

July 2021

Addressing youth unemployment in Africa through industries without smokestacks

A synthesis on prospects, constraints, and policies

Brahima S. Coulibaly and John Page



Brahima S. Coulibaly is vice president and director of the Global Economy and Development program at the Brookings Institution.

John Page is a nonresident senior fellow with the Africa Growth Initiative at the Brookings Institution.

Acknowledgements

The authors gratefully acknowledge very helpful comments from Richard Newfarmer on an earlier draft, and Chris Heitzig and Leo Holtz for excellent research support. We thank Esther Lee Rosen and Christina Golubski for editorial assistance, and the authors of the country case studies for their partnership and valuable contributions.

Brookings gratefully acknowledges the support provided by the Mastercard Foundation, Canada's International Development Research Centre (IDRC), and an anonymous donor. Brookings recognizes that the value it provides is in its commitment to quality, independence, and impact. Activities supported by its donors reflect this commitment. The views expressed by Brookings do not necessarily represent those of the Mastercard Foundation or its Board of Directors, or IDRC or its Board of Governors.

The Brookings Institution is a nonprofit organization devoted to independent research and policy solutions. Its mission is to conduct high-quality, independent research and, based on that research, to provide innovative, practical recommendations for policymakers and the public. The conclusions and recommendations of any Brookings publication are solely those of its author(s), and do not reflect the views of the Institution, its management, or its other scholars.

1. Introduction

Young people between the ages 15 and 24 constitute roughly 20 percent of sub-Saharan Africa's population, making it the youngest continent in the world (African Union, 2019). While this trend is an opportunity for increased creativity and innovation, it is also a risk for many youths in the region not in education, employment, or training. And the number of young people continues to rise. The World Bank estimates that by 2050 half of the 1 billion people in sub-Saharan Africa will be under the age of 25, highlighting the importance of creating employment opportunities for Africa's youth.

By some estimates, 20 million new jobs need to be created every year to meet the increasing demand for jobs (Fox and Gandhi, 2021). Yet the job creation capacity of African economies is only half of what it should be, and the lack of adequate employment opportunities has slowed the continent's structural transformation and progress on poverty reduction. The development of export-led manufacturing, which has historically been a successful job creation strategy for other parts of the world, notably East Asia, is playing a much smaller role in Africa due to rising competition for low-cost work and decline of the sector. The services industry is largely absorbing the bulk of African youth leaving agriculture and moving to cities. This shift reflects the impact of technological progress, the rapidly evolving global marketplace, and natural resource endowments on Africa's industrialization prospects.

There is an opportunity for other industries—notably subsectors of agribusiness and service-oriented industry—that share firm characteristics with manufacturing to offer productive jobs for African youth (Baumol, 1985; Bhagwati, 1984). Similar to manufacturing, these sectors are tradable and have high value added per worker. They have the capacity for learning and productivity growth, and some exhibit scale and agglomeration economies (Ebling and Janz, 1999; Ghani and Kharas, 2010). Importantly, they have the capacity to absorb low-skilled labor. For lack of a better term, we call these “industries without smokestacks” (IWOSS) to distinguish them from traditional, “smokestacks” (e.g., manufacturing) industry. Moreover, reductions in transport costs and progress in information and communications technologies (ICT) have spurred the development of such subsectors.

IWOSS activities are defined as those that are:

- Tradable;
- Have high value added per worker—relative to average economywide productivity;
- Exhibit the capacity for technological change and productivity growth; and
- Show some evidence of scale and/or agglomeration economies.

The industries that conform to this definition and are explored in this paper include horticulture and high-value agribusiness, tourism, business services, and transport and logistics. Today, many African economies are turning to these industries to lead the process of structural change (Newfarmer, Page, and Tarp, 2018)—the movement of labor and other productive resources from low-productivity to high-productivity economic activities. The main question we address in this report is: Do these sectors have the potential to solve Africa's youth employment problem and create large-scale formal productive jobs? Our research shows that there is an opportunity:

Key findings

- IWOSS sectors have been growing at a faster pace than many other sectors (Newfarmer, Page and Tarp, 2018).
- IWOSS have higher job creation potential compared to the rest of the economy and tend to employ women and young people more intensively compared with other sectors.
- IWOSS sectors tend to have higher labor productivity compared with agriculture.
- If government policies support the development of IWOSS sectors well, including by addressing key constraints—like infrastructure, skills, and the capacity to export—IWOSS sectors have the potential, over the next decade or so, to generate between 65 and 75 percent of all new formal sector jobs in the majority of countries.
- The skill requirements in these sectors generally include soft skills, digital skills, and intrapersonal skills. Equipping young people with these skills will make them employable in IWOSS sectors.
- Public policy priorities to support IWOSS range from improvements to the investment climate—reliable electrical power, lower costs of transport, workers better able to perform their jobs, and competition—to industry-specific interventions—such as investments to improve trade logistics in agro-processing and horticulture.
- Although the case studies were largely conducted prior to the COVID-19 pandemic, follow-up work in four countries (South Africa, Uganda, Kenya, and Senegal) suggests that, in spite of the vicissitudes of the pandemic, the policy prescriptions in this report remain highly relevant in the post-COVID world.

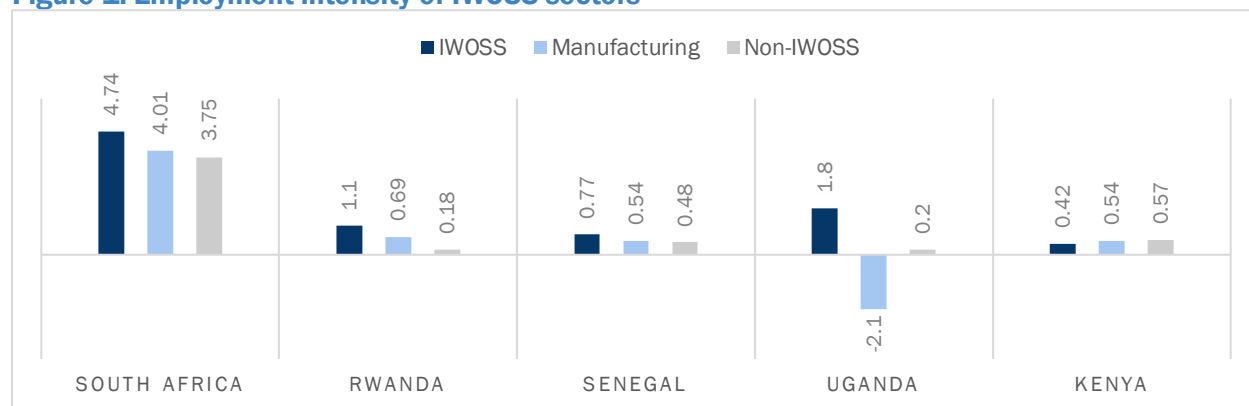
In this paper, we will share deeper insights on the IWOSS sector in Africa and provide recommendations as we look ahead: **Section 2** presents a review of crosscutting themes drawn from the country studies—Ghana, Kenya, Rwanda, Senegal, South Africa, and Uganda—undertaken under the project.¹ **Section 3** seeks to answer the central research question of the project: Which IWOSS sectors offer the greatest potential for employment of Africa’s growing young population? **Section 4** sets out the constraints to growth of IWOSS sectors, built around four drivers of industrial location that have largely shaped the global distribution of industry—with and without smokestacks. **Section 6** sets out a number of policy recommendations to relieve the constraints to the growth of IWOSS sectors. **Section 7** summarizes the main policy recommendations arising from the research, **Section 8** deals with the impact of the COVID-19 pandemic on IWOSS, and **Section 9** offers some concluding remarks.

2. Patterns of growth, employment, and structural change: What have we learned from the country case studies?

Our country studies show both the potential of IWOSS and some of the constraints that limit their growth. In this section, we summarize the results of the case studies. At the end of the section, we explore some crosscutting themes.

As shown in Figure 1, IWOSS sectors are labor-intensive in most countries with a potential to employ more workers than other sectors for the economy, including manufacturing. For example, in the case of Rwanda, IWOSS sectors tend to employ six times more workers than non-IWOSS sectors and 1.5 times more workers than manufacturing.

¹ Additional case studies, not included in this synthesis, are Egypt, Ethiopia, Morocco, Tunisia, and Zambia.

Figure 1. Employment intensity of IWOSS sectors

Note: Elasticity is calculated by dividing the percent change in employment by the percent change in output. The elasticities are calculated over the period 2000-2018. Elasticities for Uganda are calculated over the period 2012 to 2016.

Source: Data from the country case studies.

2.1 Country case studies

Ghana

In Ghana, significant growth over a long period has not been reflected in employment numbers, especially among young people. The employment elasticity has averaged only 0.5 over the last two decades, and the issue of jobless growth has become a major concern, especially among youth. Mineral exports are the main drivers of growth and are not labor-intensive, limiting the economy's capacity to absorb young workers. The average national unemployment rate is about 6 percent, but the unemployment rate among youth is 12.1 percent. Changes that have taken place in economic structure have tended to favor the services sector—the leading employer since 2014—while industry has lagged. Services employ about 44 percent of the total workforce. Many of these are low-productivity, informal activities with little or no connection to international markets. At least 1 in 3 young persons (31.8 percent) is self-employed as an own-account worker.

In Ghana, the country case study reveals that the most promising IWOSS sectors include agro-industry, tourism, horticulture, and ICT-based services. Agro-processing is dominated by micro and small firms involved in adding value to horticultural products, vegetables, roots and tubers, and palm oil. In 2015 there were about 450,000 persons engaged in agro-processing and allied activities. Exports of agro-industrial products have increased steadily from \$6.5 million in 2001 to about \$20.9 million in 2019. Tourism is Ghana's fourth-largest foreign currency earner after gold, cocoa, and remittances. In 2018, the tourism sector contributed 5.5 percent to GDP. Major players in the sector are hotels and resorts, restaurants, nightclubs, travel agents, and tour operators. Accommodation and food services account for more than 90 percent of the jobs in the tourism sector. The sector is labor-intensive. Between 2005 and 2015, tourism employment doubled from 172,823 to 393,000, an increase of about 127 percent. Total jobs created in both formal and informal tourism enterprises increased from 438,000 in 2016 to 506,967 in 2018.

Kenya

Since 2001, Kenya has had relatively strong economic performance. Real GDP grew at an average rate of 4.8 percent per year, and per capita GDP increased at 10 percent per annum. As a result, the economy achieved "lower-middle-income" country status in 2014. Despite relatively strong economic growth in the 20 years leading to 2019, Kenya faces significant labor market challenges in the form of unemployment, underemployment, and inactivity. These challenges are more severe for youth and women. Although overall unemployment of the working-age population (15 to 64 years) was estimated at 7.4 percent in 2015/16, that of women was 9.6 percent, while youth (15 to 24 years) had an

unemployment rate of 17.7 percent. Underemployment was estimated at 20.4 percent for the overall population, and 35.9 percent and 26.0 percent for youth and women, respectively.

In Kenya, the country case study indicates that the structure of employment in Kenya has changed gradually from formal wage work toward informal employment. The share of formal wage employment declined from over 70 percent in 1990 to less than 16 percent of total employment in 2018. Over the same period, the share of informal employment rose from less than 25 percent to nearly 84 percent. Despite policies to boost its growth, the industrial sector's contribution of GDP declined from 20.9 percent in 1980 to 16.2 percent in 2018. Services expanded from 44.7 percent to 62.3 percent of GDP over the same period, generating most wage jobs.

Moreover, this country case study identifies horticulture, tourism, and ICT-based services as among the most promising IWOSS sectors. Horticulture mainly includes three products—cut flowers, fruits, and vegetables—and is a major export. The horticulture sector accounted for at least 20 percent of the value of all annual exports between 2014 and 2018. Horticulture features a labor-intensive production process, solid backward and forward linkages with other sectors, and strong policy support from the government. This combination of factors makes it a particularly important subsector for the creation of wage jobs.

The country case study also shows that Kenya stands out in Africa as a country that has a rapidly expanding ICT-enabled services industry. The sector is an important source of growth, contributing 7.3 percent of growth in 2018. The ICT sector represents about 4.5 percent of wage employment in Kenya. ICT has significant linkages with other sectors and enjoys strong policy support from the government. Kenya Vision 2030, for example, envisages Kenya to “become the top Business Process Outsourcing (BPO) destination in Africa.”

In addition, Kenya's tourism industry has a contribution to GDP estimated at 5 to 12 percent. The sector is a significant employer. Wage jobs account for 5 percent of national wage employment, totaling about 2.9 million in 2019. In addition, with over 900,000 individuals self-employed in tourism-related sectors, tourism offers nearly 7 percent of informal jobs in Kenya.

Wage employment projections to 2030 indicate that tourism, horticulture, and ICT all have the potential to create jobs for youth. Among female youth, the most important wage employment sectors are export crops and horticulture, trade and repairs, and construction. However, if prevailing growth trends persist, the projections indicate widening sex disparities in wage employment. Male youth (15 to 24 years) are forecast to dominate sectors including manufacturing and construction. In ICT there will be nearly three times more males than females. Males in general also dominate manufacturing and agro-processing wage jobs.

Rwanda

The country case study of Rwanda also shows that the country has to create jobs at a rapid rate to absorb new workers entering the labor force. Indeed, the National Institute of Statistics estimates that, in the next 12 years, the working-age population will be one-third of total population, and the urban work force will increase by more than 80 percent.

As shown in the other case studies, Rwanda's process of structural transformation has also involved the movement of workers and capital into progressively higher-productivity activities, but in a pattern that has not followed the conventional path of agriculture to industry to services. Instead, structural transformation has involved growing employment in a host of activities that have manufacturing-like characteristics. These IWOSS tend to create jobs at a rate faster than agriculture, have higher productivity, be tradable, and exhibit rapid technological change. The extent of structural transformation has been impressive. As workers have moved out of subsistence agriculture into higher productivity activities, the economy has grown at rates of around 8 percent annually.

The case study reveals that, in Rwanda, IWOSS have accounted for a major share of employment increases since 2000. Growth in IWOSS sector exports has outpaced growth in non-IWOSS sectors with the strongest growth coming from tourism, horticulture, and agro-processing. These sectors, like manufacturing, display high average productivity, contribute a large portion of exports, and employ a relatively skilled labor force. IWOSS sectors in Rwanda are around twice as productive as the economy as a whole. High employment growth sectors are agro-processing, horticulture and export agriculture, business and financial services, tourism, and construction. These sectors employed only 5 percent of the population in 2000, but more than tripled in size to 16 percent by 2017.

IWOSS sectors in Rwanda have an employment elasticity of 1.26, significantly higher than the elasticity for the overall economy of 0.04 and around double that of manufacturing, which is around 0.56. In horticulture, agro-processing, tourism, and ICT, access to imported inputs at border prices has been critical to the international competitiveness. Public investment and government strategy have played important roles in the development of IWOSS sectors in Rwanda.

Senegal

In 2014, the Senegalese government launched the Emerging Senegal Plan (PSE). The PSE is built around three strategic areas: (i) structural transformation of the economy and growth; (ii) human capital, social protection, and sustainable development; and (iii) governance, institutions, peace, and security. The PSE is showing some signs of success: Senegal's economic growth averaged 6.6 percent per year between 2014 and 2019. Projections estimate that similar high economic growth will be observed in coming years, especially in view of the discovery of new oil and gas reserves (Mbaye et al., 2021).

Again, growth in Senegal, as in many other African countries, has been mainly jobless. Good jobs have failed to keep pace with the dynamics of labor supply. Job creation has been insufficient to absorb the increase in the economically active population, and the growing working-age population has been almost entirely absorbed into the informal sector in urban areas. However, youth unemployment declined from 14 percent in 2007 to 6 percent in 2016, and the difference between men's and women's unemployment rates declined from 6 percentage points in 2007 to almost zero in 2016.

Between 2010 and 2017, as the case study confirms, movement of labor from agriculture into manufacturing, historically a major employer of moderately skilled labor, was absent, and IWOSS sectors, including agro-processing, tourism, and horticulture, are absorbing a significant share of the labor released by the decline in agriculture. IWOSS have recorded both higher than average productivity growth and an increasing employment share. Horticulture and tourism have been doing well in terms of output growth. Between 1999 and 2019 horticulture increased its value added more than four times. Growth for tourism was 2.8 times. Overall, IWOSS sectors are doing better than manufacturing in generating jobs per unit of value added. In manufacturing, the employment elasticity with respect to value added is 0.88. It reaches 0.97 for horticulture and 0.96 for tourism. Projections indicate that IWOSS jobs will increase by more than 135 percent and will occupy 22 percent of those employed (Mbaye et al., 2021).

South Africa

South Africa has been in a long-run, low-growth trap since the onset of democratic rule in 1994. The result has been modest reductions in household poverty levels, coupled with high and rising inequality. The labor market is the primary driver of the rise in inequality. South Africa's unemployment rate and, more specifically, its youth unemployment rate—at 29 percent and 56 percent, respectively—are considerably higher than comparable upper-middle-income countries and have been on a clear upward trend since 2008.

In 2018, the national unemployment rate was 27.1 percent. If discouraged work seekers—defined as those who want work but are not actively seeking employment—are considered, a further 2.8 million

unemployed are added, resulting in an expanded unemployment rate of 35 percent. The situation is particularly dire for youth (aged 15 to 24 years). The narrow and expanded unemployment rates for youth are substantially higher than those of the overall population of 53.4 percent and 64 percent. Those with less than secondary schooling face the highest unemployment rates. However, degree-holders, both undergraduate and postgraduate, have generally experienced much lower unemployment rates, although unemployment among those with degrees has been increasing in recent years.

The case study further finds that South Africa is on a path of structural transformation driven by a shift toward IWOSS. The tertiary sector accounted for almost 75 percent of employment growth between 1980 and 2018. Manufacturing's share of GDP declined from 17.3 percent in 1980 to 13.5 percent in 2018. Agriculture accounted for only 2.6 percent of GDP in 2018. The financial and business services sector experienced the largest increase in GDP share over the period (a 9-percentage point increase). Shifts toward higher-productivity activities have been toward the financial and business services and transport sectors. These tertiary sectors have absorbed labor in the place of a declining manufacturing sector.

In fact, between 2010 and 2018, IWOSS sectors such as agro-processing, horticulture, tourism, and financial and business services, have become increasingly important contributors to employment. The increase in IWOSS employment accounted for about 72 percent of the change in employment over the period. Three sectors—financial and business services, tourism, and trade—accounted for three-quarters of the growth in employment. These trends suggest that there may be considerable employment growth potential in tourism, horticulture, commercial agriculture, and transit trade.

Furthermore, youth account for a larger share of employment in IWOSS and have higher growth rates of employment. Low-skilled employment accounts for just over a fifth of all employment in IWOSS sectors and is the fastest-growing occupational category of employment across IWOSS sectors. The IWOSS sectors most intensive in the employment of low-skilled workers are horticulture, commercial agriculture, and agro-processing—a finding that indicates that IWOSS sectors may be better placed than non-IWOSS sectors to provide jobs for the low-skilled unemployed in South Africa.

Uganda

Uganda has recorded solid economic growth over the last decade, as the annualized average growth rate was 5.4 percent. Despite this impressive growth, there has been limited creation of productive jobs. The population growth rate has consistently been higher than the number of jobs created, and, where jobs have been created, few young Ugandans—especially young women—have benefited from these opportunities. About 600,000 young Ugandans enter the job market each year. Annual employment growth is 3.4 percent for Uganda's working-age population, but only 2 percent for Uganda's youth. Ugandan youth are largely employed in low-value services (for example, petty trade or food vending). Therefore, many Ugandans experience “vulnerable employment,” working as own-account workers or family workers. Sixty-one percent of employed persons in the country are engaged in vulnerable employment with a higher share for female Ugandans (71 percent).

IWOSS exports contributed three-quarters to Uganda's total export volume in 2017, a share that increased by four percentage points from 2011. All IWOSS subsectors showed impressive growth rates over the period 2011-2017. Horticultural exports (e.g. fresh fruits, vegetables, cut flowers) grew fastest but the sector remains a relatively small contributor to the country's export basket. Coffee and tea, as well as export of agro-processed goods, showed very strong growth rates. In 2017, the two sectors combined contributed about a third to Uganda's total export earnings.

Furthermore, as the country study finds, IWOSS provided employment for 22.6 percent of Uganda's employed workers, an increase from 2013 of 1.3 percentage points. Among IWOSS sectors, agro-food

processing, horticulture and export crops, tourism, as well as transport and financial and business services, contributed to employment in more or less equal shares.

Thus, in Uganda, GDP growth in IWOSS is associated with more jobs than growth in manufacturing and non-IWOSS sectors: A 1 percentage point increase in GDP in an average IWOSS sector is associated with a 1.8 percent increase in employment, while for every 1 percentage point increase in GDP in non-IWOSS activities, employment rises by 0.2 percent. Cross-sectoral variations are substantial. Agro-food processing has a negative employment elasticity, tourism a positive elasticity of 1.5, and the employment elasticity in horticulture and export crops is negative and small. Transport, maintenance and repairs, and formal trade all show high employment elasticities.

2.2 Some crosscutting themes

Our country studies show both the potential of IWOSS and some of the constraints that tend to limit their growth. A number of crosscutting patterns emerge from the country cases. This section summarizes five themes—growing informality of employment, a decline in the role of industry, high relative productivity of IWOSS, rising unemployment among the young and women, and significant employment opportunities for youth and women.

Growing informality of employment

Across Africa, high fertility rates, improved health care, and increased educational attainment have led to a significant expansion in the working-age population. Labor demand, however, has failed to keep pace, resulting in growing informality of employment, especially in urban areas. In Ghana, for example, employment has transitioned from agriculture into services, which have been the leading employer since 2014, but many services are low-productivity, informal activities. Employment in the manufacturing sector is largely informal, increasing from about 80 percent in 2000 to 90 percent in 2018. In Senegal, the growing working-age population has been almost entirely absorbed into the informal sector in urban areas. Employment is mainly characterized by low wages, underemployment, and limited social protection.

The country study for Kenya, for example, shows that the structure of employment in Kenya has changed gradually from formal wage work toward informal employment. The share of formal wage employment declined from over 70 percent in 1990 to less than 16 percent of total employment in 2018. Over the same period, the share of informal employment rose from less than 25 percent to nearly 84 percent. Despite policies to boost its growth, the industrial sector's contribution of GDP declined from 20.9 percent in 1980 to 16.2 percent in 2018. Services expanded from 44.7 percent to 62.3 percent of GDP over the same period, generating most wage jobs.

In Uganda, the country study reaches a similar conclusion. Employment creation in formal sector activities has been slow, and a shift to informal sector activities—mainly in trade—is taking place. Informal trade accounted for about 43 percent of employment in the tertiary sector. Formal private sector employment contracted considerably between 2012/13 and 2016/17. While in 2012/13, total formal private employment provided around 200,000 jobs, by 2016/17, this number had fallen to 141,000. The tertiary sector in Uganda had both the highest employment share (49.8 percent) as well as the highest annual employment growth rate (6.6 percent), largely attributable to a high share of informal workers in trade. Many youth (15-24 years) are increasingly engaged in informal activities. While in 2012/13, formal trade provided 58,500 formal private sector jobs, by 2016/17, this number had decreased to 1,300.

Trends in employment in Africa by sector of industry in employment

Figure 2a shows that average employment shares in agriculture in sub-Saharan Africa have been consistently declining in recent decades from about 65 percent to just over 50 percent. Meanwhile, the share of industry has been relatively stagnant. In contrast, the share of employment in services

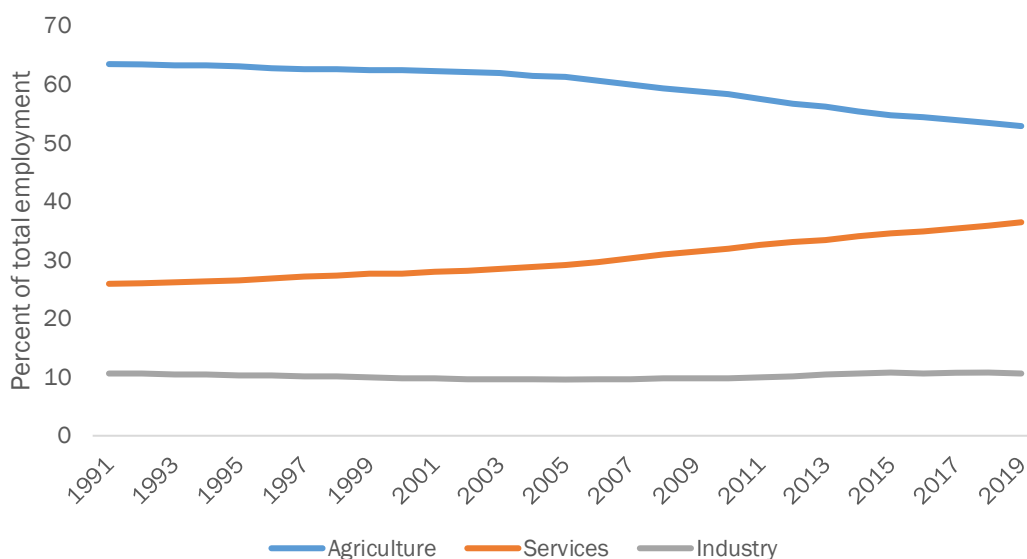
has risen from 25 percent to 35 percent. These patterns reinforce the puzzling observations that labor in Africa has been migrating from agriculture directly into services, bypassing the industrial sector. These trends also hold for the six country case studies (Figure 2b). Notably, the share of employment in services in the country case studies now exceeds that in agriculture and that of industry has been stagnant at around 12 percent.

In Kenya, for example, the country study concludes that, despite policies to boost its growth, the industrial sector's contribution of GDP declined from 20.9 percent in 1980 to 16.2 percent in 2018. Services expanded from 44.7 percent to 62.3 percent of GDP over the same period, generating most wage jobs.

In South Africa, the case study finds that manufacturing's share of GDP declined from 17.3 percent in 1980 to 13.5 percent in 2018. Similarly, Ugandan manufacturing has declined over the last decade both in terms of its contribution to GDP and employment. In Uganda, between 2011 and 2018, the average share of manufacturing in GDP was 9 percent, 2 percent lower than the average over 2000-2010.

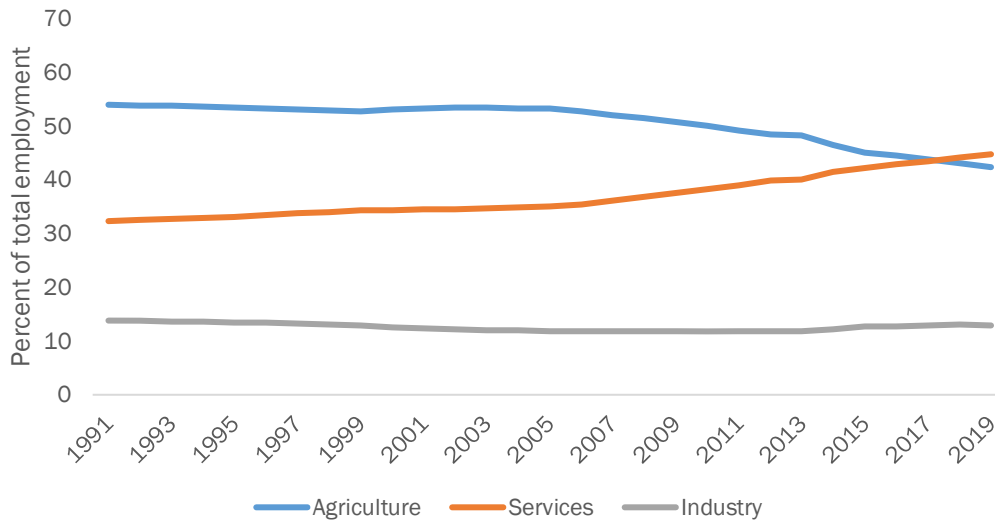
In Africa, there is heterogeneity in the services sector that has been expanding. Some sectors, notably informal trade, are non-tradable and have low productivity. In contrast, other services are tradable and have high productivity, including IWOSS sectors. Unfortunately, the labor migrating from agriculture has tended to find employment in low-productivity services. If IWOSS is supported to increase employment in IWOSS sectors, it will help accelerate productivity growth and overall economic development.

Figure 2a. Employment shares by sectoral grouping, sub-Saharan Africa



Source: World Development Indicators database (2021).

Figure 2b. Employment shares by sectoral grouping, case study average



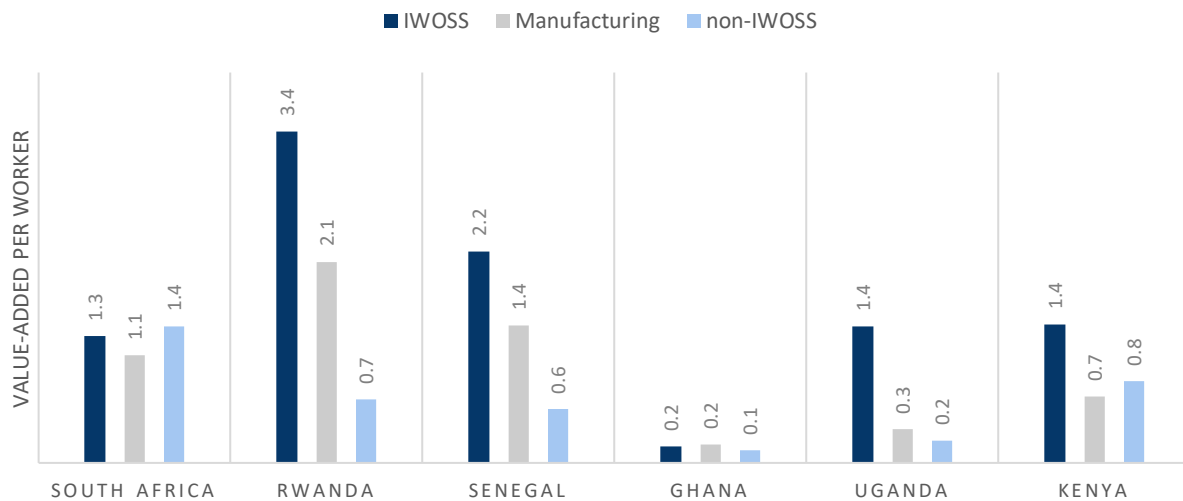
Note: The case study average is taken over the following six case study countries: Ghana, Kenya, Rwanda, Senegal, South Africa, and Uganda.

Source: World Development Indicators Database (2021).

IWOSS sectors have high productivity relative to the economy

In addition to being labor-intensive, IWOSS sectors tend to have higher labor productivity compared with other sectors. This characteristic is important because higher productivity is usually accompanied by higher wages absent any distortions in labor markets. As shown in Figure 3, in the majority of countries, labor productivity is higher in IWOSS than in other sectors. In 2017, for example, the labor productivity for IWOSS sectors in Rwanda was almost five times higher than that in non-IWOSS sectors and 60 percent higher than that of manufacturing.

Figure 3. Labor productivity by sectoral grouping



Note: Data represent value added per worker and are denominated in local currency except for Senegal, which is the ratio between sectoral productivity to average productivity.

Source: Data from country case studies.

The Ghanaian country case study similarly confirms that IWOSS sectors have higher output per worker than non-IWOSS sectors. The main IWOSS sectors driving this high productivity include construction, financial and insurance activities, and ICT. The major employment-intensive sectors—agro-processing and tourism—also have relatively high labor productivity.

In Rwanda, the country study finds that IWOSS sectors are around twice as productive as the economy. Similarly, in Uganda, IWOSS sectors have higher average labor productivity than manufacturing and non-IWOSS sectors. IWOSS's labor productivity is four times higher than manufacturing and six times higher than the average productivity for non-IWOSS activities. Formal trade, agro-processing, and ICT have higher labor productivity than any subsector in the non-IWOSS group.

Rising unemployment, especially among the young and women

Demographic trends throughout the continent have contributed to rising unemployment among the young and women. Despite relatively strong economic growth in the 20 years leading to 2019, countries faced significant labor market challenges in the form of unemployment, time-related underemployment, and inactivity.

Table 1 gives information on the composition of the labor force in the case study countries.

Moreover, as the country case studies reveal, these challenges are more severe for youth and women: Although overall unemployment of the working-age population (15 to 64 years) was estimated at 7.4 percent in 2015/16 in Kenya, for example, that of women was 9.6 percent, while youth (15 to 24 years) had an unemployment rate of 17.7 percent. Underemployment was estimated at 20.4 percent for the overall population and 35.9 percent and 26.0 percent for the youth and women, respectively. Similarly, South Africa needs jobs for those with lower levels of education. The situation is particularly dire for youth. The narrow and expanded unemployment rates for youth are substantially higher than those of the overall population at 53.4 percent and 64 percent, and those with less than secondary schooling face the highest unemployment rates. In Uganda, the overall annual employment growth rate is considerably lower for youth than for the working-age population (2 percent versus 3.4 percent). This trend is largely driven by a decrease in the importance of the manufacturing sector in providing jobs.

Table 1. Labor force characteristics in selected countries (%)

| Country | Share of youth in labor force | | Women's labor force participation rate | |
|--------------|-------------------------------|------|--|------|
| | 2010 | 2018 | 2010 | 2018 |
| South Africa | 15.1 | 10.9 | 44.6 | 48.4 |
| Rwanda | 29.8 | 25.0 | 84.1 | 83.9 |
| Senegal | 26.1 | 21.3 | 34.3 | 35.0 |
| Ghana | 20.4 | 19.0 | 66.9 | 63.8 |
| Uganda | 31.0 | 28.9 | 66.1 | 66.9 |
| Kenya | 22.1 | 20.0 | 66.4 | 71.9 |
| Average | 24.1 | 20.8 | 60.4 | 61.6 |
| Median | 24.1 | 20.7 | 66.2 | 65.3 |

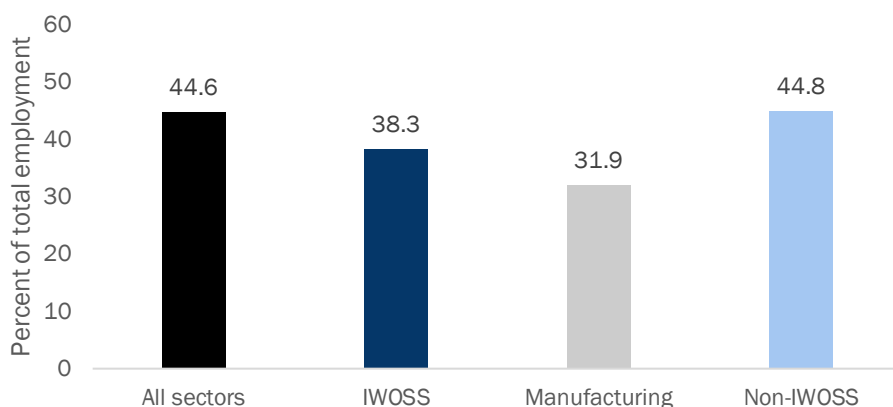
Source: Women's labor force participation data comes from the World Development Indicators. The share of youth in the labor force is calculated using data from the International Labor Organization.

IWOSS sectors offer significant opportunities to employ women and the young

The case studies show that IWOSS sectors—horticulture and high value agribusiness, tourism, IT-enabled business services, and transport and logistics—offer a mix of skilled and unskilled job opportunities appropriate to youth and women.

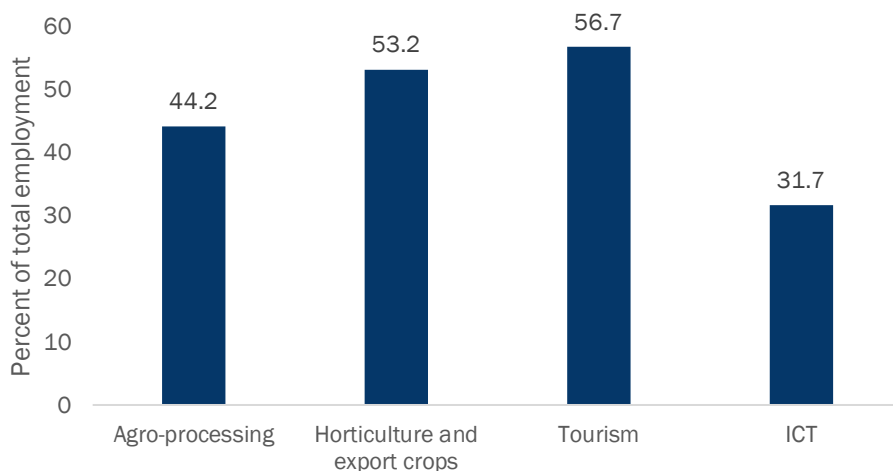
As shown in Figures 4a and 4b, IWOSS employs more women than manufacturing and most IWOSS subsectors employ more women than other sectors in the economy. The ICT subsector of IWOSS, however, has a relatively lower percentage of women. This finding likely reflects lack of training for women in digital skills. Future policy interventions to support IWOSS sectors should also focus on digital skills training and development for young girls and women to make them more employable overall.

Figure 4a. Share of female employment by sectoral grouping



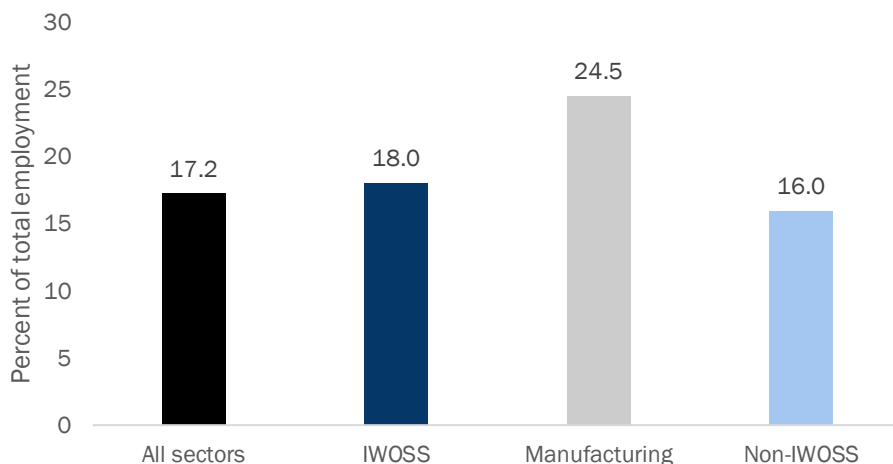
Note: Data points are unweighted averages of data from four case studies: Uganda, Rwanda, South Africa, and Kenya. Manufacturing data are based on three case studies: Uganda, Rwanda, and Kenya.
Source: Data from country case studies.

Figure 4b. Share of female employment by IWOSS sector



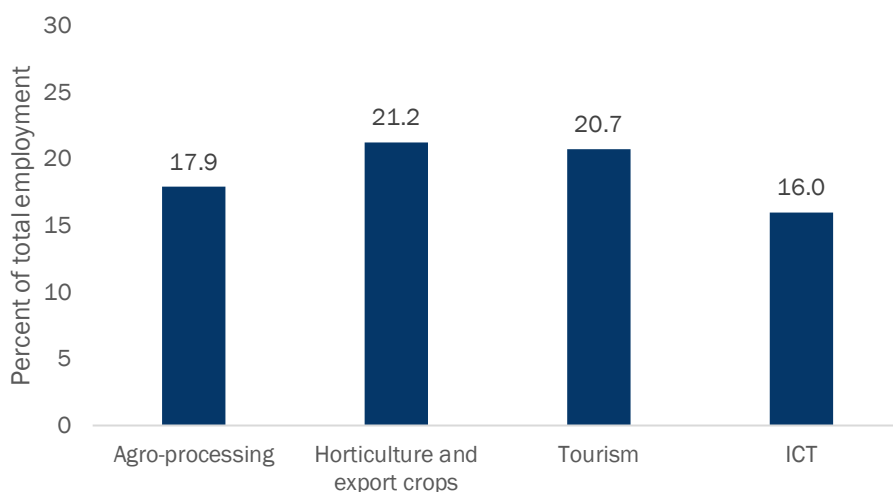
Note: Data points are unweighted averages of data from four case studies: Uganda, Rwanda, South Africa, and Kenya.
Source: Data from country case studies.

Similarly, as shown in Figures 4c and 4d, the IWOSS sectors—particularly agro-processing, horticulture, and tourism—employ a relatively higher share of young workers compared with non-IWOSS sectors. For ICT the share of young people is relatively low compared with other IWOSS sectors. Training for young people in digital skills should facilitate a greater employability in ICT-related work.

Figure 4c. Share of youth employment by sectoral grouping

Note: Data points are unweighted averages of data from three case studies: Uganda, South Africa, and Kenya. Manufacturing data are based on two case studies: Uganda, and Kenya.

Source: Data from country case studies.

Figure 4d. Share of youth employment by IWOSS sector

Note: Data points are unweighted averages of data from three case studies: Uganda, South Africa, and Kenya.

Source: Data from country case studies.

As governments turn increasingly to IWOSS sectors to push the pace of structural change, a number of countries have undertaken projects that have a positive impact on women's employment in sectors such as tourism. In Ghana, the proposed Tourism Development Project will target women-owned small and medium-sized enterprises (SMEs) in the tourism sector by providing SME business development services. Direct jobs in the tourism sector are expected to rise from 305,628 in 2019 to 380,000 in 2030 and 419,562 by 2035. The indirect jobs supported by the tourism industry and related sectors will increase from 764,000 in 2019 to 895,000 in 2027.

In its employment projections to 2030, the Kenya case study finds that the sector with the highest potential to create wage jobs for youth is trade and repairs. Other sectors with potential are tourism, horticulture, and ICT. Among female youth, the most important wage employment sectors are export crops and horticulture, trade and repairs, and construction. In Senegal, IWOSS sectors are doing better

than manufacturing in generating jobs per unit of value added. The employment elasticity with respect to value added in manufacturing is 0.88. It reaches 0.97 for horticulture, and 0.96 for tourism as noted earlier. Horticulture and tourism have been doing well, in terms of output growth. Between 1999 and 2019 horticulture increased its value added more than four times, and tourism, 2.8 times.

In South Africa, increases in IWOSS employment accounted for about 72 percent of the change in employment over the period between 2010 and 2018. More specifically, the case study finds that three sectors—financial and business services, tourism, and trade—accounted for three-quarters of the growth in employment. Youth represent a large share of employment in IWOSS. In 2018, 15- to 24-year-olds accounted for 8.9 percent of employment in IWOSS sectors. The share of 25- to 34-year-olds in employment was also higher in IWOSS sectors (33.9 percent). In South Africa, IWOSS employment is more female-intensive than non-IWOSS employment. Nearly 42 percent of employment in IWOSS was accounted for by women in 2018. Tourism, trade, and agro-processing are the IWOSS sectors most intensive in employing women. Four IWOSS sectors—tourism (47.9 percent), trade (45.3 percent), agro-processing (45.1 percent), and ICT (43.5 percent)—have a share of female employment that is higher than the IWOSS average. Two sectors have a share of female employment that is particularly low—commercial agriculture (18.3 percent) and transit trade (21.5 percent).

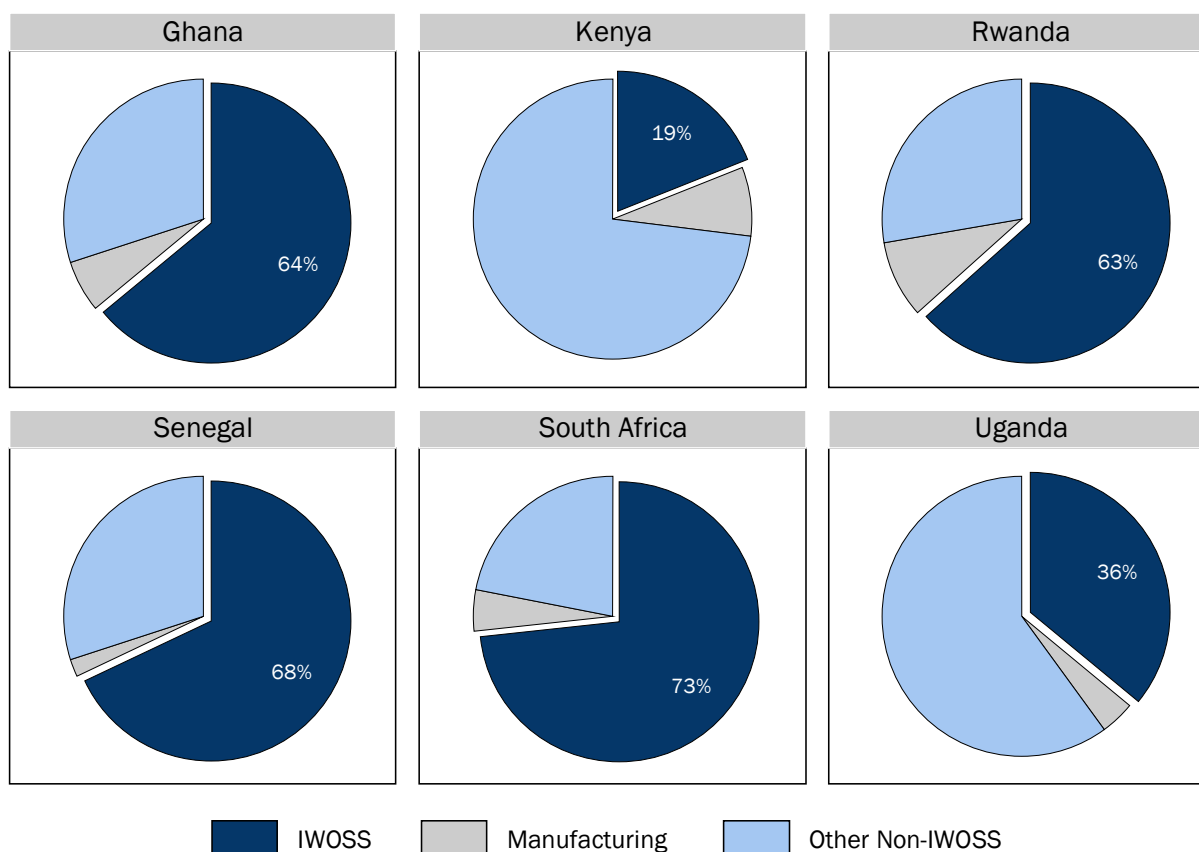
Similarly, the Rwanda case study indicates that IWOSS have accounted for a major share of employment increases since 2000, creating jobs for women and young people. IWOSS sectors have an employment elasticity of 1.26, significantly higher than the elasticity for the overall economy of 0.04 and about double that of manufacturing (0.56). High productivity export crops and horticulture, agro-industry, tourism, and ICT are particularly dynamic. As labor is released from agriculture, high-productivity export crops and horticulture, agro-industry, tourism, and ICT will become important sources of jobs for women entering the labor market. However, the emergence of these sectors will require new technologies and more skilled workers.

In Uganda, the case study shows that IWOSS sectors represented 74.6 percent of all private formal jobs for Uganda's youth. Women and youth (18-30 years) constitute the highest proportion of those employed in the tourism sector, which offers a range of low- and medium-skilled jobs. In tourism, about 77 percent of all workers were female. In 2012/13 and in 2016/17, the share of female workers in IWOSS was 44.4 percent, compared to 38.2 percent for the working-age population. If those aged 15-24 years and 25-34 years are grouped together, they account for almost 60 percent of employment in IWOSS sectors in Uganda.

3. IWOSS sectors offer the greatest potential for youth employment

The results of the country studies suggest that, while IWOSS sectors create more jobs, the types of jobs created in each of the four IWOSS sectors—agribusiness and horticulture, tourism, IT-enabled services, and transport and logistics—are varied and may cater to different segments of the unemployed youth population. While the tourism and horticulture industries seem to provide the most scope for absorbing low-skilled individuals, the agribusiness/horticulture and logistics industries appear to offer higher-skilled individuals prospects for increased employment. One important finding of the country studies is that all four IWOSS sectors are growing, often more rapidly than the economy as a whole—meaning that, on the demand side of the labor market, opportunities exist in IWOSS for both youth and women to find productive jobs.

As shown in Figure 5, our projections indicate that over the next decade or so, IWOSS will create 60 percent or more of all new jobs in the majority of the case study countries.

Figure 5. Projected share of new jobs created by 2035 by sectoral grouping

Note: Data are projections that come from the case studies from Ghana, Kenya, Rwanda, Senegal, and South Africa. The period covered varies by case study. Ghana is 2017-2035; Kenya is 2018-2030; Rwanda is 2017-2035; Senegal is 2017-2035; South Africa is 2019-2028; and Uganda is 2017-2030.

Source: Data from country case studies.

Agribusiness and horticulture

Lower transport and communication costs have created new opportunities for developing countries in the global market for processed agricultural products and horticulture (Fukase and Martin, 2018). In both agro-industry and horticulture, value chains increasingly dominate the global market. Firms in agro-industrial value chains require a range of capabilities in common with manufacturing, including the abilities to manage the volume, regularity, and continuity of production; improve product quality and safety; reduce the time needed to reach the customer; and understand changing markets (UNIDO, 2009a).

Once efficient logistics are in place, countries with suitable agro-ecological conditions can produce high-value products, such as cut flowers and fresh vegetables, that were previously consumed near their point of production. Cultivation of fruit and vegetables is substantially more labor-intensive than growing cereal crops and offers more post-harvest opportunities to add value (World Bank, 2005). Today, many developing countries perform activities that previously were carried out in developed economies. Packing and processing services—such as washing, chopping, and mixing as well as bagging, branding, and applying bar codes—now often take place at the source rather than at the end-market destination. As firms succeed in entering global value chains for agribusiness and horticulture, employment opportunities for young people and women will increase.

The Rwanda case study finds that, over the past decade, there has been a steady increase in export agriculture and horticulture in Rwanda. Tea and coffee still dominate the export sector, although other traditional exports have been increasing as a share of export revenues. Between 2013 and 2018, export revenues from agricultural crops more than doubled from around \$225 million to \$516 million. Export revenues from horticulture have doubled from around \$10 million in 2013/2014 to \$23 million in 2017/2018. Regional markets account for a large share of export crops and low-value horticulture, while the European Union and Asia have offered a growing market for high-value horticulture like flowers and chiles. Export agriculture and horticulture employed about 140,000 workers in 2017. Both IWOSS sectors are likely to employ many new workers over the next decade, perhaps growing threefold by 2035 (Fukase and Martin, 2018). Horticulture is a prime candidate for growth. The wet and cool climate in the high-altitude north and west of Rwanda are suitable for temperate fruits, big-headed roses, and herbs, while avocados, beans, chiles, and Asian vegetables thrive well in the sunny and warm south and east. Limited land for expansion and inadequate knowledge of proper crop cultivation, fertilizer use, pest management, post-harvest handling, and export procedures limit the growth of the sector.

The horticultural industry in Senegal has demonstrated strong dynamism in the last 10 years. According to the case study, national production increased from 860,000 tons in 2011 to 1,320,399 tons in 2017, and exports grew eight times from 2004 to 2017. About 20 major exporters dominate the industry, seven of which account for 75 percent of total exports. In manufacturing, the employment elasticity with respect to value added is 0.88; it reaches 0.97 for horticulture. However, horticulture in Senegal is a relatively skill-intensive sector. Horticulture seems particularly well placed in generating the numbers and types of jobs required to address youth unemployment in South Africa. Formal private employment in horticulture increased 36.2 percent between 2010 and 2018, offering many job opportunities for low-skilled youth. Moreover, the case study's authors emphasize that horticulture's potential to generate employment—especially for women and the young—has attracted the interest of policymakers.

In Uganda, about 64 firms are involved in exporting fresh fruits and vegetables. As indicated in the case study, the top three occupations employing youth in horticulture are plant and machine operators and assemblers; skilled agricultural, forestry and fishery workers; and technicians and associate professionals. Most of the youth employed as plant and machine operators and assemblers are male and the majority of them have completed secondary education. Because new government regulations will require horticulture firms to engage in own-production, new occupations expected in the horticulture industry include IT personnel, quality controllers, agronomists, and irrigation specialists. The skilled agricultural, forestry, and fishery workers category is biased toward female workers, most of whom have no formal education.

Tourism

Tourism is an important driver of economic growth around the world. In 2014, the industry provided an estimated 277 million jobs and accounted for about 9.8 percent of global GDP (Daly and Gereffi, 2018). From a base of just 6.7 million visitors in 1990, sub-Saharan Africa attracted 33.1 million visitors in 2011 (UNWTO 2012).

Kenya's tourism sector contributes about 10 percent to GDP. Its contribution to employment was about 1 million jobs, accounting for 9.2 percent of total employment, including informal jobs. The tourism value chain includes services related to accommodation, food and beverages, and travel organizations. Kenya has strengths that can be harnessed to promote further development of the sector, including its coastal location, its cultural variety, and diverse wildlife. Kenya's tourism has one of the highest employment-output elasticities for its IWOSS. In addition, it indirectly benefits the domestic economy by contributing to the development of other sectors through food supply to hotels, construction, communications, and utilities. The demand for these services, some of which are labor-intensive, creates employment opportunities for semiskilled people in both urban and rural areas.

In Rwanda, the case study indicates that tourism has been the single most important source of foreign inflows since 1999, exceeding the combined traditional exports of coffee, tea, and unprocessed minerals. Tourism employs more than 3 percent of the labor force. Its workforce is relatively skilled, but the industry has also created jobs for low-skilled workers. In 2018, tourism generated over \$400 million in revenue. Foreign and domestic investment in the sector has been substantial in the last 10 years, which has led to a diversification away from gorilla-based tourism, toward a new strategy based on promoting meetings, incentives, conferences, and exhibitions (MICE).

In Senegal, the country study finds that the tourism sector is currently struggling to live up to its potential, and revenues from tourism have decreased considerably in recent years. This trend is disappointing in view of the fact that the sector has substantial potential to employ women and youth. Indeed, the case study finds that tourism outpaces manufacturing in generating jobs per unit of value-added. In manufacturing, the employment elasticity with respect to value added is 0.88. It is 0.96 for tourism. The sector is, however, relatively skill intensive. Receptionists and cooks have the highest skill scores among occupations held by younger people. On the other hand, increases in the number of maids offer the potential for increasing lower-skilled employment.

Tourism is also important in South Africa. In fact, 10 million tourists visited South Africa in 2017—by far the most in sub-Saharan Africa. In 2018, there were an estimated 849,000 formal private sector jobs in tourism in the country, representing 5 percent of total employment. Tourism offers opportunities to employ low-skilled youth. The three most common occupations identified by firms as relevant to youth were cooks, waitrons, and front office staff. These occupations comprise the majority of tourism firms' current workforce. Firm surveys confirm that tourism has strong potential to employ lower-skilled youth.

Similarly, in Uganda, the country study shows that tourism firms employ a higher share of youth in their total work force (47.5 percent) than other IWOSS sectors (horticulture at 39.3 percent and agro-processing at 43.7 percent). The top three occupations in which youth are engaged are lower-skilled occupations, such as service and sales workers, technicians, and associate professionals. Hoteliers surveyed for the country study reported that housekeepers/baristas, concierges, and IT specialists with digital skills were the three main new occupations they expected to be created.

ICT-enabled services

Second-generation information and communications technology (ICT) will enable a far larger number of developing countries to enter service export markets, perhaps moving beyond the traditional business process outsourcing (BPO) model (Frishtak, 2018). BPO is the contracting of a specific business task to a third-party service provider. The most common examples are call centers and human resources, accounting, and payroll outsourcing. Internet-enabled offshoring is an important source of jobs in developing countries, especially for women. These jobs are often in call centers and bookkeeping and may include tasks requiring higher skills and judgment.

Developing countries generally enter the global call center market by attracting foreign direct investment (FDI). Kenya stands out as an example: The country has a rapidly expanding ICT services industry, due to high mobile phone and internet penetration, and a youthful and relatively well-educated population. These attributes—together with infrastructure development and a strategic position within the East African market—make Kenya an attractive destination for technology investments. In recent years, Kenya has become a hub for multinational tech firms, including Google's sub-Saharan African office and IBM's first African Research Lab. Importantly, the Kenya country study indicates that, although ICT contributed less than 1.6 percent to GDP between 2014 and 2019, it accounted for 4.4 percent to 4.7 percent of wage employment. Kenya was also an early entrant into BPO. Currently there are 50 BPO firms in Kenya, providing services such as data processing, digitization, transcription, and call centers. A growing number of firms offer higher-end services such

as software development, programming, research and development, and financial and accounting services.

In Rwanda, the country study indicates that the government's high-growth scenario projects employment in ICT to rise to around 100,000 workers by 2035. Mobile phone ownership stood at around 67 percent of the population in 2017. Mobile money users increased from about 200,000 in 2010 to over 4 million in 2019. In 2017, employment in telephony, mobile money, telecommunications equipment, and computers comprised some 12,000 workers, a relatively small share of the total labor force. These numbers do not, however, include many relatively low-skilled workers acting as vendors to mobile money providers.

Transport and logistics

“Transport and logistics” is the network of services that support the physical movement of goods. The industry comprises an array of activities beyond transportation, including warehousing and storage, terminal operations in ports and airports, express delivery, customs brokerage, and data and information management. Trucking companies in Africa range from modern, professionally organized fleets operating between 10 and several hundred trucks to informal contractors operating one to three vehicles. The trucking industry is undergoing a period of rapid technological change. GPS technology and information services are being used by road transport companies to achieve leaner operations, improvements in network efficiency, and increases in capacity utilization.

Logistics is growing more complex. In response, the industry is undergoing a period of rapid organizational, product, and process changes. Leading firms standardize processes as much as possible to reduce costs and seek to integrate their product offering into the full length of their customers' supply chains. Large logistics providers benefit from economies of scale, and market leaders grow by acquiring smaller players—achieving scale through consolidation. Four factors—customer focus, time management, integration, and information—determine perceived quality. A key metric in the logistics industry is efficiency—the speed at which goods can be delivered to the customer. For example, in horticulture, timely delivery of fruits and vegetables for export is a measure of efficiency.

In South Africa, the logistics sector experienced robust employment growth between 2010 and 2018. Formal private employment increased by 31.3 percent. Job opportunities for low-skilled youth will be limited, but for youth who obtain the education required, there are multiple job opportunities along the logistics value chain. More specifically, the case study team found that South African logistics companies are well placed to expand into Africa, as the country has the most developed logistics sector in the region and is well endowed with trade facilitation and transport infrastructure.

4. Do young people have the skills needed for IWOSS?

Growth in IWOSS employment has two different implications for skill requirements. As our country studies indicate, where IWOSS grow in sectors that favor low-skilled employment, there is less need for formal skills development. However, where there is growth of IWOSS that offer opportunities for low-skilled employment *and* for medium- and high-skilled employment, there will be a need to develop and train youth to be able to take up higher-skilled occupations.

A demand-led approach to the attainment of qualifications, through collaboration between employers and postsecondary educational institutions, can be most effective in addressing skill gaps. Employers can provide input regarding their skill requirements in order for youth to obtain skills that are valued in the labor market. Businesses must be consulted on a regular basis because skill requirements differ across sectors.

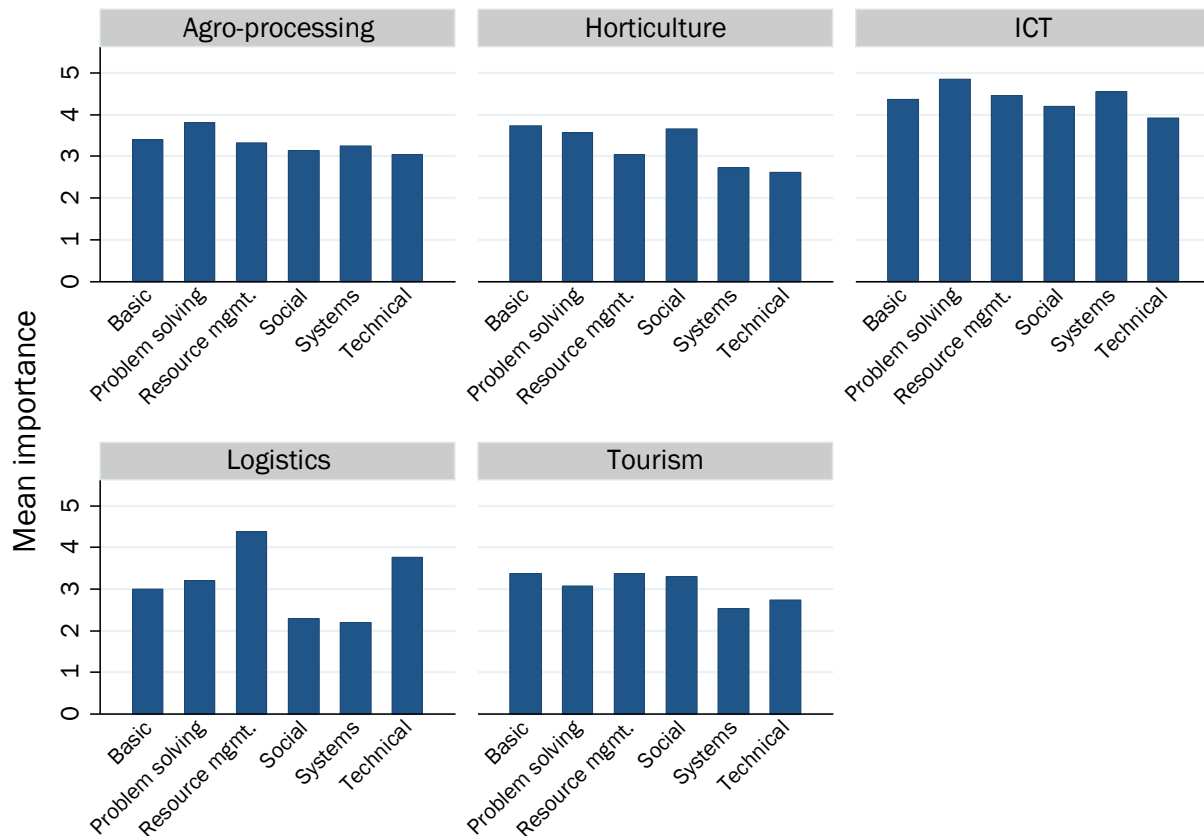
Table 2. Skills framework used in firm-level surveys

| | Skill | Definition |
|-----------------------------------|--|---|
| Basic skills | Active learning | Understanding the implications of new information for both current and future problem-solving and decisionmaking. |
| | Active listening | Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. |
| | Critical thinking | Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems. |
| | Learning strategies | Selecting and using training/instructional methods and procedures appropriate for the situation when learning or teaching new things |
| | Mathematics | Using mathematics to solve problems. |
| | Monitoring | Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective action. |
| | Reading comprehension | Understanding written sentences and paragraphs in work-related documents. |
| | Science | Using scientific rules and methods to solve problems. |
| | Speaking | Talking to others to convey information effectively. |
| | Writing | Communicating effectively in writing as appropriate for the needs of the audience. |
| Social skills | Coordination | Adjusting actions in relation to others' actions. |
| | Instructing | Teaching others how to do something. |
| | Negotiation | Bringing others together and trying to reconcile differences. |
| | Persuasion | Persuading others to change their minds or behavior |
| | Service orientation | Actively looking for ways to help people. |
| | Social perceptiveness | Being aware of others' reactions and understanding why they react as they do. |
| Problem-solving skills | Complex problem-solving | Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. |
| Technical skills | Equipment maintenance | Performing routine maintenance on equipment and determining when and what kind of maintenance is needed. |
| | Equipment selection | Determining the kind of tools and equipment needed to do a job. |
| | Installation | Installing equipment, machines, wiring, or programs to meet specifications. |
| | Operation and control | Controlling operations of equipment or systems. |
| | Operation monitoring | Watching gauges, dials, or other indicators to make sure a machine is working properly. |
| | Operations analysis | Analyzing needs and product requirements to create a design. |
| | Programming | Writing computer programs for various purposes. |
| | Quality control analysis | Conducting tests/inspections of products, services, or processes to evaluate quality or performance. |
| | Repairing | Repairing machines or systems using the needed tools. |
| | Technology design | Generating or adapting equipment and technology to serve user needs. |
| Troubleshooting | Determining causes of operating errors and deciding what to do about it. | |
| Systems skills | Judgment and decisionmaking | Considering the relative costs/benefits of potential actions to choose the most appropriate one. |
| | Systems analysis | Determining how a system should work and how changes in conditions, operations, and the environment will affect outcomes. |
| | Systems evaluation | Identifying measures or indicators of system performance and the actions needed to improve or correct performance, relative to the goals of the system. |
| Resource management skills | Management of financial resources | Determining how money will be spent to get the work done, and accounting for these expenditures. |
| | Management of material resources | Obtaining and seeing to the appropriate use of equipment, facilities, and materials needed to do certain work. |
| | Management of personnel resources | Motivating, developing, and directing people as they work, identifying the best people for the job. |
| | Time management | Managing one's own time and the time of others. |

Source: Development Policy Research Unit's firm-level survey instrument in the South Africa case study.

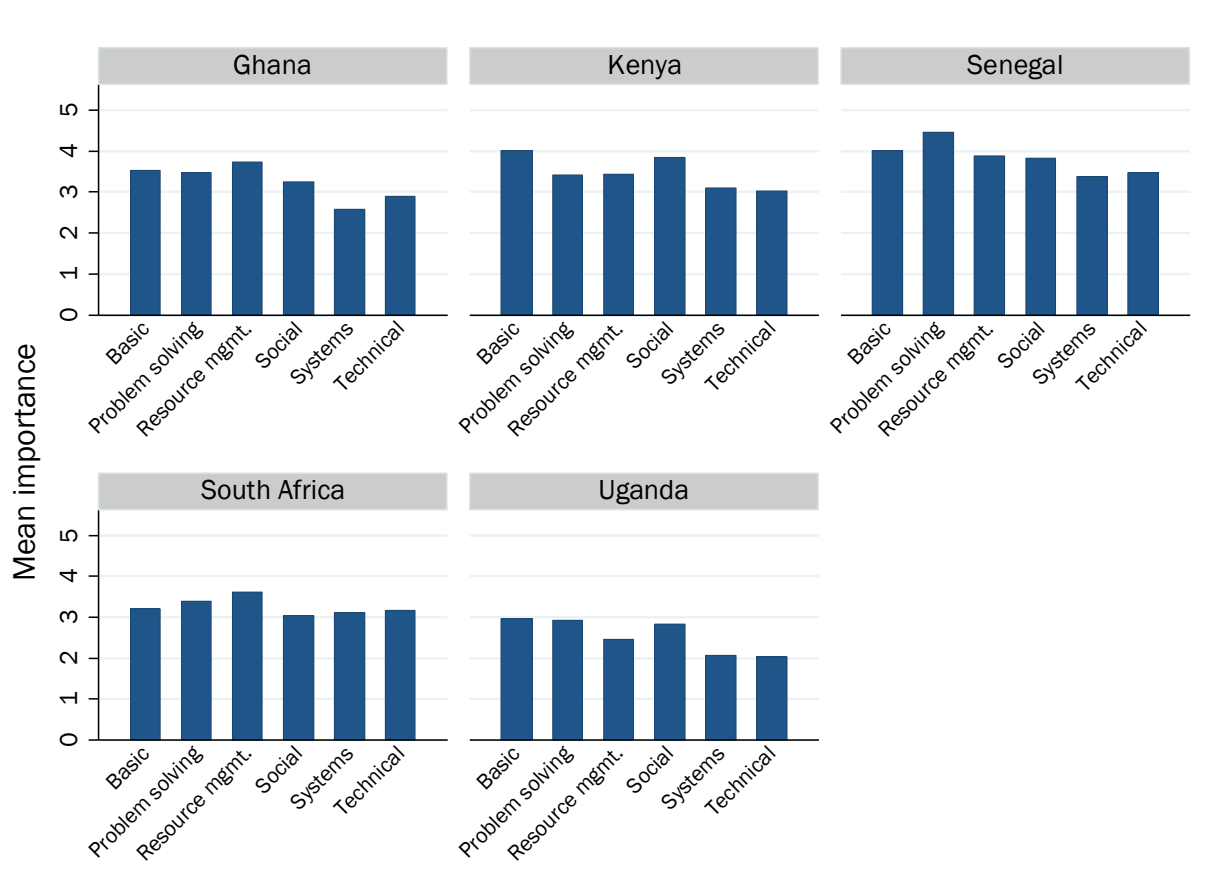
To assess the skills requirements and skills gap in IWOSS sectors, the case study teams conducted firm-level surveys on the importance of various skills needed to be employable and productive in IWOSS sectors. A score of “1” indicates that the skill is “not important” to be employable in IWOSS while “5” indicates that the skill is “very important.” Figure 6a summarizes the data collected and shows the average score per sector across all six countries. Overall, countries indicate high importance across all six skills: basic, problem-solving, resource management, social, systems, and technical. The only exceptions were social and system skills in the logistics sector. Importantly, ICT sector stands out as the sector in which the skills requirements are quite high.

Figure 6a. Skill group importance by IWOSS sector



Source: Data come from firm-level surveys in five countries: Ghana, Kenya, Senegal, South Africa, and Uganda using a common survey instrument with slight variations according to country context. Because firm sampling was nonrandom, results may not be representative of the industries as a whole.

Figure 6b shows the importance of the skills by countries. Overall, the importance of the skills is uniform across countries although there are some differences. For example, Uganda scores relatively low on the importance of systems and technical skills, whereas Senegal scores the highest on the importance of problem-solving skills.

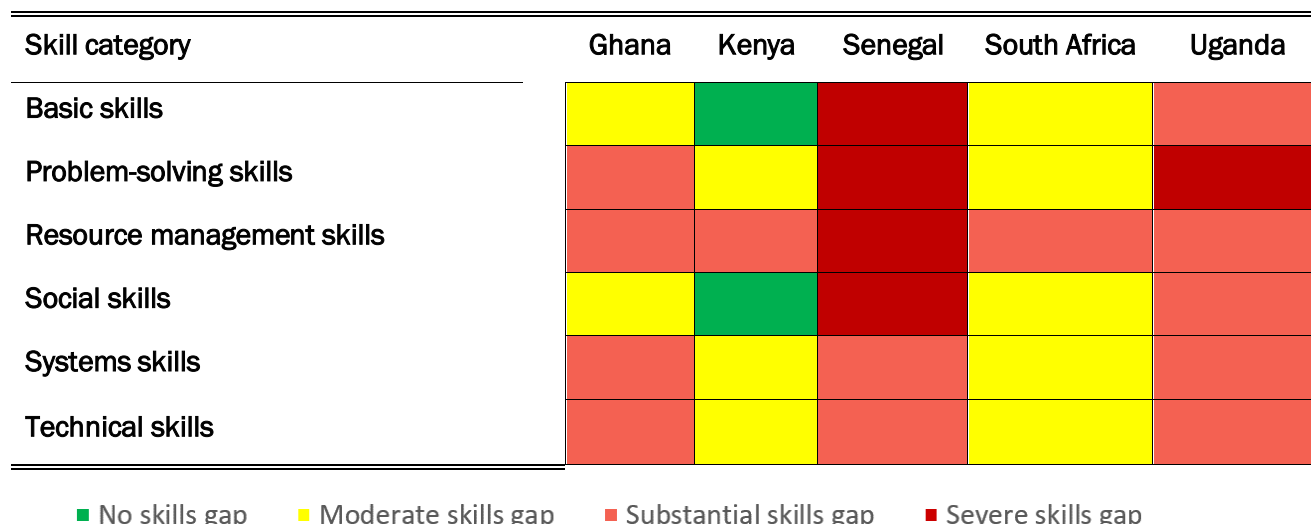
Figure 6b. Skill group importance by case study country

Source: Data come from firm-level surveys in five countries: Ghana, Kenya, Senegal, South Africa, and Uganda using a common survey instrument with slight variations according to country context. Because firm sampling was nonrandom, results may not be representative of the industries as a whole.

While an understanding of the importance of the skills is important, it does not indicate whether the skills are in deficit or that there are skill gaps. As part of the study, we also collected data on the available skills compared to the skills required. The color green on the heat map (Figures 7a and 7b) below indicates no skills gap, yellow indicates a moderate gap, orange indicates substantial skills gap, and dark red indicates severe skills gap. As shown in Figure 7a, there are skill shortages in IWOSS across the skills categories and for most countries. Kenya stands out as having adequate basic and social skills. Figure 7b shows the skill shortages are prevalent across most IWOSS sectors but with some variations. In the ICT and logistics sectors, the skills shortage is less severe in the majority of the skill categories.

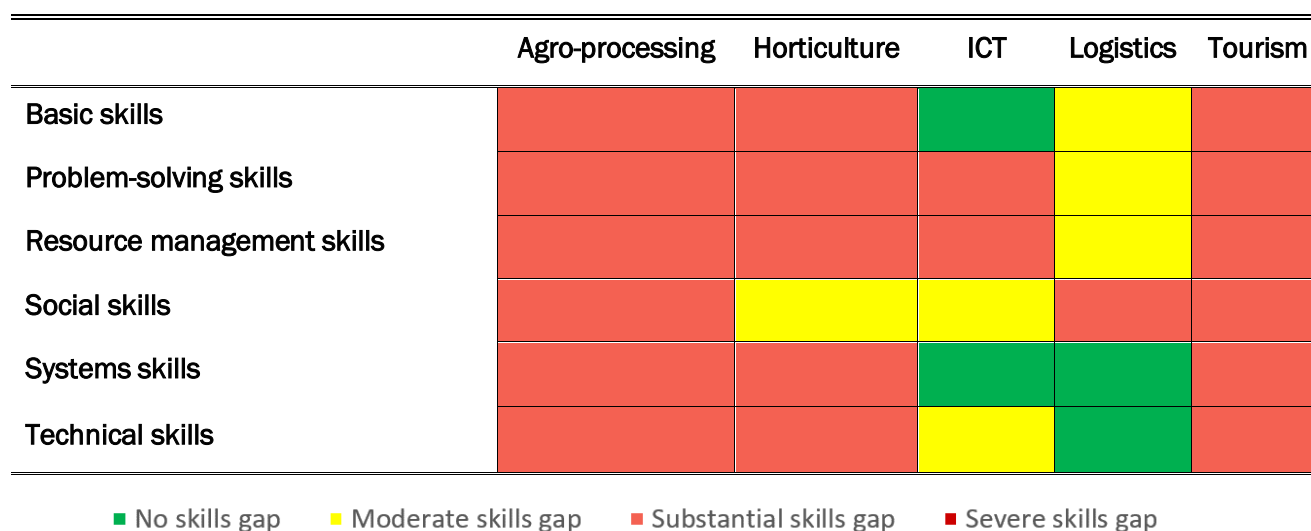
The surveys confirmed that soft skill gaps exist across different sectors and occupations, and youth, including those who are employed, often lack both formal qualifications and soft skills. To address the lack of soft skills, it is important for employers to develop mentorship and training programs. Mentors can teach life skills to young people and highlight areas of strength and for improvement. Moreover, mentors are usually people who hold more senior positions at a company and therefore, help new trainees to understand the skills required to reach such a position. These programs are also a way to teach the specific skills required in a sector.

Figure 7a. Skill gap by skill category and country



Source: Data come from firm-level surveys in five countries: Ghana, Kenya, Senegal, South Africa, and Uganda using a common survey instrument with slight variations according to country context. Because firm sampling was nonrandom, results may not be representative of the industries as a whole.

Figure 7b. Skill gap by skill category and sector



Source: Data come from firm-level surveys in five countries: Ghana, Kenya, Senegal, South Africa, and Uganda using a common survey instrument with slight variations according to country context. Because firm sampling was nonrandom, results may not be representative of the industries as a whole.

IWOSS in Kenya faces a mismatch between skills demanded and skills available in the labor market, partly attributable to weak linkages between education and industry. For example, the Kenya case study reveals that ICT firms consider a lack of skills to be one of the factors limiting the growth of business process outsourcing. This skills mismatch is evident in the high weight assigned to problem-solving skills in the ICT sector. Although the government has attempted to position the country as a leading BPO destination, this ambition is not matched by human resources with advanced skills in ICT.

Also, in Kenya, agro-processing and horticulture are the IWOSS sectors with the largest share of low-skilled employment at 76 percent and 66 percent. In agro-industry and horticulture, inadequate skill levels, especially among small-scale producers, result in a large share of substandard outputs. The surveys also revealed skills gaps in appropriately trained and qualified personnel in the tourism sector. About 20 percent of hotels and restaurants indicated that skilled manpower was a major or very severe obstacle to growing their business. At least 5,000 new graduates with tourism qualifications are needed annually compared to only 3,000 produced. In an industry based on social interactions between clients and service providers, it is unsurprising to find skills deficits in the tourism sector. The tourism sector faces a lack of specialized training institutions—especially for the high-level skills that are crucial for the sector. Notably, the surveys reveal that some of the most-needed skills are customer service; decisionmaking and problem-solving; food technology; information technology; leadership; oral, written, and interpersonal communication; and time management. Tourism is also limited by exclusion of local micro, small, and medium enterprises (MSMEs) from its value chain.

In Rwanda, the country study finds that about 26 percent of workers in IWOSS sectors are either high-skilled or medium-skilled workers, with financial and business services and ICT sectors being the most skill-intensive. IWOSS sectors with the highest share of low-skilled workers are formal trade, export crops, horticulture, and maintenance and repairs. It also finds that adequate knowledge of proper crop cultivation, fertilizer use, pest management, and post-harvest handling, limit the growth of the horticulture sector. Other challenges to horticulture include gaps in the knowledge and skill required to cultivate high-yield varieties, and inadequate quality management. The Rwandan government approved a project to upskill 30,000 youth for careers in the tourism and hospitality sector in 2018. Major initiatives under the program include support for technical and vocational education and training institutions offering tourism-related courses or short courses on improving service delivery for hotel staff.

Ghana's National Tourism Development Plan identifies the poor quality of tourism services as a major complaint by both domestic and foreign tourists. The case study reinforces this finding: Except for the higher star-rated hotels, most hotels and tourist sites lack skilled personnel. Currently, there is no clear national policy framework for tourism training and development. The large informal sector of the tourism industry has been similarly neglected. Failure to make use of IT infrastructure is a constraint on the development of the tourism sector.

Senegal faces significant occupational skills gaps in three IWOSS sectors—horticulture, tourism, and agribusiness. The lack of skills is most acute in tourism, followed by horticulture and agribusiness. In South Africa, despite low formal qualification requirements for many of the jobs done by youth, high deficit scores in key skill groups—such as basic, social, and resource management skills—suggest that finding youth to fill the jobs created by IWOSS may be challenging. A skill deficit that appeared across all IWOSS industries within Senegal was that of basic skills—skills that should be developed in the early stages of formal education. Respondees also noted that common soft skill deficits limit the employability of youth. Firms surveyed indicated an increasing reliance on digital skills for the majority of their occupations.

In Uganda, the share of workers employed in IWOSS that had completed “some secondary education” and above, stood at 47.6 percent, compared to 38.8 percent for manufacturing. Notably, among IWOSS, finance and business services and ICT have by far the highest shares of high-skilled and skilled employment. The share of skilled employment is also high in tourism where employability depends on the capacity to interact with demanding international customers. The Uganda case study team's surveys also revealed a number of skill requirements and gaps. For example, horticulture firms identified problem-solving skills and social skills as required for youth employed as plant and machine operators and assemblers, and noted that youth had significant skills gaps in soft skills for all occupations. Because most of the compliance to standards begins at the farm, computerized mechanisms in production of fresh fruits and vegetables and flowers were identified as major skills

deficits. Agro-processing firms reported the highest number of anticipated new occupations—most associated with training farmers to improve the quality of their produce. In agro-processing, digital skills involve knowledge of how to use automated machines, and agro-processing firms also highlighted the need for digital skills in sales and marketing. The sector requires a diverse set of future digital skills especially in use of mobile phone applications.

The eight hospitality firms in the Uganda survey (mainly hotels offering accommodation, food, and some tours) fell into four-star categories. Two of the hotels also offered additional services such as tours and travel, and gaming/casino activities. From the survey, the main economic activities that cut across all eight firms were: serving foods and beverages, accommodation, laundry services, cleaning and room service, reception, and preparing food and beverages. The largest number of youths are employed as service and sales workers (26.7 percent of youth employed) followed by those in elementary occupations (25.4 percent). During the survey, firms were asked whether they had plans to expand their operations in the medium and long term, and the new occupations that might be needed because of the expansion. In tourism, hoteliers reported that three main new occupations were housekeepers/baristas, concierges, and IT persons with digital skills. All the hotels sampled, irrespective of classification, indicated that digital skills in use of mobile phones were required.

5. What constrains the growth of IWOSS sectors?

This section sets out the constraints to growth analysis used in the country studies. It is built around four drivers of industrial location that have largely shaped the global distribution of industry (UNIDO, 2009; Newman et al., 2016)—the “investment climate,” exports, agglomeration, and firm capabilities. Because IWOSS share firm characteristics with manufacturing, the same drivers of locational choice apply to them.

One insight from our previous research is that the drivers of locational choice are mutually reinforcing (Newman et. al, 2016). Investments in infrastructure and skills raise the potential productivity of all firms, making some of them more likely to succeed in external markets. Exports help to build firm capabilities, which are transferred through agglomeration. Agglomerations raise firm-level productivity, but also generate competitive pressures that reduce the incentives to cluster, unless the clusters are export-oriented. Because the determinants of locational choice are interdependent, structural change largely depends on the extent to which governments are able to pursue public actions to address multiple constraints simultaneously.

The investment climate

Reliable electrical power, lower costs of transport, workers better able to perform their jobs, and competition are essential drivers of firm-level productivity (Spatafora et. al, 2012). Here, we focus on two aspects of the investment climate that are particularly relevant to IWOSS—infrastructure and the regulatory environment. Section 4 addresses the question of skills constraints to the growth of IWOSS.

Infrastructure

In Kenya, reliable supply of power and the high cost of electricity pose challenges not only to firms in IWOSS sectors but also to firms across the economy. Limited access to reliable electricity was identified as a challenge in ICT, horticulture, and tourism. In 2018, about 89 percent of ICT firms and 91 percent of tourism establishments (mainly hotels and restaurants) reported that they had experienced electricity outages in the past year, averaging 3.5 and 6.3 outages per month respectively (World Bank, 2018). Lack of feeder roads has been a major cause of large post-harvest losses in the horticultural value chain (estimated at 42 percent). A key challenge in tourism is difficulty accessing natural and wildlife assets due to poorly maintained roads within the national parks. Prime tourism offerings are also affected by congestion.

Both connectivity and high-speed data transmission are critical for exporting a wide range of services and IT-intensive exports. Connectivity is also important to IWOSS sectors, such as tourism and horticulture. Because timely delivery is a major determinant of horticultural exports, ICT plays an important role in developing the horticultural sector. Travelers attach importance to internet access and communication infrastructure. The country study for Kenya indicates that while Kenya outperforms the rest of sub-Saharan Africa in mobile connectivity, there are still ICT-related constraints that stifle growth. Although the government set out to position the country as a leading BPO destination, this is yet to be matched by world-class BPO infrastructure.

In Rwanda, the government has committed to development of horticulture by earmarking sites for horticultural cultivation, investing in agricultural land information systems and irrigation facilities, and developing a cold chain system. ICT-enabled services in Rwanda have received policy focus under the National ICT Strategy and Plan. The second phase of the plan (2006-10) was centered on establishing world-class communications backbone infrastructure. The government has also placed emphasis on the tourism sector by supporting improvements in tourism infrastructure. Substantial investments have gone into Kigali International Airport, Kigali Convention Centre, and the national carrier.

According to enterprise survey data from Uganda, electricity is also a major obstacle to firms' competitiveness. In a typical month, firms report about nine outages, resulting in losses of about 16 percent of total sales. The high cost of internet connectivity and mobile phone services makes information exchange among small-scale firms, agricultural traders, agro-processing plants, and global markets cumbersome and expensive. According to the 2017/18 Uganda National Information Technology survey, over 76 percent of respondents reported the high cost of an internet subscription as a key limitation to internet use. Although Uganda's road density is among the highest in sub-Saharan Africa, the quality of the roads is low.

Similarly, there are a number of infrastructure constraints that inhibit expansion of the horticulture sector in South Africa, Senegal, and Ghana. Many farmers do not have easy access to markets; the poor state of road infrastructure in rural areas makes it difficult for farmers to guarantee wholesalers that they will deliver their products on time. In Senegal, high costs and poor quality of most infrastructure services are major causes of the country's poor performance in exports. In Ghana, the lack of cold storage facilities has been a major constraint to exports of highly perishable agro-industrial and horticultural products.

Skills

Section 4 addressed the specific question of whether Africa's youth have the skills needed for IWOSS. Here we focus on Africa's ability to offer relevant skills for the labor force outside the youth population. Although Africa has had considerable success in expanding access to education, nearly 60 percent of African 15- to 24-year-olds have only completed primary school, and only 19 percent have gone beyond lower-secondary (Filmer and Fox, 2014). Educational quality is an issue at all levels. Learning assessments show that most primary students in Africa lack basic proficiency in reading at the end of second or third grade. Employer surveys report that African tertiary graduates are weak in problem-solving, business understanding, computer use, and communications skills. In Uganda, for example, feedback from employers indicates that current training programs are failing to equip trainees with practical skills and job-relevant competencies.

The regulatory environment

Competition is essential to firm-level productivity. Senegal's decline in IT-enabled services provides an example of the costs of a monopoly controlling the price and quality of access to the backbone infrastructure (English 2018). Lack of competition in transport markets—often a product of regulation—is associated with higher trucking costs. Reforms to the regulatory environment that promote competition are an essential complement to other investment climate reforms.

In Kenya, the business regulatory environment is complex: In fact, the Kenya Enterprise Survey 2018 indicates that 8.6 percent of firms' senior management time is spent on compliance with the government regulations. Horticulture is affected by nontariff trade barriers, which represent a key constraint, especially to small-scale farmers. The ICT sector lacks a comprehensive policy and legal framework for e-commerce in Kenya. During the research, the interviewed ICT firms identified several regulatory constraints. Some of the main constraints reported include: business licensing and permits, bureaucracy, and corruption.

Another key issue is weak regulatory quality especially with respect to incorporating competition into the design of regulations. In Ghana, for example, tourism businesses are subject to standards and regulations under the Ministry of Trade and Industry. Lengthy, expensive, and complicated visa procedures and policies have limited the development of air travel and are obstacles to the continued expansion of tourism in the country.

Lack of an export push

For most countries in Africa, regional and global export markets represent the best opportunity for rapid growth of manufacturing, agribusiness, and tradable services. There is little evidence from the case studies, however, that governments in the nine economies studied have developed a package of trade and exchange rate policies, public investments, regulatory reforms, and institutional changes aimed at creating an "export push."

Duty drawback, tariff exemption, and VAT reimbursement schemes remain complex and poorly administered. Export procedures—including certificates of origin, quality and sanitary certification and permits—are burdensome. Reforms to improve the institutional framework of trade logistics—including customs and standards—have not been implemented. The Ghana case study, for example, notes that documentation requirements, customs procedures and inefficient port operations contribute to high trade costs. In Uganda, days taken to clear customs and obtaining import licenses increased between 2006 and 2013.

In Kenya, poor export performance reflects specific constraints, including poorly functioning tariff exemption schemes. Several coordination problems affect the horticulture, ICT, and tourism sectors. For example, horticulture firm respondents indicated that there was little collaboration among exporters to consolidate shipments, nor jointly pursue export promotion or advertising. There is limited branding of export products, despite opportunities to leverage fair trade certification and emphasize the role of small farmers and women in the production of horticultural products. In ICT, firms identified failure to comply with foreign certification processes and difficulties in establishing a local presence in external markets as a constraint to the capacity to offer ICT products and technical support. The Rwanda case study similar finds that cumbersome export procedures limit the growth of the horticulture sector there.

Permits and regulatory signoffs also create obstacles to trade in agro-industrial products. Horticulture exports—dominated by coffee, tea, and cut flowers—account for about 21 percent of Uganda's export basket. Delays, high transport costs, and burdensome procedures when trading all constrain horticultural exports. Further, the case study notes that certifications required for exporting by the Ministry of Trade, Industry and Cooperatives create obstacles to trade.

Agglomerations

Like manufacturing, agro-processing, horticulture, tourism, and ICT-based services benefit from agglomeration. Agglomerations pose a collective action problem that governments can address by concentrating investments in high-quality institutions, social services, and infrastructure in a limited area, such as a special economic zone (SEZ). While most African SEZs have focused on manufacturing, they are relevant to services and agro-based industries as well (Newman and Page, 2017). Our case

studies provide little evidence that governments in Africa have succeeded in promoting the development of their special economic zones. Lack of intra-government coordination is also an important cause of the poor performance of SEZ programs.

The major constraints to the growth of Ghana's SEZs are lack of funds, unreliable utilities, and poor marketing and promotion. The Ghana Free Zones Act offers extensive incentives to investors interested in developing and operating within the free zones in Ghana. Failure by the government to fulfill its side of the bargain by creating a business-friendly environment and delivering the promised incentives (such as minimal customs formalities, and no restrictions on repatriation of dividends or net profit) has limited investor appetite.

In Senegal, the Dakar Export-Processing Zone (EPZ) was established in 1974. The zone provided exemptions from corporate income taxes, customs duties, and equipment taxes, along with unrestricted repatriation of capital and profits. Despite these incentives, jobs at the Dakar EPZ reached a peak of only 1,200, before declining to 600 in 1990. The project was eventually abandoned in 1999 when it only housed 14 companies with a total of 940 workers. The zone's lack of success was due to significant shortcomings in infrastructure, the business climate, labor market rigidities, high energy and transportation costs, and inefficient bureaucratic procedures.

There are 19 declared free zones in Uganda, of which majority are single-firm zones. All the firms within the free zones are not subject to customs duties on imported and exported goods. Incentives to firms either in industrial parks or free zones include income tax incentives, and a 10-year income tax holiday for firms whose investment exceeds a certain threshold. Free zone operators face challenges including poor roads, high cost of water and electricity and persistent outages, and administrative delays.

Firm capabilities

Firm capabilities are the knowledge and working practices used by firms in the course of production and in developing new products. Productivity is one dimension of capability. The other is quality. Productivity and quality depend, in turn, on the knowledge possessed by the individuals who make up the firm.

Capabilities in the agro-processing industry in Ghana are not well advanced. The industry has a relatively low degree of value addition to agricultural commodities and very few linkages with marketing and financial services. In addition, firms use simple technologies. Ghana's participation in the global value chain shows that there is very little transformation to exports. Surveys conducted in Senegal found that most businesses feel they lack the technological and managerial skills needed to succeed on the international market. Although they want to export, they do not believe that they will meet the price and timeliness requirements imposed by demanding international buyers. One issue is lack of adequate information. But, more significantly, firms do not believe they have the necessary technical mastery of production.

6. Public policy priorities to boost competitiveness of the economy

What would a country-level strategy to accelerate structural change—whether using manufacturing or IWOSS—look like? The constraints to growth analysis used in the country studies provides some insights into how governments can begin to develop a strategy for structural change. Because the determinants of locational choice are interdependent, structural change largely depends on the extent to which governments are able to pursue public actions to address multiple constraints simultaneously.

6.1 Improving the investment climate

Three aspects of the investment climate are particularly relevant to IWOSS—infrastructure, skills, and the regulatory environment.

Investing in infrastructure

By one estimate, the current infrastructure deficiencies in Africa contribute to a loss of about 2 percentage points per year in GDP growth.² Reliable electrical power may be the greatest single constraint. The quality of electricity service is ranked as a major problem by more than half of the firms in more than half of African countries in the World Bank's Investment Climate Assessments. Transport follows as a close second.

Governments in Africa—responding to the critical role that infrastructure plays in raising productivity—have mobilized new sources of finance, including private borrowing. Borrowing on private markets has grown rapidly, and countries from Angola to Zambia have issued sovereign bonds. Sovereign bonds and borrowings from commercial banks now amount to more than 40 percent of outstanding public debt for Ghana, Senegal, and Zambia (Vellos 2016). Because sovereign borrowing can involve high costs and short maturities, a better alternative would be for the international community to allow creditworthy countries to borrow from the non-concessional windows of the World Bank and other multilateral development banks. Terms are far less onerous—typically less than 1 percent over Libor compared to 5-7 percent in private debt markets with longer grace and repayment periods of up to 15-17 years. Greater cooperation and coordination between Development Assistance Committee (DAC) donors and nontraditional donors, perhaps through the international financial institutions to which they both belong, could also improve the focus and efficiency of resource use.

Skills

Skills deficits—especially among the young and particularly in soft and digital skills—may limit the job-creating potential of IWOSS. A demand-led approach to qualifications, through collaboration between employers and postsecondary educational institutions, can be effective in addressing these skill gaps. Because skill requirements differ across sectors, businesses must be consulted on a regular basis.

To address digital and soft skills deficits, employers can develop mentorship and training programs for new trainees. Such programs are also a way in which the specific skills required in a sector can be learned. Mentors can teach life skills to young people and highlight areas of strength and areas for improvement. Because mentors are usually people who hold more senior positions at a company, they can help new trainees to understand the skills required to reach such a position.

Regulatory reforms

Encouraging an environment where firms are compelled to search out productivity improvements is essential. Competition affects productivity through the exit of less efficient firms and the entry or expansion of their more efficient counterparts (Syverson 2011).

These issues underscore the importance of competition policy. First, import competition—including from within regional economic communities—can be used to discipline local manufacturers and service providers. Second, removing barriers to foreign entry can increase competition, reduce costs, and extend access to a broader range of services. FDI is a particularly important channel for the transfer of know-how and technology, as foreign firms introduce new types of services that may be better suited to the needs of clients.

² See NEPAD, AU and AfDB (2011).

6.2 Tilting toward exports

Because individual firms face high fixed costs of entering export markets, there is a risk that countries will export too little unless public policies are put in place to offset the costs to first movers. To deal with these externalities, African governments need to develop a package of trade and exchange rate policies, public investments, regulatory reforms, and institutional changes to increase the share of nontraditional exports in GDP.

Tariffs on intermediates and capital goods can place exporters at a disadvantage relative to global competitors. One option to address anti-export bias is to create an effective “free trade regime for exporters” through various mechanisms to eliminate or rebate tariffs on intermediate and capital inputs used in export production. Export procedures—including certificates of origin, quality and sanitary certification, and permits—can be burdensome. These institutional failures fall disproportionately on IWOSS sectors, such as horticulture and agribusiness.

The exchange rate influences the relative attractiveness of producing for the domestic or foreign market, and a competitive real exchange rate has underpinned most prolonged episodes of rapid export growth (Hausmann et al. 2004). Rodrik (2008a), among others, has argued for countries at early stages of structural transformation to attempt to undervalue the exchange rate over the medium to long term. At a minimum, macroeconomic policy should strive to avoid overvaluations that stifle non-traditional exports.

Trade in tasks has greatly increased the importance of trade logistics. For this reason, investments in infrastructure and institutional reforms to improve trade logistics are essential to export success. Limao and Venables (2001) find that an improvement in communication and transport infrastructure from the median score on the World Bank trade logistics index survey to the highest 25th percentile is associated with a decrease in transport costs of 12 percent and an increase in trade volumes of 28 percent.

6.3 Supporting agglomeration

Most African countries are relative latecomers to the use of SEZs. Many SEZ programs began only in the late 1990s or early 2000s. It may be too early to judge their success in Africa, but the evidence suggests that in many countries—such as Malawi, Mali, Nigeria, Senegal, and Tanzania—zones are struggling (Newman and Page 2017). One reason for the lack of dynamism is that most African SEZs have failed to reach the levels of infrastructure and institutional performance needed to attract global investors.

A number of reforms to African SEZ programs can be undertaken to improve their effectiveness. The most critical is to raise the infrastructure and institutional standards of SEZs to the levels needed to attract investors. For example, the reported average downtime from lack of electrical power in African SEZs was 44 hours per month compared with only four hours per month in non-African SEZs. Customized facilities such as IT centers, reliable broadband, power supply, security services, financial services, transportation, and logistics are also essential. Among the African countries surveyed, the top three factors determining investors’ decisions to locate in an SEZ were cost and quality of utilities, access to efficient transport, and the business regulatory environment (Farole 2011). Institutions supporting SEZs, such as customs clearance, legal requirements for exporting, and the regulatory regime, must also function well in order to realize their full potential.

A frequent criticism of the tourism industry is that it is poorly linked to potential domestic suppliers. In Senegal, a 2003 study estimated the import content of tourism spending at 30 percent (République du Sénégal 2003). In Tanzania, almost 30 percent of tourist spending leaks into foreign markets, through consumption of imported goods or services (Ellis, McMillan, and Silver 2018). Underdeveloped

linkages between tourism and sectors such as agriculture and construction can inhibit industry development and limit economic benefits. Spatial policies can be used to encourage the formation of these value chain relationships. In South Africa, for example, the government is attempting to increase local participation in the tourism value chain.

6.4 Building firm capabilities

Productivity is one dimension of capability. The other is quality. Productivity and quality depend in turn, on the knowledge possessed by the individuals who make up the firm—both managers and workers. In this respect, capabilities are fundamentally different from technology. Technology can be codified and purchased. Capabilities are mainly embodied in people and in working practices, so they are more difficult to codify and measure.

FDI is one—and some would argue for countries at low levels of industrial development, *the* most important—way of introducing higher capability firms into an economy. The foreign investor brings in the technology, managerial knowledge, and working practices it has developed elsewhere.³ Once higher capabilities have been introduced, their potential benefit will depend on the extent to which the technical knowledge and working practices held by the firm are transmitted to other firms. Buyer-seller relationships along the value chain are effective ways to transfer both technological knowledge and better working practices.

Management training can be used to improve firm-level productivity. Bloom and Van Reenen (2007) find that better management practices are strongly correlated with several measures of productivity and firm performance. Organized efforts to acquire good management or working practices could take the form of collective action by firms. Alternatively, a public-private partnership could be formed to seek out information on good practices and make it available as a public good. The success of the Fundación Chile—a public-private partnership—in helping to establish Chile’s world-class wine and salmon export industries has been widely documented. Initiatives of this type might be undertaken at lower cost, and with a greater share of the cost borne by the private beneficiaries, than training.

6.5 Policies to support promising IWOSS sectors

Understanding the constraints on firm-level performance requires detailed industry-level information and an ability to understand the environment within which firms operate (Hausmann, Rodrik, and Sabel 2007). This section draws on the country studies to suggest sector-specific public actions to accelerate the growth of the major IWOSS sectors covered in our research—agribusiness and horticulture, tourism, ICT-enabled services, and transport and logistics. This section sets out a number of suggestions for policy reforms to improve the performance of key IWOSS sectors.

Agribusiness and horticulture

Investments to improve trade logistics are essential to export success in agro-processing and horticulture. Vulnerability to excess costs is particularly acute for processing activities because these frequently operate on small margins relative to production of traditional exports.

The global-value-chains characteristic of horticulture is demanding of logistics. Horticultural exports are perishable and particularly vulnerable to delays in shipping. Kenya’s flower-growing region is well connected by road to Kenya’s international airport.

Skilled labor is very important to produce and deliver high quality horticulture products. As the Rwanda case study finds, inadequate knowledge of proper crop cultivation, fertilizer use, pest management, and post-harvest handling, limit the growth of the horticulture sector. Other challenges to horticulture

³ For a survey of the relevant literature, see Harrison and Rodriguez-Clare (2010).

include gaps in the knowledge and skills required to cultivate high yield varieties, and inadequate quality management.

Tourism

Adequate tourist-related infrastructure is a necessary condition for fully leveraging tourism's potential. Infrastructure constraints associated with air travel and road quality can limit its growth. Connectivity to the internet and communication infrastructure are also important considerations for travelers to Africa. Such logistical challenges restrict end-market upgrading opportunities in a number of countries.

A workforce that has the skills needed to interact with tourists and to provide the many services that are inputs into the production of high-quality tourism is essential. Lack of skills consistently emerges from the country studies as a constraint to tourism development. More specifically, management, organization, communication, and computer skills are critical for successful employees. In Kenya, about 20 percent of hotels and restaurants surveyed reported that skilled manpower was a major or very severe obstacle to growth. In Ghana, there is no clear national policy framework for tourism training and development. Although there are international programs designed to teach these skills, Africa only has two schools that have earned certification from the U.N. World Tourism Organization.

ICT-enabled services

Not surprisingly, ICT-based services may be the most sensitive IWOSS sector to infrastructure constraints. Backbone infrastructure is essential for exploiting opportunities in first generation IT-enabled services. Most African countries lack adequate backbone infrastructure. The cases of Kenya, Rwanda, and Senegal show that high-speed data transmission is critical to exporting a wide range of services and especially to IT-intensive exports.

ICT-enabled services depend on high level skills—often those obtained at the tertiary level. The ability to hire university graduates at a fraction of the cost in Europe or the Arab Gulf was the initial impetus for many IT-enabled startups, but there remains a substantial supply-demand gap in the high-end talent pool in the IT workforce. Lack of skills in ICT is frequently cited as one of the factors limiting the growth of BPO in Kenya. Computing design skills, cybersecurity, and programming languages were identified in the case studies as having the largest skills gaps. There is also a need to promote private sector-led skills development initiatives in high level ICT skills such as programming. Senegal's ranking among the top 50 potential suppliers of outsourcing services has fallen significantly in the last five years, due to declines in the quality and quantity of human resources (English 2018).

Transport and logistics

An efficient and properly functioning transportation and logistics system drives competitiveness, particularly in an era of tightly integrated global supply chains. Good logistics performance depends on efficient services, such as trucking, freight forwarding and handling, and terminal operations. For this reason, policymakers should consider regulatory reforms that promote competition among transport and logistics providers.

The small size of Africa's economies and the fact that many are landlocked make regional approaches to infrastructure, customs administration, and regulation of transport in trade corridors imperative. Regional economic communities need to act by strengthening trade facilitation, improving services regulation, and investing in interconnected physical infrastructure. Road interconnections within regional economic communities may offer a way to close the infrastructure constraint to transport.

Services regulation is the area where regional institutions have done the least and where the gains are possibly the highest. Lack of competition in transportation markets is a significant barrier to integrating markets in regional groupings. Competition in the trucking industry plays a major role in price determination and, therefore, in trade. Lack of competition is associated with higher trucking

costs. The most common anti-competitive regulations are discriminatory prices on transit permits; different axle-load regulations, discriminatory road use charges for foreign-registered vehicles, taxes at borders, and prohibition of cabotage.⁴

7. Summary of policy recommendations

The case studies provide some “take-away” lessons for policymakers. The following section offers a prioritized list of public actions that should be undertaken to support youth employment in IWOSS.

7.1 Public policy priorities to boost competitiveness of the economy

Improving the investment climate

- Investing in infrastructure is essential for structural change—whether propelled by manufacturing or by IWOSS. Reliable electrical power may be the greatest single constraint. The quality of electricity service is ranked as a major problem by more than half of the firms in more than half of African countries in the World Bank’s Investment Climate Assessments. Transport follows as a close second.
- Governments should avoid the temptation to accrue public debt to fill the infrastructure gap. Here, the international financial institutions (IFIs) can be helpful by allowing access to the non-concessional windows of the World Bank and other multilateral development banks, where terms are far less onerous.
- Skills deficits—especially among the young—may limit the job creating potential of IWOSS. A demand-led approach to qualifications, through collaboration between employers and postsecondary educational institutions, can be effective in addressing skill gaps. Because skill requirements differ across sectors, businesses must be consulted on a regular basis.
- Encouraging an environment where firms are compelled to search out productivity improvements is essential, and this is where competition is important. It affects productivity through the exit of less efficient firms and the entry or expansion of their more efficient counterparts.

Tilting toward exports

- Governments need to develop a package of trade and exchange rate policies, public investments, regulatory reforms, and institutional changes to increase the share of nontraditional exports in GDP.
- Such an “export push” requires institutional changes such as creating an effective free trade regime for exporters, improving customs, and investing in trade logistics.

Promoting agglomeration

- African SEZs are underperforming. Most African SEZs have failed to reach the levels of infrastructure and institutional performance needed to attract global investors. The most critical action is to raise the infrastructure and institutional standards of SEZs.
- Institutions supporting SEZs, such as intra-governmental coordination, customs clearance, legal requirements for exporting, the regulatory regime, and zone management must also function well.

⁴ Using foreign-registered vehicles for the domestic movement of merchandise.

Increasing firm capabilities

- FDI is one—and some would argue for countries at low levels industrial development, the most important—way of introducing higher capability firms to an economy. Therefore, policies to promote FDI are an essential element of building firm capabilities.
- Buyer-seller relationships along the value chain are effective ways to transfer both technological knowledge and better working practices.
- Management training can be used to improve firm-level productivity.

7.2 Policies to support promising IWOSS sectors

Agribusiness and horticulture

- Investments to improve trade logistics are essential to export success in agro-processing and horticulture. Horticultural exports are perishable and particularly vulnerable to delays in shipping.
- Skilled labor is very important to high quality horticulture products, particularly during harvesting, packaging, handling, and marketing.

Tourism

- Adequate tourist-related infrastructure is needed to fully leverage tourism's potential. Infrastructure constraints associated with air travel and road quality can limit growth of the sector.
- A workforce that has the skills needed to interact with tourists and to provide the many back office services that are inputs into the production of high-quality tourism is essential.
- Management, organization, communication, and computer skills are critical for tourism distribution intermediaries and service providers.

ICT-based services

- ICT-based services are the most sensitive IWOSS sector to infrastructure constraints. Backbone infrastructure is essential to exploit opportunities in first generation IT-enabled services.
- ICT-enabled services depend on high-level skills—often those obtained at the tertiary level. Computing design skills, cybersecurity, and programming languages have the largest skills gaps.

Transport and logistics

- An efficient and properly functioning transportation and logistics system drives competitiveness. For this reason, reforms to increase competition in transport and logistics are a vital element of improving economywide competitiveness.
- Regional approaches to infrastructure, customs administration, and regulation of transport in trade corridors are imperative.
- Services regulation is the area where regional institutions have done the least. Lack of competition in transportation markets represents a significant barrier to integrating markets in regional groupings.

8. Implications of the COVID-19 pandemic for IWOSS sectors

The pandemic has wreaked havoc on economies across Africa and many industries without smokestack sectors, such as tourism, have been hit particularly hard. The case studies presented in this report were largely conducted prior to COVID-19. To advance our understanding of the impact of COVID-19 on IWOSS sectors, we initiated four research briefs (or “COVID updates”) that seek to update the findings of the IWOSS case studies in South Africa, Kenya, Senegal, and Uganda. While it might be too soon to understand the full impact of the pandemic, these briefs provide some early insights into the output and employment impact of IWOSS sectors vis-à-vis non-IWOSS sectors and manufacturing. They also inform the debate on whether COVID-19 will serve as a transient or structural shock to IWOSS sectors, a debate that has implications for decades to come.

The results, summarized in a forthcoming report (Heitzig and Ordu), are as follows: First, the pandemic has had a negative impact on nearly every sector, including most IWOSS sectors. Second, the effect of COVID-19 was uneven across sectors. In particular, tourism and the financial and business services sectors experienced a deeper recession than others. Third, overall, the IWOSS sectors demonstrated stronger resilience with respect to employment than did non-IWOSS sectors and manufacturing, but a weaker resilience with respect to output. Fourth, despite protracted losses in employment and output, all the results from the policy briefs suggest that the impact of COVID-19 is likely transitory, with early survey results showing that many companies believe they can return to business as usual once activity returns to normal. However, the pandemic has likely ushered in some structural change, including accelerated digitization, an altered labor market composition, and different health care and social safety net systems. Fifth, in spite of the vicissitudes of the pandemic, the COVID updates contend that the policy prescriptions found in the case studies remain highly relevant in a post-COVID world.

9. Conclusion

Africa faces challenges that differ from other regions’ historical experiences. One set of challenges is demographic. Rapid population growth combined with extremely low productivity in traditional agriculture has led to a wave of urbanization at unprecedentedly low levels of per capita income, and significant unemployment among youth. Much of the effort to transform the region’s economies and create jobs will need to come from African governments themselves. Identifying the constraints to the growth of manufacturing, tradable services, tourism, and agribusiness is an essential first step in the design of an appropriate policy response.

Structural change is taking place in Africa, but in contrast to historical patterns—and in sharp contrast to East Asia—labor has gone less into manufacturing than into services. In some countries, IWOSS—agro-processing and horticulture, tourism, ICT-enabled services, and transport and logistics—have provided a substantial portion of new, high-productivity jobs. The lack of large-scale job creation—in the face of premature deindustrialization—remains the key challenge to Africa’s structural transformation and overall development. The results from our study offer a compelling solution based on the development of IWOSS. If well supported, these industries can help accelerate job creation and economic development.

IWOSS share many characteristics in common with manufacturing and are subject to similar constraints. Thus, governments are not forced to choose between an “industrial policy” focused on manufacturing and policies to promote IWOSS. Because policymakers are not required to choose between promoting IWOSS and manufacturing, this option offers a multifaceted approach for Africa to overcome its employment challenge, achieve structural transformation, and boost overall economic development.

References

- African Union. (2019). “Africa’s Future: Youth and the Data Defining their Lives.” *The African Union Commission (AUC), Department of Human Resources, Science and Technology and the Population Reference Bureau (PRB)*.
- Allen, C. et al. (2021). “Employment creation potential, labor skills requirements, and skill gaps for young people: A South African case study.” *The Brookings Africa Growth Initiative*.
- Aryeetey, E., Priscilla, B., and Festus, T. (2021). “Employment creation potential, labor skills requirements, and skill gaps for young people: Ghana case study.” *The Brookings Africa Growth Initiative*.
- Baumol, W.J.(1985). “Productivity Policy and the Service Sector” in R.P. Inman (eds), *Managing the Service Economy: Prospects and Problems*. Cambridge: Cambridge University Press.
- Bhagwati, J. N. (1984). “Splintering and Disembodiment of Services and Developing Nations.” *World Economy*, 7(2): 133–44.
- Bhorat, H. C. Rooney, and F. Steenkamp (2018) “Understanding and characterizing the services sector in South Africa: an overview.” in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Bhorat, H., C. Allen, Z. Asmal, and F. Steencamp (2019) Addressing Africa’s Youth Unemployment Through *Industries Without Smokestacks* Concept Paper Research Stream 3.
- Bloom, N. and J. Van Reenen. (2007) “Measuring and Explaining Management Practices across Firms and Countries.” *Quarterly Journal of Economics* 122(4): 1341–1408.
- Bloom, N. and J. Van Reenen. (2010) “Why Do Management Practices Differ Across Firms and Countries?” *Journal of Economic Perspectives* 24(1): 203–224.
- Bloom, N. A. Mahajan, D. McKenzie and J. Roberts (2010) “Why Do Firms in Developing Countries Have Low Productivity?” *American Economic Review: Papers & Proceedings* 2010 100(2): 619–623
- Bloom, N., B. Eifert, A. Mahajan, D. McKenzie, and J. Roberts (2013) “Does Management Matter? Evidence from India.” *Quarterly Journal of Economics* 128(1): 1-51.
- Bofinger, H. C. (2018) “Air transport in Africa: A portrait of capacity and competition in various market segments.” in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Boyer, K. D. (1993) “Deregulation of the Trucking Sector: Specialization, Concentration, Entry, and Financial Distress” *Southern Economic Journal* 59 (3): 481-495
- Briceno-Garmendia, C., A. Estache, N. Shafik (2004) *Infrastructure Services in Developing Countries: Access, Quality, Costs, and Policy Reform* World Bank Policy Research Working Paper 3468. Washington, DC: World Bank
- Brenton, P. and G. Isik (2012), *De-Fragmenting Africa: Deepening Regional Trade Integration in Goods and Services* Washington, DC: World Bank.
- Clarke, G. R. G. (2005). “Beyond Tariffs, and Quotas: Why Don’t African Firms Export More?” Policy Research Working Paper 4317. Washington, DC: World Bank.

- Cruz, A. S. and F. J. Mafambissa (2018) "Industries without smokestacks: Mozambique country case study." in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Daly, J. and G. Gereffi (2018) "Tourism global value chains and Africa" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Dihel, N., A. Fernandes, R. Gicho, J. Kashangaki, and N. Strychcz (2012). "Becoming a Global Exporter of Business Services? The Case of Kenya," in A. Goswami, A. Mattoo, and S. Sáez (eds), *Exporting Services: A Developing Country Perspective*. Washington, DC: World Bank.
- Ebling, G. and N. Janz (1999). *Export and Innovation Activities in the German Service Sector Empirical Evidence at the Firm Level*. Mannheim: Centre for European Economic Research.
- Ellis, M., M. McMillan, and J. Silver (2018) "Employment and productivity growth in Tanzania's service sector" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- English, E. P. (2018) "Senegal: a service economy in need of an export boost" in Tanzania's service sector" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Escribano, A., J.L. Guasch, and J. Pena (2010). "Assessing the Impact of Infrastructure Quality on Firm Productivity in Africa: Cross-country Comparisons Based on Investment Climate Surveys from 1999-2005" Policy Research Working Paper 5191. Washington, DC: World Bank.
- Farole, T. (2011). *Special Economic Zones in Africa: Comparing Performance and Learning from Experience*. Washington, DC: World Bank.
- Farole, T. and L. Moburg (2014). "It Worked in China, so Why Not in Africa? The Political Economy Challenge of Special Economic Zones". WIDER Working Paper 2014/152. Helsinki: UNU-WIDER.
- Filmer, D., and L. Fox (2014). *Youth Employment in Sub-Saharan Africa*. Washington, DC: World Bank.
- Fox, L. and Gandhi, D. (2021). "Youth employment in sub-Saharan Africa: Progress and prospects." *Brookings Africa Growth Initiative*.
- Frischtak, C. R. (2018) "Telecommunication and ICT-based services trade" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Fukase, E and W. Martin (2018) "Agro-processing and horticultural exports from Africa" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Gebreeyesus, M. (2018) "Implications for Ethiopia's industrialization" in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Gelb, Alan, Christian Meyer and Vijaya Ramachandran (2013) "Does Poor Mean Cheap? A Comparative Look at Africa's Industrial Labor Costs" Center for Global Development Working Paper 325 Washington, DC: Center for Global Development
- Gereffi, G., J. Humphrey, and T. Sturgeon (2005) "The Governance of Global Value Chains." *Review of International Political Economy* 12(1): 78–104.

- Ggombe, K. and R. Newfarmer (2018) “Rwanda: From devastation to services-first transformation” in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Gibbons, R. and R. Henderson (2012) “Relational Contracts and Organizational Capabilities.” *Organizational Science* 23(5): 1350-1364
- Guloba, M. et al. (2021). “Employment Creation Potential, Labor Skills Requirements and Skill Gaps for Young People: A Uganda Case Study.” *Brookings Africa Growth Initiative*.
- Haralambides, H. E., and M. P. Londoño-Kent (2004). “Supply Chain Bottlenecks: Border Crossing Inefficiencies between Mexico and the United States.” *International Journal of Transport Economics*, 16(2): 183–95.
- Harrison, A., and A. Rodriguez-Clare (2009). ‘Trade, Foreign Investment, and Industrial Policy for Developing Countries’. NBER Working Paper 15261. Cambridge: NBER.
- Heitzig, C. and A. Ordu. (2021). “How the COVID-19 pandemic has affected ‘industries without smokestacks’ and their potential for growth.” *Brookings Africa Growth Initiative*.
- Hoekman, B., and A. Mattoo (2008). “Services, Trade and Growth.” Policy Research Working Paper 4461. Washington, DC: The World Bank.
- Huria, A., and P. Brenton (2015). “Export Diversification in Africa: The Importance of Good Trade Logistics.” Paper for Investing in Africa Forum in Addis Ababa.
- IATA (2018) *Future of the Airline Industry, 2035* Montreal: IATA.
- Jaffe, S. and O. Masakure. (2005) “Strategic use of Private Standards to Enhance International Competitiveness: Vegetable Exports from Kenya and elsewhere.” *Food Policy* 30: 316-333.
- Kaplinsky, R. and M. Morris (2008). “Value chain analysis: a tool for enhancing export supply policies.” *International Journal of Technological Learning, Innovation and Development* 1(3): 283-308.
- Kennedy, R. S. Sheth, T. London, E. Jhaveri, and L. Kilibarda (2013) *Impact Sourcing: Assessing the Opportunity for Building a Thriving Industry* Ann Arbor: William Davidson Institute at the University of Michigan.
- Kunaka, C. G. Raballand and M. Fitzmaurice (2018) “How trucking services have improved and may contribute to economic development: the case of East Africa.” in Newfarmer, Page and Tarp (eds) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press.
- Limão, N. and A. J. Venables (2001). ‘Infrastructure, Geographical Disadvantage, Transport Costs, and Trade.’ *World Bank Economic Review*. Washington, DC: World Bank.
- Mbaye, A. et al. (2021). “Employment creation potential, labor skills requirements, and skill gaps for young people: A Senegal case study.” *Brookings Africa Growth Initiative*.
- Munga, B. et al. (2021). “Industries without smokestacks in Africa: A Kenya case study.” *Brookings Africa Growth Initiative*.
- NEPAD, AU and AfDB (2011) *Program for Development of Infrastructure in Africa* Tunis: African Development Bank.
- Newfarmer, R., J. Page, and F. Tarp (2018) *Industries Without Smokestacks: Rethinking African Industrialization* Oxford: Oxford University Press

- Newfarmer, R. and Twum, A. (2021). "Employment creation potential, labor skills requirements, and skill gaps for young people: A Rwanda case study." *Brookings Africa Growth Initiative*.
- Newman, C., J. Page, J. Rand, A. Semeles, M. Soderbom, and F. Tarp (2016) *Made in Africa: Learning to Compete in Industry* Washington, DC: Brookings Institution Press
- Newman, C., and J. Page (2017). 'Industrial Clusters: The case for Special Economic Zones in Africa'. *WIDER Working Paper 15/2017*. Helsinki: UNU-WIDER.
- Oqubay, A. (2015). *Made in Africa: Industrial Policy in Ethiopia*. Oxford: Oxford University Press.
- Rodrik, D. (2004) Industrial Policy for the Twenty-First Century, Kennedy School of Government, Harvard University. Paper prepared for UNIDO, September 2004. Available online at: <http://ksghome.harvard.edu/~drodrik/UNIDOSep.pdf>
- Rodrik D., Hausmann R., Sabel C. (2007) Reconfiguring Industrial Policy: A Framework with an Application to South Africa. Accessed at <https://j.mp/2oEgDmn>
- Schlumberger, C. E. and N. Weisskopf, (2014) *Ready for Takeoff? The Potential for Low-Cost Carriers in Developing Countries*. Washington, DC: World Bank
- Shepherd, B. (2016). "Uganda Improving Export Performance." IGC Policy Paper F-38213-UGA-1 London: International Growth Centre.
- Spatafora, N., R. Anand and S Mishra (2012) "Structural Transformation and the Sophistication of Production" *IMF Working paper No. 12/59* Washington, DC: IMF.
- Spray, J. (2017). "Trade Costs and Industrial Policy in Uganda and Rwanda." Presentation to conferences in Kampala and Kigali, 23–28 March 2017. Mimeo.
- UNIDO (2009a) *Agro-Value Chain Analysis and Development: The UNIDO Approach*. A staff working paper Vienna: UNIDO.
- UNIDO (2009b) *Industrial Development Report* Vienna: UNIDO.
- Vellos, R. (2016). "Sub-Saharan Africa Sovereign Bond Issuance Boom". Blog. Available at: <http://blogs.worldbank.org/opendata/print/sub-saharan-africa-s-sovereign-bondissuance-boom>
- UNWTO (2012) *Annual Report* New York: UN World Tourism Organization.
- World Bank (2007). *Expanding the Possible in Sub-Saharan Africa: How Tertiary Institutions Can Increase Growth and Competitiveness*. Washington, DC: World Bank.
- World Bank (2009) *Transport Prices and Costs in Africa* Washington DC: World Bank.
- World Bank (2014) *Tourism in Africa: Harnessing Tourism for Growth and Improved Livelihoods* Washington DC: World Bank.
- World Bank (2016) *World Development Report, 2016: Digital Dividends* Washington, DC: World Bank
- World Bank (2018). *Kenya - Enterprise Survey (ES)*, Ref. KEN_2018_ES_v01_M. Dataset downloaded from <https://www.enterprisesurveys.org/portal/login.aspx> on [20 July 2020].
- Yoshino, Y. (2008). "Domestic Constraints, Firm Characteristics, and Geographical Diversification of Firm-Level Manufacturing Exports in Africa." Policy Research Working Paper 4575. Washington, DC: World Bank.
- Zhang, Y., Qu, H. and Guo, Y. (2011). "A study of the agglomeration of China's convention industry: An economic and neo-economic geography framework approach." *Tourism Economics* 17(2), 305–319.