterparts. Likewise, the 0.3% share of individuals of foreign nationality implies that they benefited from RWF 0.9 billion worth of expenditure compared to RWF 312.0 for Rwandan nationals.

Defence

Following the 3.4% proportion of foreign-born individuals in the EICV4 sample, approximately RWF 3.5 billion were spent in favour of defending foreign-born individuals while the remaining RWF 98.2 billion were spent on defence services for individuals born in Rwanda. Under the alternative category of nationality, following the proportion of foreign nationals at 0.3%, RWF 0.3 billion were spent on defending foreign nationals, compared to RWF 101.4 billion on Rwandan nationals. However, the marginal cost scenario implies zero cost for providing defence services to immigrants and assigns the defence expenditure of RWF 101.7 billion entirely to the native-born population.

Education

Of the overall public primary school attendance, 2.1% of pupils were born abroad. This implies that they accounted for RWF 1.2 billion of the RWF 55.4 billion spent on primary education while those born in Rwanda accounted for the remaining 54.2 billion. Comparing foreigners and nationals, 0.12% of attending pupils were foreigners who benefited from RWF 0.07 billion while Rwandan nationals benefited from RWF 55.3 billion. If overall primary attendance is considered, irrespective of the school type (public versus private), RWF 1.0 billion were spent on primary education for school attendants born outside Rwanda and RWF 54.4 billion for the Rwandan-born.

Similar calculations for public secondary and tertiary education indicate that 11.2% of attendants were born abroad, implying a share of RWF 15.3 billion of the RWF 127.2 billion budget for these education levels, compared to RWF 111.9 billion for those born in Rwanda. The relative shares for foreign nationals versus Rwandan nationals are RWF 0.1 billion and RWF 127.1 billion, respectively. Alternative estimates taking into account attendance rates in both public and private secondary and tertiary schools are provided in Table 6.1.

Health

Taking into account the usage rates of medical services in 2012/13, 3.1% of all individuals who sought medical consultation were born outside the country. This implies that public expenditure on their services amounted to

RWF 2.6 billion, while the remaining RWF 73.5 billion were spent on individuals born in the country. Under the nationality categories, the share of foreigners in the total health services usage was 0.21%, which implies that approximately RWF 0.2 billion were spent on their health while RWF 75.7 billion were spent on health services for Rwandan nationals.

Social protection

Spending on social protection in 2012/13 was divided among various components like the protection of genocide survivors and the flagship Vision 2020 Umurenge Program (VUP). Given the lack of information on the former component, the latter is used to find the share of the total sector expenditure that accrued to foreign and Rwandan nationals. According to the EICV4, approximately 11% of sample households reported having ever enrolled in a VUP programme. Only 1.1% of households receiving benefits were headed by individuals born outside Rwanda. This proportion corresponds to RWF 0.4 billion in the sector expenditure for the fiscal year 2012/13. Households headed by people born in Rwanda benefited from RWF 38.2 billion worth of the same services. Given that no household among VUP "current" beneficiaries was headed by a foreign national, this report attributes the full expenditure of the social protection sector to households headed by people of Rwandan nationality.

Environmental protection

Environmental services are no doubt crucial for all individuals irrespective of their country of birth or nationality. This logic is synonymous with the assumption that the per capita spending on environmental protection is uniform across the nationality categories. For this reason, only the average cost scenario is applied in estimating expenditure shares made in favour of foreigners. The shares of foreign-born individuals and foreign nationals in the EICV4 survey – approximately 3.4% and 0.3% respectively – are used to determine the expenditure share corresponding to each group. Hence, RWF 2.2 billion of the sector's total spending of RWF 64.0 billion is attributed to foreign-born individuals compared to RWF 61.8 billion to Rwandan-born individuals. The expenditures for people of foreign and Rwandan nationalities corresponded to RWF 0.2 billion and RWF 63.8 billion, respectively.

Public order and safety

Expenditure on public order and safety was spilt according to population shares, RWF 2.3 billion for individuals born abroad and RWF 63.9 billion for their counterparts born in Rwanda (Table 6.5). Under the nationality categories, foreign nationals benefited from RWF 0.2 billion worth of public order and safety expenditure while RWF 66.0 billion were spent on Rwandan nationals.

Table 6.5. **Average and marginal costs of native-born individuals differ by about 2%**
Total public expenditure by sector and by country of birth and nationality (billion RWF)

Sector	Foreign-born	Rwandan-born	Foreign National	Rwandan National	Total
Economic affairs					
Average cost scenario	9.1	259.7	0.8	268.0	268.8
Marginal cost scenario	0.0	268.8	0.0	268.8	268.8
General public services					
Average cost scenario	10.6	302.3	0.9	312.0	312.9
Marginal cost scenario	0.0	312.9	0.0	312.9	312.9
Defence					
Average cost scenario	3.5	98.2	0.3	101.4	101.7
Marginal cost scenario	0.0	101.7	0.0	101.7	101.7
Education[a]	16.4	166.2	0.2	182.4	182.6
Primary	*1.2*	*54.2*	*0.07*	*55.3*	*55.4*
Post-primary	*15.3*	*111.9*	*0.1*	*127.1*	*127.2*
Health[a]	2.4	73.5	0.2	75.7	75.9
Social protection[a]	0.4	38.2	0.0	38.6	38.6
Environmental protection[a]	2.2	61.8	0.2	63.8	64.0
Public order and safety[a]	2.3	63.9	0.2	66.0	66.2
Total					
Average cost scenario	46.9	1 063.8	2.8	1 107.9	1 110.7
Marginal cost scenario	23.7	1 087.0	0.8	1 109.9	1 110.7

Note: The proportions are estimated based on EICV4 (NISR, 2014) and applied to administrative records of revenue collections.
a. The marginal cost scenario is not applicable; only the average cost scenario is applied.
Source: EICV4 (NISR, 2014) and MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013).

Immigrants make a positive contribution to the public budget

In the estimation approach of Dustmann and Frattini (2014), the government surplus is estimated as the difference between the total revenue received by the government from all documented sources, minus expenditure on all economic sectors and activities. In this report however, only tax revenue is included in the aggregation of government revenue. The reason for this approach is that tax revenue can be matched across the EICV survey, the revenue performance analysis from the 2012/13 Budget Execution Report and the tax eligibility criteria presented in the earlier sections of this chapter.

The results of this estimation procedure are reported in Table 6.6, which distinguishes between the two definitions of immigrants. Overall, immigrants under both definitions contributed more to government revenue than they presumably benefited from government services. In other words, the net fiscal contributions from both foreign-born and foreign nationals were positive in the 2012/13 fiscal year. Under the average cost scenario, total revenue collected from foreign-born (versus foreign nationals) amounted to RWF 79.6 billion (versus

RWF 6.2 billion) while total expenditures on public services presumably used by the respective groups were RWF 46.9 billion and RWF 2.8 billion. This presents a fiscal surplus of RWF 32.7 billion and RWF 3.4 billion attributable to foreign-born and foreign nationals, respectively.

Conversely, the net fiscal contribution from the native-born population was highly negative, amounting to deficits of RWF 406.9 billion and RWF 377.7 billion for Rwandan-born and Rwandan nationals, respectively. The pattern is similar under the marginal cost scenario, with the native-born population registering a larger deficit.

The difference between the marginal and average cost scenarios is much larger when defining immigrants as foreign nationals. Two possible explanations can be given. First, the difference between income – and hence revenue contributions – between self-reported foreign and Rwandan nationals could be bigger than that between individuals born in Rwanda and those born outside the country. Second, the small sample bias might have influenced the results of foreign national estimations.

Table 6.6. **Foreign-born individuals contributed more to public finances than native-born individuals**

Summary results for the net total fiscal contribution of immigrants

Variable	Foreign-born	Rwandan-born	Foreign national	Rwandan national
Total revenue (billion RWF)				
Average cost scenario	79.6	656.9	6.2	730.2
Marginal cost scenario	75.2	661.2	5.9	730.5
Total expenditure (billion RWF)				
Average cost scenario	46.9	1 063.8	2.8	1 107.9
Marginal cost scenario	23.7	1 087.0	0.8	1 109.9
Net fiscal balance (billion RWF)				
Average cost scenario	32.66	-406.93	3.37	-377.64
Marginal cost scenario	51.53	-425.80	5.16	-379.42

Source: EICV4 (NISR, 2014) and MINECOFIN Annual Economic Report for Fiscal Year 2012/13 (Government of Rwanda, 2013).

Comparing the size of the fiscal balance across nationality categories can be misleading because it depends on the size of each group. In order to improve comparability, the per capita net fiscal contribution is calculated for each nationality category (Table 6.7). It then becomes clear that foreign-born individuals not only make a larger total contribution to public finances, but their average per capita revenue and expenditures are much higher than those of native-born individuals.

In both the average and marginal cost scenarios, foreign-born net fiscal contributions are positive (respectively RWF 84.6 thousand and RWF 133.4 thousand), compared to the net contributions of native-born workers

which are negative (respectively RWF -36.7 thousand and RWF -38.5 thousand). The large difference results mostly from foreign-born individuals' per capita revenue, which is almost four times higher than that of native-born individuals, while expenditures are only 25% higher for foreign-born individuals.

Under the alternative immigrant definition, foreign nationals' per capita revenues are almost three times higher than those of Rwandan nationals, while per capita expenditures on foreign nationals are lower than on Rwandan nationals. Nonetheless, the net per capita fiscal balance for foreign nationals is positive in both the average and marginal cost scenarios, while the net balance for Rwandan nationals is negative in both scenarios.

Finally, the revenue-to-expenditure ratios reported in Table 6.7 further confirm the substantial difference between the net fiscal contributions of foreigners relative to the native-born population according to either immigrant definition. Under the average cost scenario, the revenue-to-expenditure ratio is approximately 1.7 for foreign-born individuals, corroborating the above findings that this immigrant category contributed substantially more to public revenue relative to the value of public expenditure made in their favour. In the nationality categories, the revenue contributions from foreign nationals doubles the value of the public goods and services they potentially utilised. However, the revenue contributions from the native-born population – under either immigrant definition – only covered 61-66% of the value of public expenditure presumably made in their favour.

Table 6.7. **Foreign-born individuals contribute more per capita to public finances than native-born individuals**

Summary results for the net per capita fiscal contribution of immigrants

Variable	Foreign-born	Rwandan-born	Foreign national	Rwandan national
Per capita revenue (thousand RWF)				
Average cost scenario	206.0	59.3	177.5	63.9
Marginal cost scenario	194.8	59.7	170.2	63.9
Per capita expenditure (thousand RWF)				
Average cost scenario	121.4	96.1	80.6	97.0
Marginal cost scenario	61.3	98.2	21.5	97.1
Per capita net fiscal balance (thousand RWF)				
Average cost scenario	84.6	-36.7	96.9	-33.1
Marginal cost scenario	133.4	-38.5	148.7	-33.2
Revenue-to-expenditure ratio				
Average cost scenario	1.7	0.6	2.2	0.7
Marginal cost scenario	3.2	0.6	7.9	0.7

Source: Authors' own work based on Government of Rwanda, *EICV4 microdata* (NISR, 2014), *http://www.statistics.gov.rw/datasource/integrated-household-living-conditions-survey-eicv*; and *MINECOFIN Annual Economic Report for Fiscal Year 2012/13* (Government of Rwanda, 2013.

The positive net fiscal contribution of immigrants is even larger under the marginal cost scenario. The revenue-to-expenditure ratio is as high as three for foreign-born individuals and seven for foreign nationals. The difference between the net fiscal effect under the average and marginal cost scenarios stems from the fact that the former underestimates the contributions of immigrants. It assigns them positive expenditure shares of pure public goods whose marginal cost is logically lower than the average cost, or approximately zero (Dustmann and Frattini, 2014).

Conclusions

Most investigative efforts on migration have focused on developed countries while less is known about the economic value of immigrants in developing countries as countries of destination. The net fiscal contribution of the immigrant population in Rwanda is estimated in this chapter, focusing on the year 2012/13. This is estimated as the difference between how much immigrants contribute to public revenue and the value of public expenditure made in their favour. Two alternative definitions are used to categorise immigrants: foreign-born and foreign nationals.

Under both definitions, the immigrant population made a positive contribution towards the government's fiscal balance, implying that the value of their fiscal contributions outweighed their benefits from publicly provided goods and services. In comparison, revenue collections from the native-born population covered slightly over half of the value of public expenditure made in their favour the same year. These findings are consistent with Dustmann and Frattini (2014) who found that immigrants from the European Union Area made a positive contribution towards the United Kingdom's fiscal balance.

However, considerable caution should be taken when interpreting the findings presented in this chapter for two reasons. First, by focusing on one specific time period, findings are static and do not provide insights into the role of immigrants in the country's fiscal balance over a longer time span. Second, and similar to Dustmann and Frattini (2014), the lack of data on the actual tax and social security contributions of immigrants as well as the real usage of government services by immigrants left the authors to rely on approximations and simplified assumptions. In particular, approximations were made from household surveys to obtain the shares of the immigrant population in tax revenue and public expenditure. Nonetheless, the findings contribute to existing literature and debates on the relative contributions immigrants make to the fiscal balance of one of the world's least developed countries.

Notes

1. A gaming tax requires betting and telecom firms to pay 13% of their earnings from gambling and promotions. Additionally, a withholding tax of 15% is levied on players' winnings.
2. Education expenditures are allocated by the place of birth of household heads rather than of children themselves.

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ANNEX 6.A1

Data availability, comparability and methodology

In the absence of administrative data on the actual revenue collections from and expenditures made in favour of individuals by their immigrant category, household survey data is used in the present analysis. Three available datasets provide information relevant to the estimation of variables of interest:

1. The Integrated Household Living Conditions Survey (EICV) which is a nationally representative household survey with a three-to-five year frequency (EICV1, EICV2, EICV3 and EICV4 in 2000, 2005, 2010/11 and 2014, respectively). Only the most recently available survey (EICV4) is considered in this chapter.
2. A country-wide Rwanda Population and Housing Census (RPHC) conducted every ten years, the most recent two being 2002 and 2012.
3. The Establishment Census which is a representative survey of business entities and activities operating in Rwanda in 2011 and 2014. However, although the Establishment Census provides information on the business turnover that could be used in estimating corporate income tax, the wide categorical ranges of the turnover variables prevent reasonable estimations.

In terms of provincial coverage, there is no significant variation between the EICV and RPHC. There is however a difference regarding the coverage of foreign-born and foreigners. In the EICV4, approximately 3.4% of individuals reported having been born outside Rwanda while 0.3% reported their nationality as non-Rwandan. The proportions of foreign-born and non-nationals from the RPHC are 3.3% and 0.7%, respectively. Nonetheless, these differences are small and allow comparing the two surveys.

For tax revenue sources, the share of each immigration category is denoted by θ^{κ} where κ takes on two values to represent the two immigration categories. By construction, apportioning shares of immigrant and native-born individuals equal one. The apportioning shares estimated from the EICV4 are applied to most of the revenue components under the average cost scenario. As an exception, non-tax revenue is estimated under both the average cost

and marginal cost scenarios. Under the former, θ^{κ} is assumed to be zero for foreigners and one for the native-born. The revenue collection from the ith revenue source attributable to each immigration category is denoted by $\theta^{\kappa} trev_{i}$. The total revenue attributable to each immigration category is hence the sum of the revenue contributed by the respective immigration category towards all the various revenue sources considered in this analysis. This is estimated as

$$TREV^{\kappa} = \sum_{i=1}^{R} \theta^{\kappa} trev_{i}$$

where R is the number of revenue sources included in the estimation, as presented in the previous sections of the chapter. Overall, the total revenue collected from all tax sources and immigration categories is given by

$$TREV = \sum_{\kappa=1}^{K} \left(\sum_{i=1}^{R} \theta^{\kappa} trev_{i} \right).$$

By symmetry, the share of each immigration category in the j^{th} component of public expenditure is denoted by $\gamma^{\kappa} exp_{j}$. As in the case of revenue, apportioning shares of immigrant and native-born individuals equal one. The apportioning shares estimated from the EICV4 are applied to most of the expenditure components under the average cost scenario in the case of congestible public goods. For pure public goods, expenditure shares are estimated under both the average cost and marginal cost scenarios. Under the latter, γ^{κ} is assumed to be zero for immigrants and one for native-born individuals. The corresponding total public expenditure in favour of the respective immigration category is denoted by

$$EXP^{\kappa} = \sum_{j=1}^{E} \gamma^{\kappa} exp_{j}.$$

The aggregate public expenditure on all public services used by both immigrants and native-born individuals is then obtained as the summation of the disaggregated expenditures in favour of the two immigration categories. This is hence represented as

$$EXP = \sum_{\kappa=1}^{K} \left(\sum_{j=1}^{E} \gamma^{\kappa} exp_{j} \right).$$

The net government fiscal balance is then estimated as the difference between the total revenue and expenditure, disaggregated by immigration category as

$$Fbal = \sum_{\kappa=1}^{K} \left(\sum_{i=1}^{R} \theta^{\kappa} trev_{i} - \sum_{j=1}^{E} \gamma^{\kappa} exp_{j} \right).$$

As a matter of caution, the estimates presented in this chapter should be interpreted only with respect to the direction of the fiscal balance (deficit versus surplus). Comparing the size of the fiscal balance across nationality categories is misleading because it depends on the size of the respective groups. In order to enhance comparability of results across nationality categories, the ratio of revenue to expenditure is estimated for each nationality category (Dustmann and Frattini, 2014).

$$RErati o^{\kappa} = \frac{TREV^{\kappa}}{EXP^{\kappa}}.$$

ANNEX 6.A2

Structure of taxes and social security

Income tax on resident and non-resident business entities

A business entity is classified by the Rwandan law as resident, for tax purposes, if it satisfies at least one of three conditions; (i) it is a company or association established according to Rwandan law, (ii) its place of effective management is in Rwanda or (iii) it is a Rwandan government company. Both resident and non-resident companies are liable to a 30% corporate tax and 30% capital gains tax on the sale or cession of immovable property. Secondary market transactions on listed securities by both resident and non-resident business entities are exempted from paying capital gains tax.

Irrespective of resident status, all companies are required to pay 15% tax on each of the income categories of royalties, dividends and interest, excluding interest on government securities. There is however a distinction between resident and non-resident companies regarding interest on government securities. While non-resident companies pay 15% tax, the rate is reduced to 5% for withholding tax on dividends and interest on income from listed securities and income from bonds with three-year maturity, if the withholding tax payer is a resident of Rwanda or from the East African Community (EAC). Non-resident companies pay 30% tax over the proceeds of the sale of commercial buildings to resident people.

Personal income tax on resident and non-resident individuals

Both residents and non-residents in Rwanda are required to pay tax on all income earned during the 12-month tax period within which the income is earned (see Table 6.A2.1). For residents, taxable income in this regard relates to income earned from both domestic and foreign sources throughout the tax period while only income earned domestically by non-residents is subject to income tax. There are variants to the definition of "resident" for purposes of tax assessment; a person is considered resident if he or she is a permanent resident, has habitual abode in Rwanda or is a Rwandan representing Rwanda

abroad. More precisely, a resident is a person who stays for at least 183 days – either intermittently or consecutively – for the tax period in which the 12-month period ends (PWC, 2015).

Table 6.A2.1. **Income tax for resident and non-resident individuals**

Tax category	Resident individuals	Non-resident individuals	Exemptions
Income tax (withheld at source)	0% on RWF 30 000; 20% on RWF 30 001-100 000; 30% on income above RWF 100 000	0% on RWF 30 000; 20% on RWF 30 001-100 000; 30% on income above RWF 100 000	None
Capital gains tax	30% on sale/cession of immovable property	30% on sale/cession of immovable property	Secondary market transactions on listed securities by both resident and non-resident individuals
Rental income	20% of gross revenue as deemed expense		
Interest, excluding interest on government securities	15%	15%	None
Interest on government securities	5%	15% non-residents' tax on interest (NRTI)	Reduction from 15% to 5% for resident and EAC individuals
Royalties	15%	15%	None
Management and professional fees	15%	15%	None
Proceeds from the sale of commercial buildings to residents	NA	30%	Residents fully exempt
Dividends	NA	15% non-resident shareholders' tax on dividends (NRST)	Only applies to non-residents

Note: NA = not available.

Source: Authors' own work based on PWC (2015).

Generally, individual taxable income is grouped into three categories: employment income (total remuneration in cash and in kind), business income and investment income. Total taxable income is the total amount an individual receives in a tax period from all three sources, less the total amount of deductions he or she is allowed.

The tax on incomes earned by resident and non-resident individuals is withheld by the employer at the source. Monthly incomes amounting to RWF 30 000 or below are not liable to income tax. For individual incomes between RWF 30 001 and RWF 100 000, the marginal tax rate is 20% while individuals earning more than RWF 100 000 are liable to a 30% income tax withheld by the employer. This tax category is paid by both individual residents and non-residents alike. Similar to companies, both residents and non-resident individuals pay a 30% capital gains tax on the sale/cession of immovable property, with the exception of secondary transactions on listed securities. Royalties and interest, excluding interest on government securities,

are each taxed at a marginal rate of 15%, uniform across resident and non-resident individuals. Regarding interest on government securities, non-resident individuals pay a non-resident tax on interest (NRTI) of 15% while residents and individuals from the EAC pay a reduced marginal rate of 5%.

Additionally, non-residents pay a 15% non-resident shareholders' tax (NRST) on dividends and a 30% tax on the proceeds from the sale of commercial buildings to residents; residents are exempted from paying both tax categories. A rental income of 20% and a 15% tax on management and professional fees are charged to both resident and non-resident individuals.

Transaction taxes (domestic and external)

Value added tax is by far the single most important tax category for goods and services transactions, with rates varying by either country of origin or product category and purpose. In this regard, three VAT categories exist (see Table 6.A2.2):

- **Standard rates**. The standard rate is 18% of the value of goods and services supplied.
- **Zero rated**. Zero-rated products are liable to VAT payment but at a 0% rate, implying that the taxpayer claims reimbursement for any VAT charges incurred in supplying the product in question. Zero-rated goods include exported goods and services; minerals sold to the domestic market; international transportation services for goods entering Rwanda (either as final destination or in transit to other countries); goods and services sold in VAT-exempt shops; and goods and services meant for people in a special category (including those for diplomats, donations from non-governmental organisations, supplies for international organisations and projects funded by donor partners).
- **VAT-exempt**. VAT-exempt products do not carry a VAT obligation and as such, reimbursement for ex-ante payments is restricted. Categories exempted from VAT include clean water supplies and environmental protection; health-related goods and services (equipment for people with disabilities and any other items listed by the Minister of Health); educational materials (services and equipment, including books, newspapers and journals); transportation services by licensed people; lending, leasing or sale of land, buildings and VAT-exempt goods and services; financial and insurance services; precious metals from the National Bank of Rwanda; agricultural inputs and unprocessed agricultural and animal products; information and communication technology (ICT) equipment; other products including burial materials, personal effects for Rwanda diplomats, gaming activities taxable by law; trade union subscriptions; energy supply equipment; and goods and services meant for firms legally operating in the Special Economic Zone.

The Rwanda Revenue Authority requires taxpayers to declare and pay for VAT net liability and VAT reverse order within 15 days of the end of the month for which the VAT is accounted. For VAT taxpayers with an annual turnover of RWF 200 million, an option to declare and pay for VAT on either a monthly or quarterly basis is available since July 2010 (PwC, 2015).

Goods and services originating from outside Rwanda are subject to customs taxes, with waivers on selected products from the EAC member states, under the provisions of the East African Community Customs Union. Under these provisions, all member states charge a common external tariff on goods and services originating from outside the EAC region. Specifically, all raw materials are zero-rated, irrespective of the country of origin while semi-processed products are taxed at a marginal rate of 10% (25% for final products) of the imported value.

Table 6.A2.2. **Transactional tax on the supply of goods and services**

Tax category	Deductible	Exempted or zero-rated
Value added tax	18%	*
Stamp duty	None	NA
Customs taxes: general external tariff from non-EAC countries	0% on raw materials; 10% on semi-processed and 25% of final products	Zero-rated for raw materials, irrespective of country of origin

Note: * 60% of input VAT incurred for passenger vehicles and spare parts or repair and maintenance services for these vehicles (unless the taxpayer is involved in resale or leasing of such vehicles and they were acquired for this purpose); goods acquired or imported for entertainment purposes (unless the taxpayer is in the business of entertainment and these goods are acquired for this purpose and were not provided by a partner or employee); goods acquired for accommodation purposes; goods that give right to membership or accession to a sporting association, or social or recreational clubs; and for business overheads such as telephones and electricity whose use cannot be practically separated between private and business use. NA = not available.

Source: Authors' own work based on PWC (2015).

Investment incentives

The 2015 Investment Promotion Law specifies various incentives aimed at promoting investments in key priority areas. These include exports, energy, ICT, transport and logistics, health, manufacturing, financial services, tourism, and affordable housing. The general criteria for these incentives are engagement in non-trading activity, creation of quality jobs, skills transfer, use of local raw materials, export potential, potential for backward and forward linkages, innovation and creativity. Table 6.A2.3 outlines some of the specific investments incentives, along with their qualifying conditions.

Table 6.A2.3. **Investment incentives with qualifying conditions**

Incentive category	Incentive magnitude	Qualifying condition	Exclusions
Investment allowance on purchase of asset (new or used)	40% of invested amount 50% of invested amount	Only in first fiscal year of purchase/use of the asset Investment outside Kigali or in priority sectors determined by Rwanda Investment Code	Motor vehicles carrying less than 8 people, except tourism vehicles
Deductible loss in tax period	Deducted from profit for the following 5 tax periods		
Corporate tax zero-rated	0% corporate tax	Operate in Free Trade Zone Foreign company with headquarters in Rwanda	
Profit tax discount based on employment of Rwandan-workers	2% 5% 6% 7%	Employ 100-200 Rwandans Employ 201-400 Rwandans Employ 401-900 Rwandans Employ more than 900 Rwandans	
Export tax discount by volume of foreign exchange	3% 5%	Export USD 3-5 million Export more than USD 5 million	
Corporate tax zero-rated (holiday)	0% for a period of 5 years	Microfinance activities approved by competent authorities	
Duty exemption	Zero-rated	Raw materials, plant and machinery, other inputs	

Source: Authors' own work based on records from RRA, KPG and PWC.

Social security contributions

All resident and non-resident employees are required to contribute towards social security schemes managed by the Rwanda Social Security Board (RSSB). Contribution towards a pension scheme is mandatory for all salaried workers and active political representatives. The employer's contribution totals to 5% of the employee's gross salary: 3% towards a pension scheme and 2% towards a mandatory occupational hazards scheme. Employees are required to contribute an additional 3% of their gross salary to retirement scheme. On retirement, an employee receives retirement benefits commensurate with their duration of active service. A lump sum amount is paid to retired employees with less than 15 years of experience while employees with 15 years of experience receive 30% of their highest 5-year average salary, with an increment of two percentage points for each additional year of service.

Employees who can no longer work due to physical or mental incapacitation are entitled to early retirement benefits. Workers who can no longer work because of accidents or diseases unrelated to work circumstances are entitled to invalidity benefits. This is the case if they have been registered and contributing members for at least three years and have paid six months of insurance within the 12-month period preceding the invalidity.

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How Immigrants Contribute to Rwanda's Economy

Immigrants' contribution to Rwanda's economy is relatively small, but growing. Unlike in many other developing countries, immigrants in Rwanda are on average better educated and work in more productive sectors than the native-born population. Although immigration is associated with a small reduction in the employment rate of the native-born population, immigrants' contribution to the Rwandan gross domestic product is higher than their share in employment. In addition, immigrants contribute more in taxes than they receive in government benefits, leading to a positive effect on the fiscal balance. A mix of migration policies, aimed at meeting labour market needs and fostering immigrants' integration, and non-migration policies, intending to leverage the impact of immigration on the economy, would help enhance the contribution of immigrants to Rwanda's economy.

How Immigrants Contribute to Rwanda's Economy is the result of a project carried out by the OECD Development Centre and the International Labour Organization, with support from the European Union. The project aimed to analyse several economic impacts – on the labour market, economic growth, and public finance – of immigration in ten partner countries: Argentina, Costa Rica, Côte d'Ivoire, the Dominican Republic, Ghana, Kyrgyzstan, Nepal, Rwanda, South Africa and Thailand. The empirical evidence stems from a combination of quantitative and qualitative analyses of secondary, and in some cases primary, data sources.

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