

# SPIILLOVER

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## NOTES

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### Patterns and Spillovers

**Jesus Gonzalez-Garcia, Ermal Hitaj, Montfort Mlachila, Arina Viseth,  
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# SUB-SAHARAN AFRICAN MIGRATION: PATTERNS AND SPILLOVERS

## Introduction and Summary

Migration from and within sub-Saharan Africa (SSA) is an important macroeconomic issue with spillovers for both sending and receiving countries. Amid rapid population growth, migration in sub-Saharan Africa has been increasing briskly over the last 20 years. While the migration rate—migration-to-total population—has remained stable at about 2 percent, the region has doubled its population between 1990 and 2013, recording the fastest population growth in the world. Up to the 1990s, the stock of migrants—citizens of one country living in another country—was dominated by intraregional migration, which early in that decade represented 75 percent of total migration. Over the last 15 years, though, migration outside the region has picked up sharply, mainly to Organisation for Economic Co-operation and Development (OECD) countries, and represented a third of the total stock of migrants by 2013.

This note explores the main drivers of SSA migration. Most intraregional migration is to relatively larger economies such as Côte d'Ivoire and South Africa, but the region also harbors a large number of refugees. Indeed, the number of refugees within SSA is higher than that outside the region. Meanwhile, migration to the rest of the world, mostly to OECD countries, is mainly driven by economic factors and grew rapidly in recent decades. The empirical analysis and outlook will focus on migration outside the region as this has greater global spillovers.

The economic impact of migration for the region occurs mainly through two channels. First, the migration of young and educated workers—brain drain—takes a toll in SSA as human capital is already scarce, although some recent studies suggest that migration may have also a positive effect—brain gain. Second, remittances represent an important source of foreign exchange and income in several SSA countries, con-

tribute to the alleviation of poverty, and help smooth business cycles.

In the coming decades, SSA migration will be shaped by a demographic transition already ongoing in the region. This notably involves an enlargement of the working-age population even stronger than overall population growth. As a result, migration outside the region, in particular to advanced economies, is set to continue expanding. Over the long term, migrants may have a positive impact on growth in receiving countries, especially in those with aging populations, and bring additional tax revenues and social contributions as well. Meanwhile, the remittances sent to origin countries will continue to be an important source of foreign earnings and help to alleviate poverty and to smooth cycles.

## Migration Patterns in Sub-Saharan Africa

### Overview

International migration has attracted a lot of attention in recent decades: the large inflow of Eastern Europeans toward Western Europe (about 20 million in the last 25 years); the continuous migration from Latin American countries mainly to the United States; and, in the last couple of years, the surge of refugees moving to Europe that has resulted in the ongoing refugee crisis.<sup>1</sup>

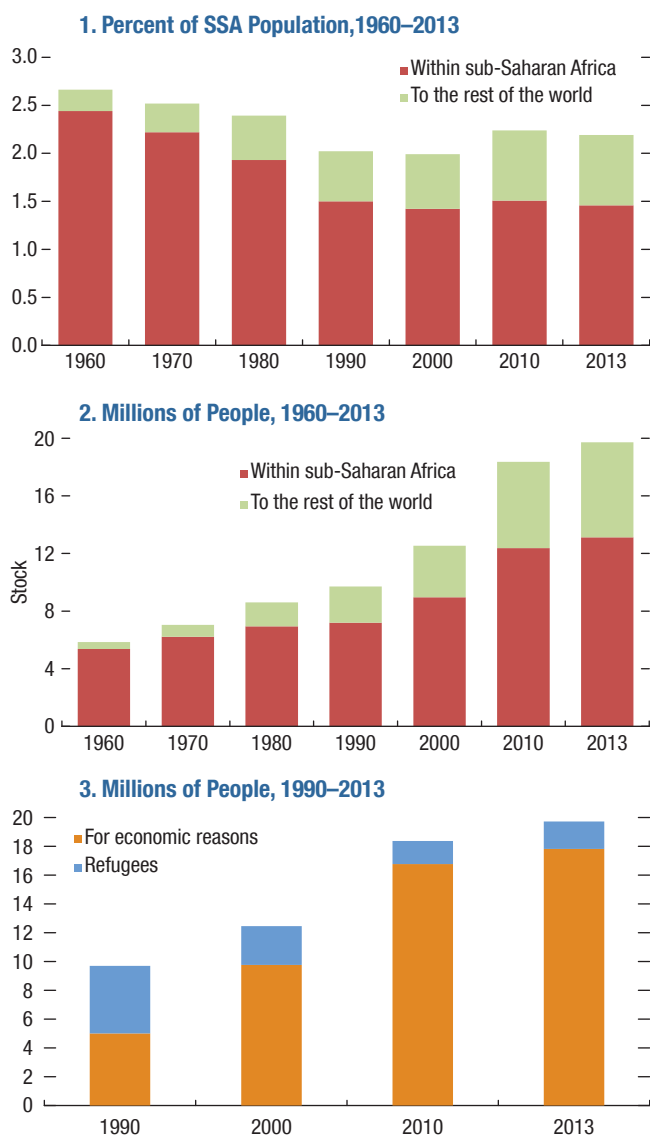
While refugees and other displaced persons make the headlines, for sub-Saharan Africa there are in fact far more important longer-term migration trends, within and outside the region, that have a significant macroeconomic impact and entail considerable spillover effects.

The patterns of sub-Saharan African migration show that it occurs mainly within the region, although migration to the rest of the world has been rising faster in recent decades. Most intraregional migration is to relatively larger economies such as Côte d'Ivoire and South Africa, but the region also harbors a large

This note was prepared with the assistance of Natasha Minges and has benefited from comments from our colleagues in the Spillover Task Force and Rodrigo Garcia-Verdu.

<sup>1</sup> See Atoyán and others (2016) and Aiyar and others (2016).

**Figure 1. Stocks of Sub-Saharan African Migrants**



Sources: UN High Commissioner for Refugees database; and World Bank, Migration and Remittances database.

number of refugees. Concerning migration outside the region, the empirical analysis of the main drivers of migration allows to project the potential migration spillover from the region to the rest of the world in the coming decades.

The rate of migration in sub-Saharan Africa is low relative to other regions. The stock of migrants to total population is about 2 percent—which seems low compared with the rest of the developing world, where 3 percent of the population live in a foreign

country. However, to understand the dynamics of migration in the region, it should be noted that population itself has been growing very fast. The population in SSA has nearly doubled since 1990, recording the highest population growth in the world, from about 480 million in 1990 to about 900 million in 2015. Similarly, in absolute terms, the stock of migrants has doubled since 1990. By 2013, the most recent year for which bilateral migration data are available, about 20 million sub-Saharan Africans were living outside their own country, of whom about 13 million have migrated within SSA (Figure 1).

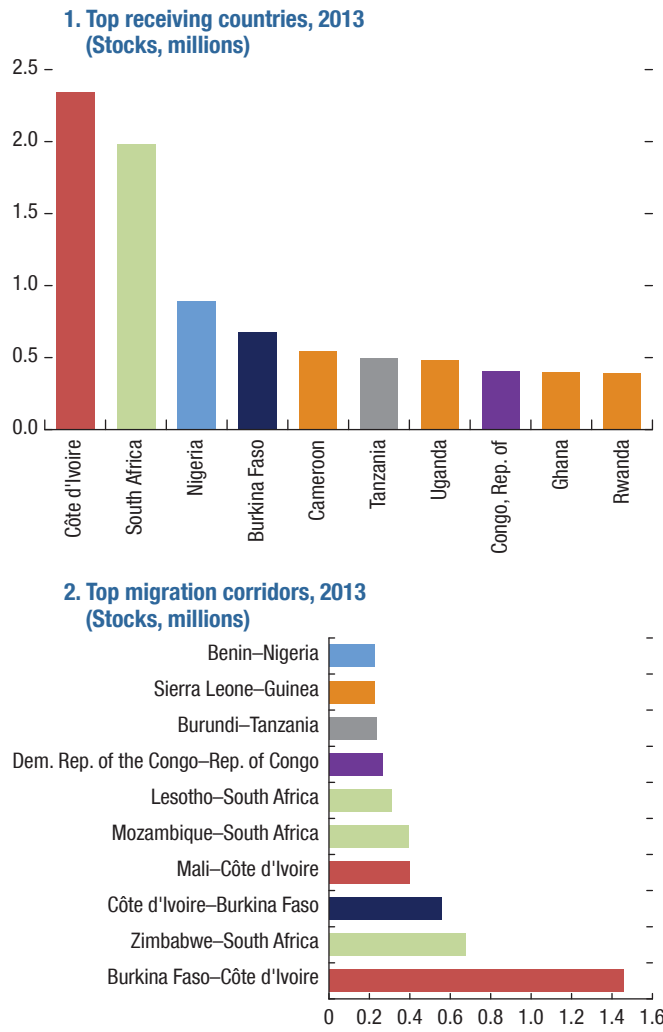
Two overall trends can be identified in recent decades. First, migration of refugees has decreased considerably since 1990, when about half of emigrants—both within SSA and outside the region—left their countries as refugees. In contrast, by 2013, only about 10 percent of total migration was made up of refugees. Second, the share of migrants that leave the region has increased steadily, from about ¼ to ⅓ of the total between 1990 and 2013. Thus, migration to the rest of the world for economic reasons has increased very rapidly. It grew more than sixfold between 1990 and 2013 (from less than 1 million to 6 million) while economic migrants within the region increased only threefold (from 4 to 12 million).

### Migration within Sub-Saharan Africa

#### Some Stylized Facts

SSA migration is mostly an intraregional phenomenon. The recipients of intra-SSA migration flows are countries with relatively larger and more diversified economies. Côte d’Ivoire, South Africa, and Nigeria were the top three countries with the largest stocks of migrants in 2013, respectively hosting about 2.3, 2, and 0.9 million people from other SSA countries (Figure 2). This is reflected in the main migration corridors: the largest one running from Burkina Faso to Côte d’Ivoire, followed by the corridors from Zimbabwe to South Africa and from Mali to Côte d’Ivoire. These corridors are facilitated by cultural and linguistic affinities. Meanwhile, migrant-sending countries are typically close to the main destination countries, have relatively fewer economic opportunities, and tend to be prone to political instability or natural disasters (Figure 3).

**Figure 2. Migration within Sub-Saharan Africa: Top Receiving Countries and Migration Corridors**

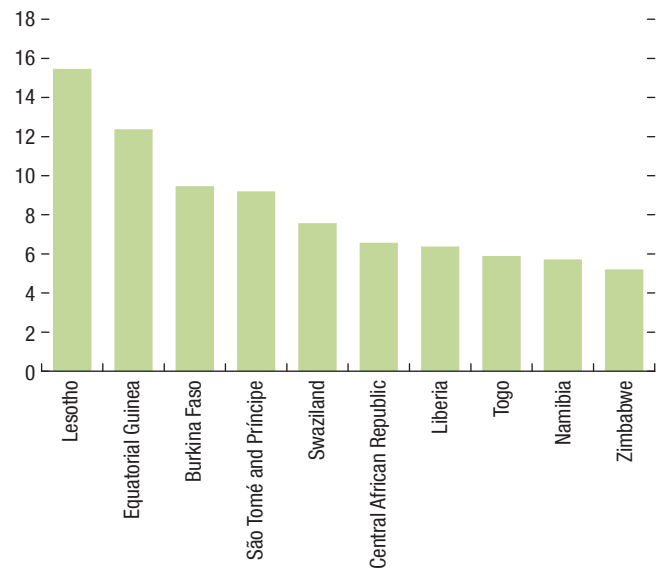


Source: World Bank, Migration and Remittances database.

*Determinants of Migration within Sub-Saharan Africa: A Short Survey of the Literature*

The stylized facts shown above reflect the general empirical findings of the few studies that have looked at the determinants of migration within SSA. While some studies have analyzed the determinants of migration from SSA, only a few have looked at the factors explaining migration within the region or the continent. For instance, Hatton and Williamson (2002, 2003) use data for the whole of Africa to estimate the determinants of net out-migration rates. They find that wage gaps and demographic booms in the sending country are the main explanatory factors.

**Figure 3. Migration within Sub-Saharan Africa: Top Senders of Migrants, 2013 (Percent of population)**



Source: World Bank, Migration and Remittances database.

Among the few studies that look at intraregional migration in SSA, some focus on rural-urban migration. For instance, Barrios, Bertinelli, and Strobl (2006) emphasize the role of a general decline in rainfall in SSA since the 1960s as an important factor in migration toward urban centers. Meanwhile, Marchiori, Maystadt, and Schumacher (2012) investigate the role of temperature and rainfall anomalies in SSA as factors explaining rural-urban migration and migration to other countries.

The migration patterns within SSA are also studied by Ruysen and Rayp (2014) using bilateral migration data. They found that intraregional migration is predominantly driven by geographic proximity (distance and adjacency), income differences, wars in the home country, political stability in host countries, network effects, and environmental factors.

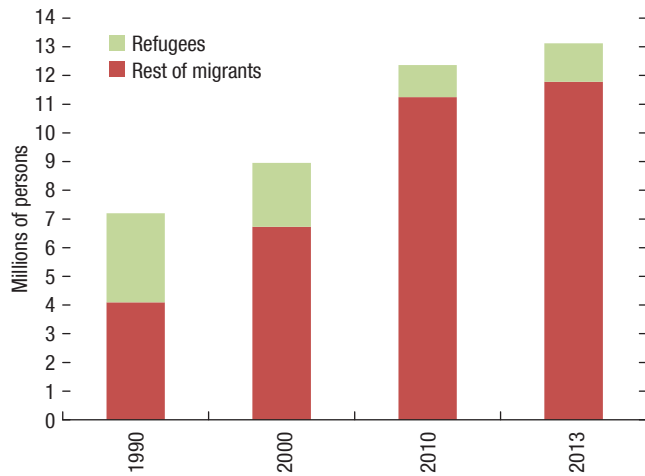
*Forced Migration*

As described above, conflicts and natural disasters are important determinants of intraregional migration. These two factors explain the flows of refugees and internally displaced persons.<sup>2</sup> The share of SSA

<sup>2</sup> Refugees are defined as “people forced to flee his or her country because of persecution for reasons of race, religion, nationality,



**Figure 4. Migration within Sub-Saharan Africa and Refugees, 1990–2013**



Sources: UN High Commissioner for Refugees database; and World Bank, Migration and Remittances database.

refugees among intraregional migrants has been decreasing since the 1990s (Figure 4), corresponding to the decline in large-scale conflicts in Southern and West Africa, and the end of the Rwandan genocide in the mid-1990s.

Five conflict-affected countries are the main sources of intra-African refugees (Figure 5). According to data available for 2013, the Democratic Republic of the Congo, the Central African Republic, Somalia, Sudan, and South Sudan were the largest senders of refugees within Africa. While refugees from Somalia found refuge in Kenya and Ethiopia, refugees from Sudan migrated to Chad and South Sudan. In fact, the SSA region currently hosts the largest refugee camps in the world (Figure 5).<sup>3</sup> These camps result in substantial fiscal costs for the host countries, estimated to range between 1 and up to 5 percent of GDP.

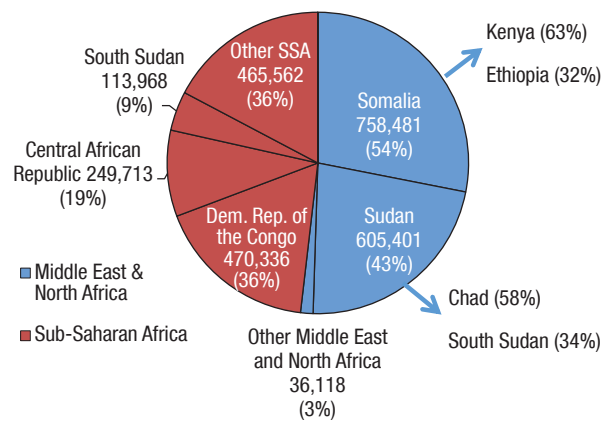
While the number of intraregional SSA refugees has declined, the number of internally displaced persons has risen significantly (Figure 6). Nigeria, the Dem-

political opinion, or membership in a particular group.” Internally displaced persons are refugees within their own countries or, as defined by the UN High Commissioner for Refugees, “people who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or in order to avoid the effects of armed conflict, situations of generalized violence, violations or human rights or natural or human-made disasters, and who have not crossed an internationally recognized state border” (<http://www.unrefugees.org/what-is-a-refugee/>).

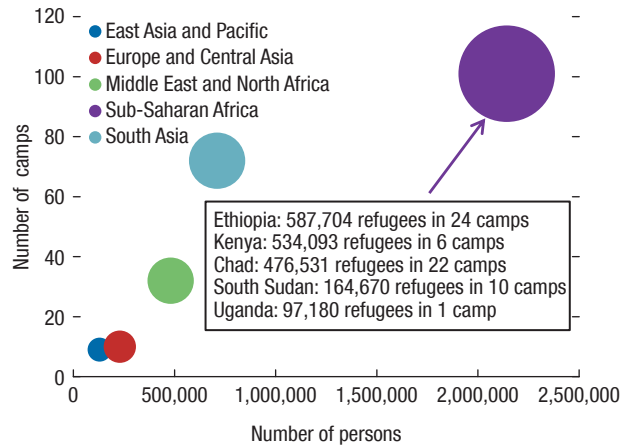
<sup>3</sup> The figure of Somali refugees in Kenya and Ethiopia includes also Yemeni refugees moving through Somalia.

**Figure 5. Sub-Saharan Africa as a Refugee Destination**

**1. By Region, 2013 (Number of persons)**



**2. Number of Persons in Refugee Camps**



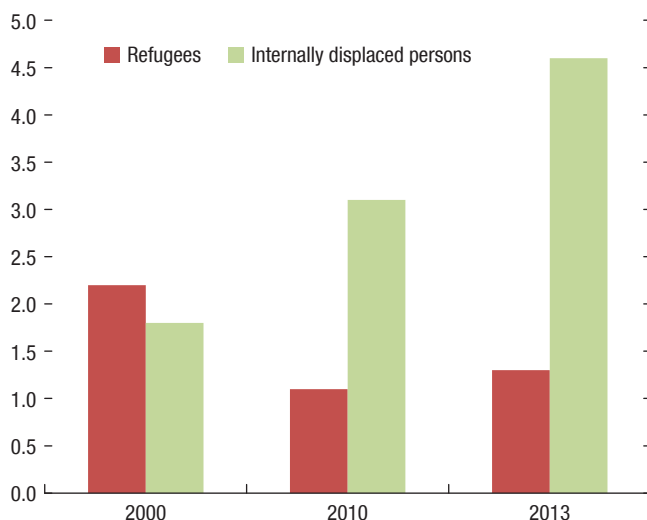
Source: UN High Commissioner for Refugees database.

ocratic Republic of the Congo, the Central African Republic, and South Sudan in particular, are among the countries most affected by internal displacement triggered by conflicts and violence.<sup>4</sup>

**Migration outside Sub-Saharan Africa**

Migration outside the region is driven mainly by economic reasons. In the 1990s, most migrants outside SSA were refugees, but thanks to the significant reduction of armed conflicts, by 2013 the great majority had moved for economic reasons and primarily toward advanced economies.

<sup>4</sup> Source: Internal Displacement Monitoring Centre, “Summary: Internal Displacement in Sub-Saharan Africa” (<http://www.internal-displacement.org/sub-saharan-africa/summary/>).

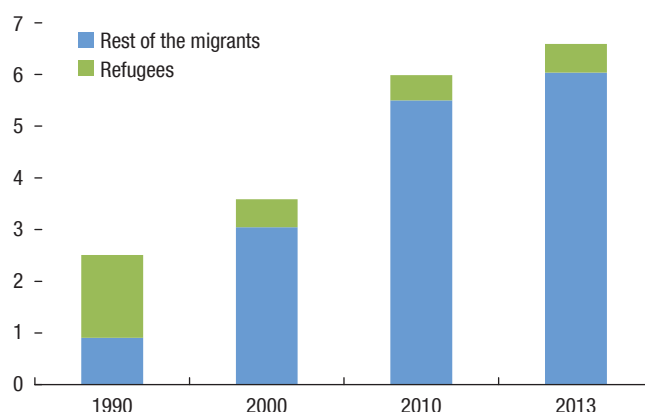
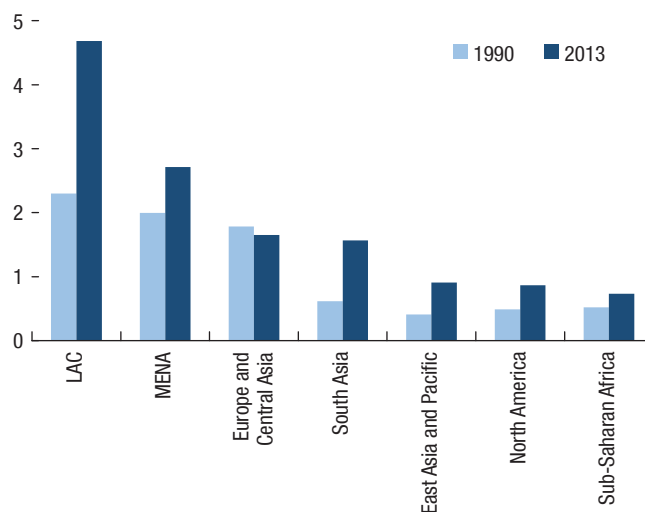
**Figure 6. Refugees and Internally Displaced Population, 2000 (Millions)**

Sources: UN High Commissioner for Refugees database.

Migration to the rest of the world is growing more rapidly than within the region. There were about 6.6 million SSA migrants outside the region in 2013, which is 2½ times the number recorded in 1990. Also, there has been a marked change in the composition of SSA migrants. In 1990 about 40 percent of migrants moved for economic reasons; by 2013 this share had risen to 90 percent.

However, in terms of total population, the rate of global migration in sub-Saharan Africa is small. Because of the large population in the region—about 12.6 percent of the total population of the world in 2013—the ratio of migration outside the region to population is the lowest in the world at only 0.7 percent. This is well below that in Latin America and the Caribbean, and the Middle East and Northern African regions, where the ratio is about seven and four times larger, respectively (Figure 7).

Although a few SSA countries, such as South Africa, Nigeria, and Ethiopia, have large numbers of emigrants—about 0.7 million people each—they are relatively large countries as well, so that in terms of total population those levels are small. However, in overall terms, they are net recipients of immigration. For small countries, emigration is proportionately more important as in Cabo Verde, which has about one-third of its population outside the region, or Mauritius, Sao Tomé and Príncipe, and Seychelles, which have global diasporas—stocks of people born in

**Figure 7. Migration to the Rest of the World****1. SSA Migrants by Type (Millions)****2. SSA Migrants in Rest of the World (Percent of population)**

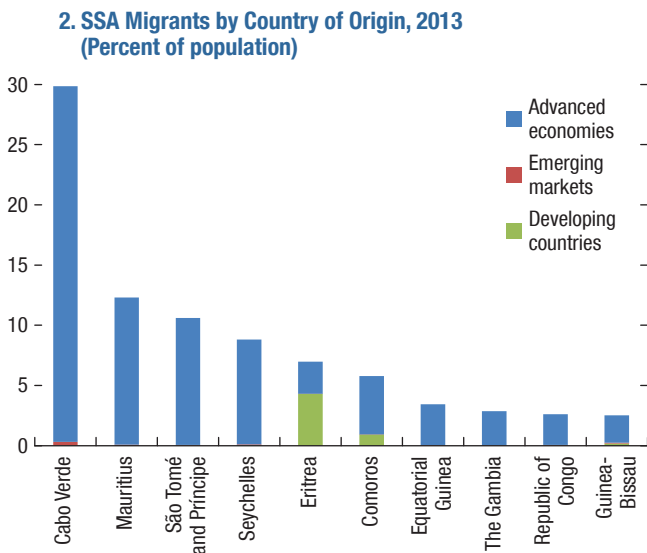
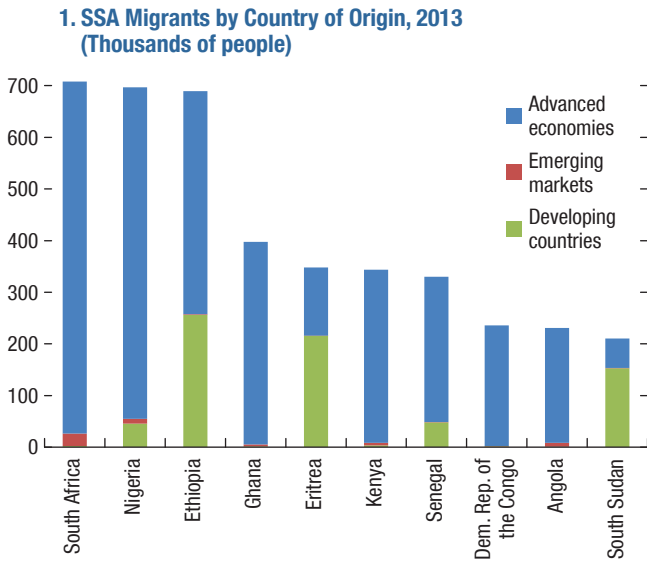
Source: World Bank, Migration and Remittances database.

these countries but living outside—of about 10 percent of their population (Figure 8).

About 85 percent of the total sub-Saharan African diaspora in the rest of the world is located in OECD countries. The United States, the United Kingdom, and France host about 50 percent of the total SSA diaspora. For the countries that have the most migrants outside the region as a share of their own population, detailed statistics show that migrants from Cabo Verde move mainly to Portugal, the United States, France, and the Netherlands; people from Mauritius tend to move to the United Kingdom, France, and Australia; from Sao Tomé and Príncipe to Portugal; and from



**Figure 8. Migration from Sub-Saharan Africa to the Rest of the World: Main Countries of Origin**

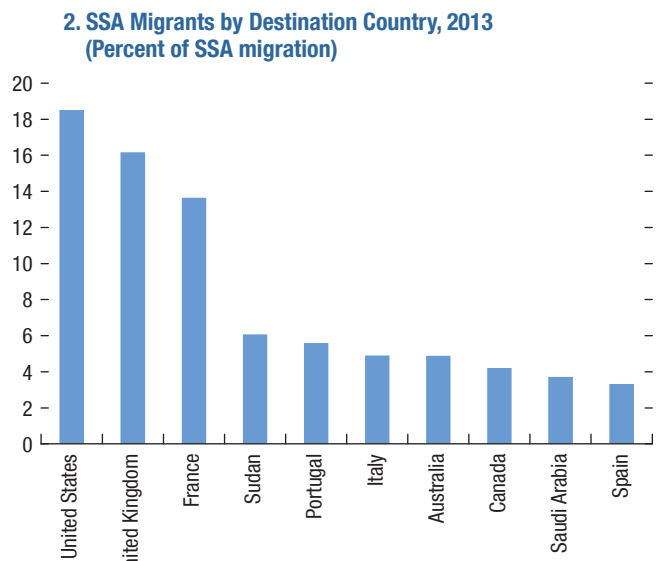
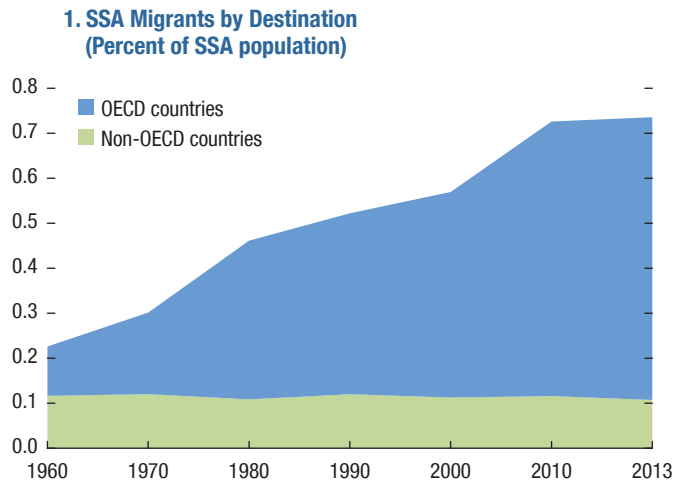


Sources: World Bank, Migration and Remittances database, and IMF staff calculations.  
 Note: SSA = Sub-Saharan Africa.

Seychelles to Australia and the United States. Meanwhile, Ethiopia and Eritrea—which have large diasporas overall—also have diasporas in some developing countries, with Saudi Arabia being the main destination in the case of Ethiopia, and neighboring Sudan for Eritrea and South Sudan (Figure 9).

In comparison with other groups of refugees, the contribution of SSA to the refugee crisis in Europe is small. SSA currently ranks well behind the Middle East

**Figure 9. Migration to the Rest of the World: Main Destination Countries**



Source: World Bank, Migration and Remittances database.  
 Note: OECD = Organisation for Economic Co-operation and Development; SSA = Sub-Saharan Africa.

as a source of refugees and asylum seekers to Europe. In 2014, SSA refugees accounted for only 8 percent of the almost 3 million refugees in Europe. The main sources of these refugees were Eritrea, the Democratic Republic of the Congo, Nigeria, Ethiopia, and Guinea. In 2015, the year of the unprecedented rise in asylum seekers in Europe, SSA asylum seekers accounted for 5 percent of the total and were coming mainly from Eritrea and Nigeria (Box 1).

### Box 1. Contribution of Sub-Saharan Africa to the Flow of Refugees toward Europe

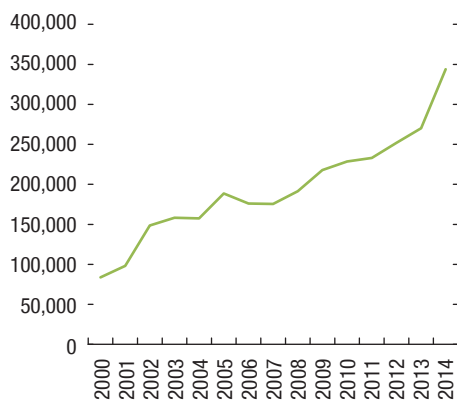
The discussion of the current refugee crisis in Europe focuses on flows coming from the Middle East. However, some of those refugee flows have their origins in sub-Saharan Africa.

The SSA region has contributed to a small but significant proportion of refugees arriving in Europe. Although small in comparison to other regions that are currently making the headlines, the number of SSA refugees in Europe has been on a gradual rise over the past two decades (Figure 1.1). In 2014, the SSA region was the third largest source of refugees in Europe, behind the European region and the Middle East, making up 10 percent of all the stock of refugees and asylum seekers arriving in Europe (Figure 1.2). SSA refugees and asylum seekers have been coming mainly from Eritrea, Nigeria, and the Democratic Republic of the Congo. The top three destinations were Italy, France, and Germany.

The refugee crisis has been exacerbated by the perilous sea arrivals, with obvious humanitarian implications.<sup>1</sup> In 2015, over 1 million refugees arrived by sea in Europe, out of which 6 percent were coming from Eritrea and Nigeria. In fact, Eritreans and Nigerians were among the top seven nationalities arriving in Europe by sea in that year (Figure 1.3). From January to June 2016, the UN High Commissioner for Refugees recorded over 260,000 sea arrivals, out of which 15 percent were mainly SSA (Figure 1.4). Nigeria and Eritrea contributed to more than 9 percent of the total arrivals, with the rest of nationalities coming from the region being represented by The Gambia, Côte d'Ivoire, and Guinea.

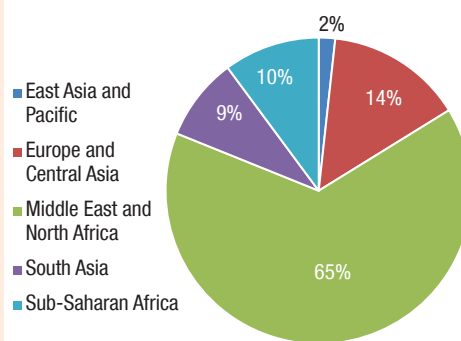
<sup>1</sup> Due to data limitations, for 2015–16 the contribution of SSA to the refugee crisis is based on data for arrivals by sea, which is the main means of transportation of refugees and asylum seekers toward Europe.

**Figure 1.1. Refugees from Sub-Saharan Africa and Asylum Seekers to Europe, 2000–14**  
(Number of persons)



Source: UN High Commissioner for Refugees database.

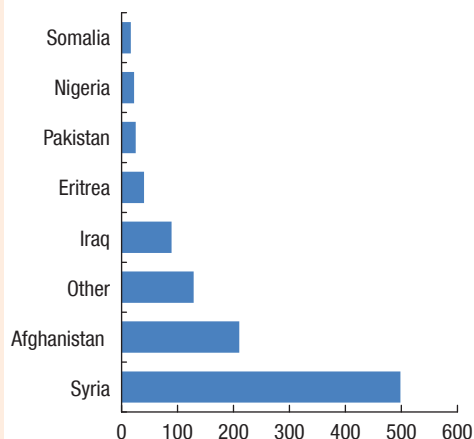
**Figure 1.2. Refugees from Sub-Saharan Africa and Asylum Seekers to Europe, by Source, 2014**  
(Shares of total refugees in percent)



Source: UN High Commissioner for Refugees database.

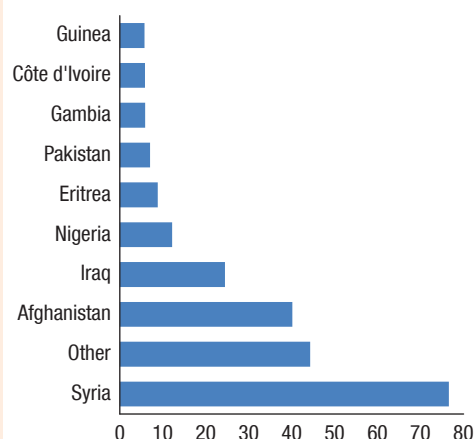
### Box 1. Contribution of Sub-Saharan Africa to the Flow of Refugees toward Europe (continued)

**Figure 1.3. Arrivals in Europe in 2015: Top Nationalities**  
(Thousands of people)



Source: UN High Commissioner for Refugees database.

**Figure 1.4. Top 10 Nationalities by Arrivals, January–June 2016**  
(Thousands of people)



Source: UN High Commissioner for Refugees monthly data.

### What Determines Migration outside Sub-Saharan Africa?

A gravity model for migration is useful to identify the determinants of migration outside the region and compare its role in other developing countries. Since ordinary least squares or scaled ordinary least squares are not well suited for estimations involving count data, a Poisson regression is used (see Flowerdew, 2010). The OECD Database on Immigrants in OECD and Non-OECD Countries provides detailed data on the flows of migrants from developing countries to OECD countries with annual frequency since the mid-1990s. The sample of 117 developing countries used here includes 43 from sub-Saharan Africa.<sup>5</sup>

The determinants considered are the following variables, which were identified based on the literature on modelling migration:

- differences in per capita income for each pair of destination and origin countries;
- relative size of working-age population in origin country compared to that in the destination country;

<sup>5</sup> Data for South Sudan are very incomplete, and South Africa is not considered in this estimation as the group consists of developing countries.

- existing diaspora of sub-Saharan Africans in OECD countries;
- distance between each pair of countries;
- public health spending in each OECD country; and
- indicator variables for common language, previous colonial relationship, wars in SSA, and landlockedness (origin and destination countries).

All variables are interacted with an indicator variable for SSA countries to test whether the role of determinants of migration is different in SSA compared to the entire sample of developing countries. The model is similar to the ones found in the literature; see, for instance, Beine, Docquier and Rapoport (2011) and Lewer and Van den Berg (2008).

The difference in per capita income between OECD countries and developing countries is a significant economic pull factor for migration flows, while its magnitude shows no difference between SSA and the entire group of developing countries. There is a positive effect on migration flows from population pressure, which confirms that strong population growth in origin countries is a push factor; this effect is slightly milder for SSA migrant flows. The effect of diasporas is stronger for SSA migration, implying that SSA migrants take

**Table 1. Determinants of Migration from Developing to OECD Countries, 1997–2013**

Dependent variable: Annual migration flows	
Relative income	0.000021 ***
Relative income * SSA	0.000003
Relative working-age population	0.048279 ***
Relative working-age population * SSA	-0.031431 **
Diaspora	0.636926 ***
Diaspora * SSA	0.101773 ***
Distance	-0.150250 ***
Distance * SSA	-0.282808 ***
Public health expenditure in destination	-0.052085 **
Public health expenditure in destination * SSA	0.182570 ***
War	-0.025126
War * SSA	-0.172995
Common language	0.039642
Common language * SSA	0.386946 ***
Colonial relationship	0.255735 **
Colonial relationship * SSA	-0.665794 ***
Landlocked origin country	0.344752 ***
Landlocked origin country * SSA	-0.642640 ***
Landlocked destination country	-1.197046 ***
Landlocked destination country * SSA	0.204346
Number of observations.	49,108

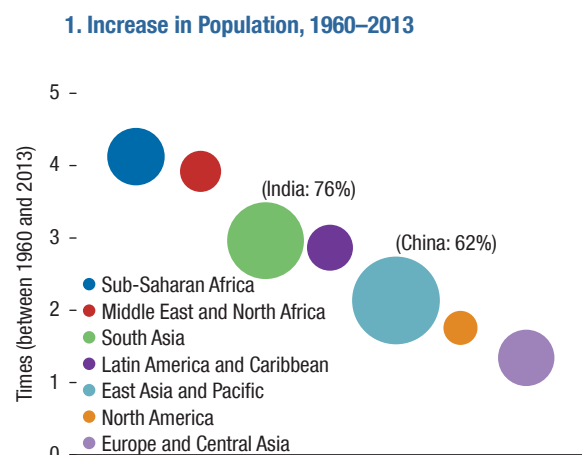
Source: IMF staff calculations.  
 Note: SSA = Sub-Saharan Africa.  
 \*\* $p < .05$ ; \*\*\* $p < .01$ .

more advantage of the help and network of diasporas. Distance and landlockedness inhibit migration from SSA, most likely because of the very large size of the region, and costly and difficult transportation. SSA migrants are more attracted by the provision of health services than migrants from other developing countries, having a common language is more important for SSA migration, but a previous colonial relationship is not; the United States, not a previous colonizer, is the main destination (Table 1).

### Demographic Transition and Global Migration

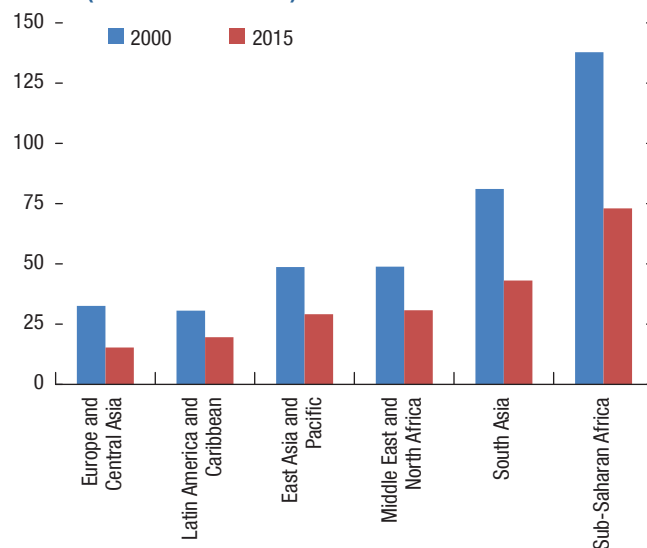
This section provides a forward-looking perspective of potential spillovers in terms of increased migration from sub-Saharan Africa to advanced economies. This trend is expected to continue in the coming decades as a consequence of economic conditions and strong demographic and migration trends. As a result, sub-Saharan African migration to advanced economies is set to increase in the coming decades.

**Figure 10. Population and Mortality Rate**



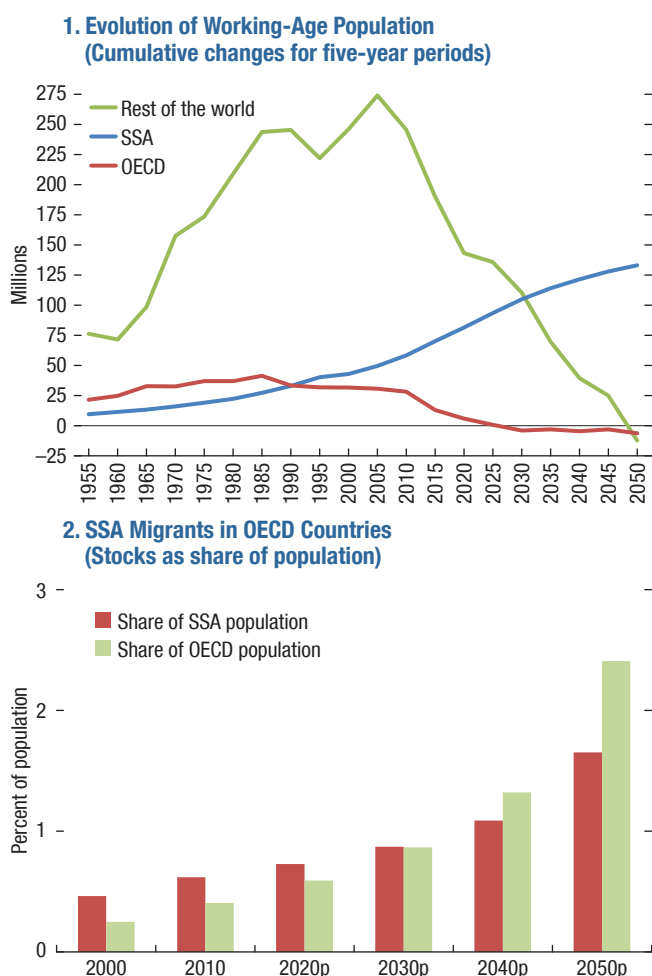
Source: World Bank, Migration and Remittances database.  
 Note: The size of the sphere is relative to population in 2013.

**2. Mortality Rate of Infants Less Than Five Years Old, 2015 and 2000 (Per thousand infants)**



Source: World Bank, World Development Indicators.

A number of important developments underlie the projected trends. First, marked income differences with advanced economies will persist in the future. Second, there is ongoing a profound demographic transition in SSA that most likely will result in larger migration flows. This demographic transition is the result of a combination of still-strong population growth—total population has increased fourfold since the 1960s—a declining fertility rate, and the reduction in the infant mortality rate, which has been halved since 2000 (Figure 10).

**Figure 11. Demographic Trends and Migration**

Sources: United Nations, World Population Prospects (panel 1); World Bank, Migration and Remittances database, and IMF staff calculations (panel 2). Note: OECD = Organisation for Economic Co-operation and Development; SSA = Sub-Saharan Africa.

Strong population pressure will likely play an important role in shaping migration in the coming decades. As a result of the above demographic trends, not only will total population increase rapidly, from about 900 million in 2013 to 2 billion by 2050, but the working-age population (WAP), the group that typically feeds migration, is set to increase even more rapidly, from about 480 million in 2013 to 1.3 billion in 2050 (Figure 11).

The projections suggest that SSA migrants in OECD countries would increase from about 6 million in 2013 to 18 million in 2040, and reach 34 million by 2050. These projections are based on a gravity model for migration from SSA to OECD countries similar to the

one described in the previous section.<sup>6</sup> The projected increase in the stock of sub-Saharan Africans in OECD countries in the next 35 years implies that the rate of migration to OECD countries would increase from 0.6 percent in 2010 to 1.7 percent of SSA population by 2050. By the same token, given the very slow population growth expected for OECD countries, the ratio of SSA migration as share of OECD population would increase six times, from just 0.4 percent in 2010 to 2.4 percent by 2050 (Figure 11).<sup>7</sup>

### Brain Drain and Brain Gain

The loss of educated and productive workers that migrate has been a major topic of study in the migration literature, and most studies have traditionally underscored the deleterious impact of emigration. However, recent studies have noted that skilled migration may bring some net positive impact in countries sending migrants abroad through incentives for capital accumulation, which may be reinforced by remittances and the help of diasporas to transfer knowledge. This section reviews the results in the literature.

### Brain Drain versus Brain Gain

Until recently, the literature on brain drain and brain gain was essentially theoretical, due to scarce homogenous data on migration by skills and origin country. The negative economic impact of brain drain is the loss in the sender country of the positive externalities of skilled individuals that are key to economic growth and social well-being. These externalities are (1) the productivity and innovation spillovers arising from the network of innovators and access to knowledge associated with having highly skilled workers (Grubel and Scott, 1966); (2) the impact on public services resulting from skilled medical doctors and education professionals (Kremer, 1993); and (3) the fiscal contribution associated to the income earned by highly skilled workers (Bhagwati and Hamada, 1974).

Since the 1990s, the brain drain issue has been questioned. Some economists have argued that the brain drain may actually be turned into a net posi-

<sup>6</sup> For these projections, the model includes South Africa. Note the model is estimated for flows, thus to obtain the stocks of migrants in OECD countries, the projected flows are accumulated to the latest available stock of SSA migrants in the OECD corresponding to 2013.

<sup>7</sup> Annex 1 presents some out-of-sample predictions of the model.

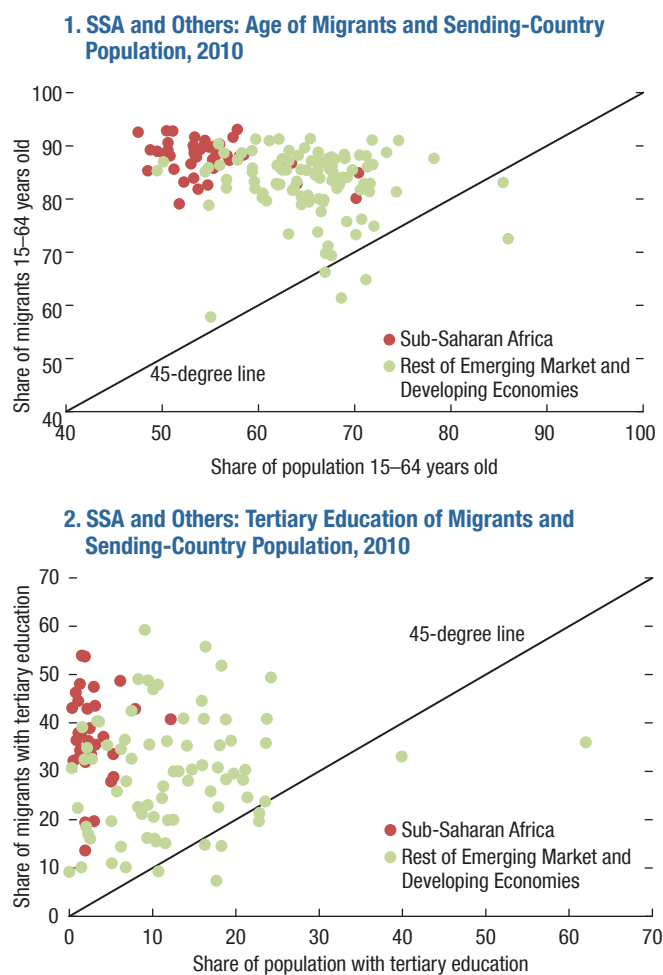
tive impact for the sending country or a brain gain, as long as there are enough incentives to accumulate human capital in the migrant-sending countries. More specifically, a brain gain may occur when migration induces higher investments in education in view of the possibility of migrating, and additional investments in human capital are large while only a fraction of the educated individuals actually migrate, resulting in a greater stock of human capital (Mountford, 1997; Stark and Yong, 2002; Beine, Docquier, and Rapoport, 2001). In addition, the incentives to increase human capital could be reinforced by the inflow of remittances that help cover the cost of education in the country of origin, the return of migrants with enhanced skills, and the role of the diaspora network to transfer knowledge to the home country (Docquier and Rapoport, 2011).

However, the subject is still debated and there is no consensus on the strength of the brain gain effects. For instance, Schiff (2005) suggests that positive impacts of skilled emigration are greatly exaggerated. In particular, the author shows that both the size of the human capital gain, as well as the impact on the return to education, are smaller than those implied by the brain gain literature. More specifically, when there is pooled unskilled and skilled migration, the return to education is reduced, as unskilled migration tends to actually reduce the expected return to education. Another channel that reduces the brain gain is what the author refers to as “brain waste,” which arises when migrants are overqualified for the jobs they can get abroad, which results in loss of income and also reduces incentives to acquire education.

### Review of Empirical Evidence for Sub-Saharan Africa

In general, the evidence about the net impact of migration of highly skilled workers is mixed, and this applies also for studies focusing on sub-Saharan Africa. The data show clearly that compared with other regions, migrants from SSA do tend to be younger and more educated than the native population, which is evidence of brain drain (Figure 12). In particular, the size of the migration of medical doctors and health care professionals has been well documented. Studies have shown that the medical brain drain from Africa is the highest in the world (Clemens and Pettersson, 2006; Bhargava and Docquier, 2006; and Docquier and Rapoport, 2011). However, the impact of the medical brain drain on health in the region is still

**Figure 12. Sub-Saharan Africa: Emigration of the Most Highly Skilled**  
(Percent)



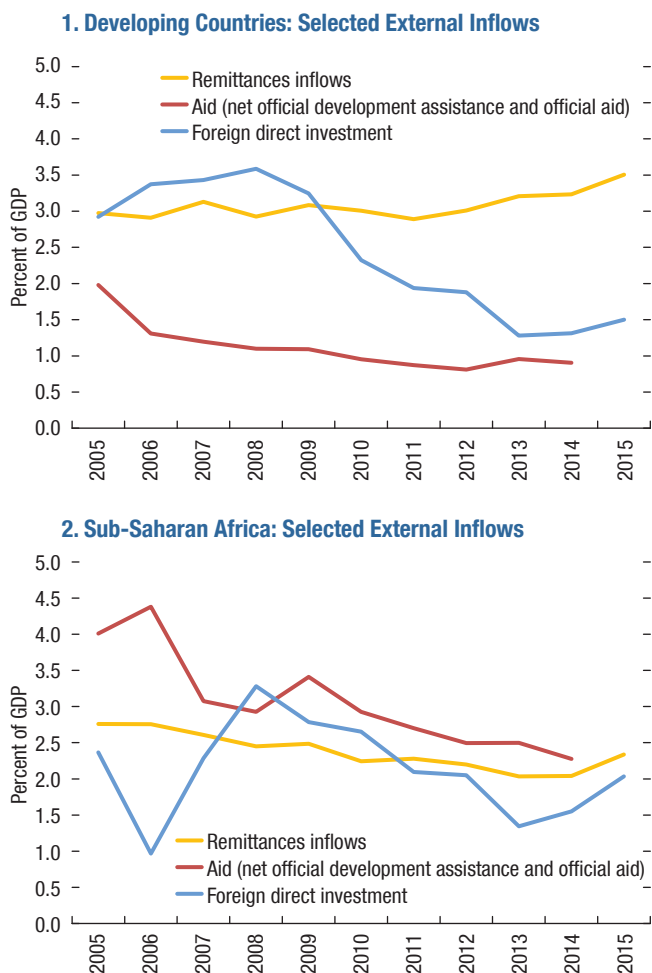
Sources: Organisation for Economic Co-operation and Development, International Migration Database; World Bank, World Development Indicators; and IMF staff calculations (panel 1); additionally, Barro-Lee database (panel 2).

unclear. While some studies find a negative impact on adult health (Bhargava and Docquier, 2008), others have not found evidence of effects on child mortality (Clemens, 2007).

Some studies have recently found empirical evidence of a brain gain in a few SSA countries, such as in Cabo Verde and Ghana. For instance, Batista, Lacuesta, and Vicente (2010) use survey data on Cabo Verde to show that an increase of 10 percentage points in the probability of future emigration is associated with an increase in the probability of completing intermediate secondary schooling by 8 percentage points. Similarly, Easterly and Nyarko (2008) and Nyarko (2011) use



**Figure 13. Selected Financial Flows in Developing Countries and Sub-Saharan Africa**  
(Percent)



Sources: IMF, World Economic Outlook database, World Bank, World Development Indicators; and World Bank, Migration and Remittances database.  
Note: No data available for aid in 2015.

data for Ghana to show that a positive change in the stock of tertiary-educated nationals outside the country is associated with increased acquisition of skills at home. Also, some studies have found evidence of a net medical brain gain (Clemens, 2007), as emigration prospects have a positive impact on enrollment in medical schools.

### The Macroeconomic Role of Remittances

Remittance flows play an important macroeconomic role in SSA. They constitute a major source of foreign exchange and income for several sub-Saharan African

economies, contribute to the alleviation of poverty, and help reduce macroeconomic fluctuations.

### Evolution and Trends

During the last two decades, remittance<sup>8</sup> inflows have increased rapidly and now constitute one of the largest sources of external finance for developing countries. Recorded remittance flows to developing countries are estimated to have reached 3½ percent of GDP in 2015 (Figure 13).<sup>9</sup> Furthermore, in 2015, remittances appear to have leapfrogged foreign direct investment as the largest source of foreign exchange earnings for developing countries, owing in part to the sharp decline of the latter.

Remittances have also proved remarkably resilient during economic downturns compared to foreign direct investment and official development assistance. For instance, throughout the rough patch after the global financial crisis, remittances only dropped slightly in 2008 and 2010, remaining robust throughout. They rapidly recovered in 2011 and have kept growing since. On the other hand, foreign direct investment and portfolio equity flows are significantly more volatile and may even present episodes of sudden stops.

Remittance flows in sub-Saharan Africa—albeit increasing in nominal terms—have decreased slightly as a share of GDP due to relatively rapid economic growth in the region. Officially recorded remittance flows in SSA (both from the rest of the world and intraregional) clocked at about 2.3 percent of GDP in 2015, although this is likely an underestimate due to difficulties in tracking informal channels for remittances.<sup>10</sup> This level of remittances as a percent of GDP is smaller than in the whole group of developing countries, most probably because SSA migration occurs mainly within the region and this type of migrants sends significantly smaller amounts of remittances. Most of the remittance flows come from outside the region, mainly from advanced economies, and account

<sup>8</sup> Data on remittances are obtained from the World Bank Migration and Remittances database. As explained in Ratha (2003), these remittance flows include workers' remittances reported under current transfers in the current account; compensation to border, seasonal, and other nonresident workers; and migrant transfers reported in capital transfers of the capital account.

<sup>9</sup> Better data collection, lower transfer costs, and increasing migration are among the main factors driving the rise of recorded nominal remittances in recent years.

<sup>10</sup> Freund and Spatafora (2005) estimate informal remittances to amount to between 35 and 75 percent of officially recorded flows.

for ¾ of total flows, while the rest corresponds to flows between SSA countries (Figure 14). Remittance flows tend to be fairly stable but tend to co-move with growth in advanced economies.

Although the bulk of migrants from sub-Saharan African countries work within the region, remittances from advanced economies are by far the largest (Figure 14). Lesotho, Mali, and Togo are among the countries with the highest dependence on remittances from other SSA countries but advanced economies are the main source of remittances for most countries where remittances represent an important share of GDP, as in the case of The Gambia, Comoros, Liberia, Senegal, and Cabo Verde, where those flows have averaged above 10 percent of GDP in the last three years.

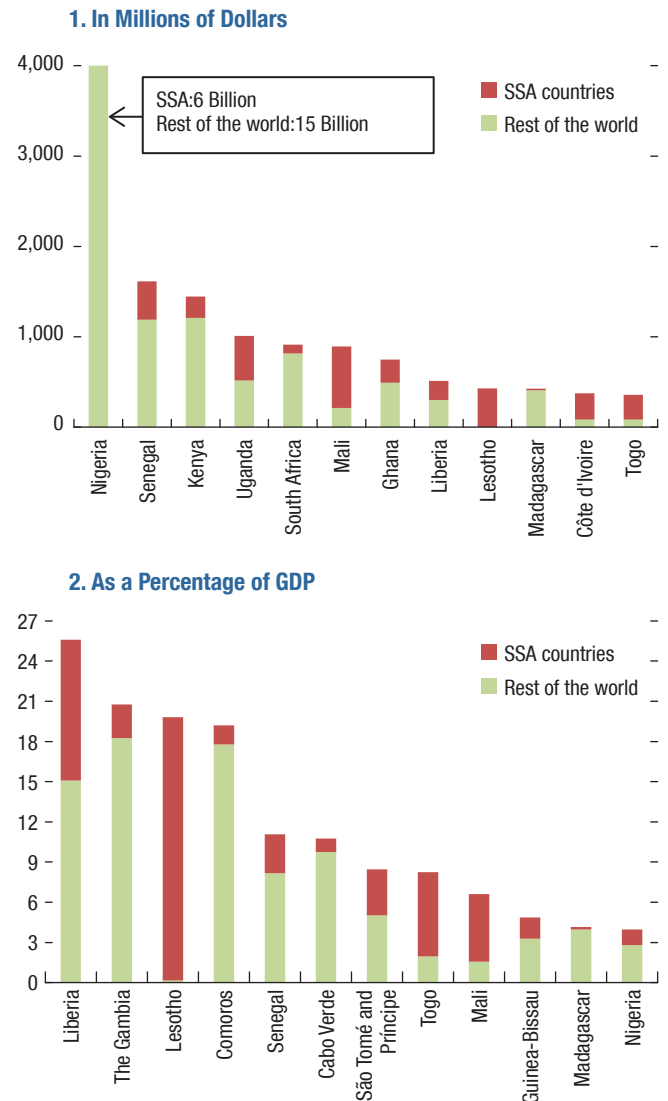
### Economic Impact of Remittances

The empirical literature on the effects of remittances in recipient countries has become widespread over the last decade and has focused mainly on the microeconomic effects on households. However, the sizable upward trend followed by remittances is shifting attention to the assessment of their impact at the macroeconomic level. This burgeoning work has covered an array of issues and has brought insightful policy guidance for the macroeconomic management of these flows. Among the most covered subjects in the literature are (1) the ability of remittances to promote growth, alleviate poverty, and reduce inequality; (2) their stabilizing effects on macroeconomic fluctuations; and (3) their possible negative effects on competitiveness through “Dutch disease” effects.

#### Growth and Poverty Reduction

Adams and Page (2005) found that remittances significantly reduce the level, depth, and severity of poverty in developing countries. Remittances reduce poverty, not only directly but also through their positive impact on financial development and by loosening borrowing constraints. Remittances give financially constrained households access to credit markets by collateralizing assets they build using the remittances received, contributing to an increase in aggregate investment. Similarly, a fraction of remittances can be invested in human and physical capital, increasing productivity and growth in the longer term. In addition, remittances promote access to financial services, as many receiving families engage in a relationship with a

**Figure 14. Remittances to Sub-Saharan Africa: Top Receivers, 2013–15**



Source: World Bank, Migration and Remittances database.  
Note: SSA = Sub-Saharan Africa.

financial institution, usually a bank or a wire transfer company, to facilitate the reception of remittances regularly. However, the ability of remittances to enhance long-term growth is still at doubt, as shown by Barajas and others (2009).

#### Reduction of Macroeconomic Volatility

One of the most positive effects of remittances is their role to help reduce macroeconomic volatility, although it should be noted that not all remittances are necessarily stabilizing. Remittances are sent mostly for altruistic motives, but also for investment purposes (the

portfolio approach). In the latter case, remittances tend to increase when returns are higher, which most likely coincides with periods of strong growth in the home country, and may decrease during downturns. This type of flows may actually contribute to volatility. On the other hand, altruistic remittances are more stable as they aim at supporting the households in the origin country (Ratha, 2007). Consequently, pro-cyclical remittances tend to deepen business cycles, while countercyclical remittances help dampen those fluctuations (Durdu and Sayan, 2010; Loko, Ebeke, and Viseth, 2014).

There is evidence that, at least for some African countries, remittances are mainly driven by altruistic motives, as they tend to increase when the recipient economy undergoes negative macroeconomic shocks from natural disasters, financial crisis, conflict, or the like (Gupta, Patillo, and Wagh, 2009; Jidoud, 2015). Remittances can also contribute to stability by lowering the severity of the effects of current account reversals (Bugamelli and Paterno, 2009) and reducing the volatility of external earnings (Chami and others, 2008).

Also, remittances are increasingly deemed to improve the capacity of a country to service its debt. As a result, the joint World Bank-IMF Debt Sustainability Analysis framework now incorporates remittances in assessing a country's risk of external debt distress by adding them to the denominator of several debt ratios, in order to better evaluate the debt burden (IMF, 2013).

### *A Word of Caution*

Despite these obvious benefits, remittances may in some circumstances elicit undesirable side effects. “Dutch disease” (a real exchange rate appreciation) is the most undesirable consequence in remittances-dependent countries. Like other financial flows (development aid, natural resources revenues, etc.), large flows of migrant transfers into a country could result in an appreciation of the real exchange rate and loss of competitiveness (e.g., Bourdet and Falck, 2006, regarding Cabo Verde). In addition, remittances could lead to a deterioration in institutional quality by providing easy financing (Abdih and others, 2008) and reducing incentives for macroeconomic discipline (Chami and others, 2008).

### **Concluding Remarks**

Migration within and outside the region has been growing rapidly and its magnitude has doubled since

1990. Most migration occurs within the region, accounting for about 70 percent of the total, but migration to the rest of the world has been increasing faster. Refugee migration has fallen since the 1990s, but migration for economic reasons has increased quickly.

The demographic transition that is already ongoing in sub-Saharan Africa implies strong growth of the working-age population, which typically feeds migration. Most likely, there will be spillovers from the region toward the rest of the world in the form of increased migration to advanced economies. Projections suggest that the ratio of sub-Saharan African migrants to OECD population would increase sixfold in the coming decades, from about 0.4 percent in 2015 to 2.4 percent by 2050.

As migration both within and outside the region will continue to expand in the coming decades, it is necessary to design policies that will allow the rapid integration of migrant workers in recipient countries into labor markets in order to boost the labor force, which will allow a positive impact on growth and public finances over the long term.<sup>11</sup> This will also help minimize social tensions often associated to migration that are derived from concerns about the displacement of native workers and fiscal costs. These workers can have a positive impact on growth in receiving countries, in particular those where the population is aging rapidly, bring additional tax revenues and much needed social contributions to support the retired and retiring workers. On the other hand, the flows of remittances sent back to origin countries will continue to support the living standards of relatives in the origin countries, helping to alleviate poverty, and will continue to play an important role at the macroeconomic level as a stable source of foreign earnings.

### **Annex 1. Robustness Check**

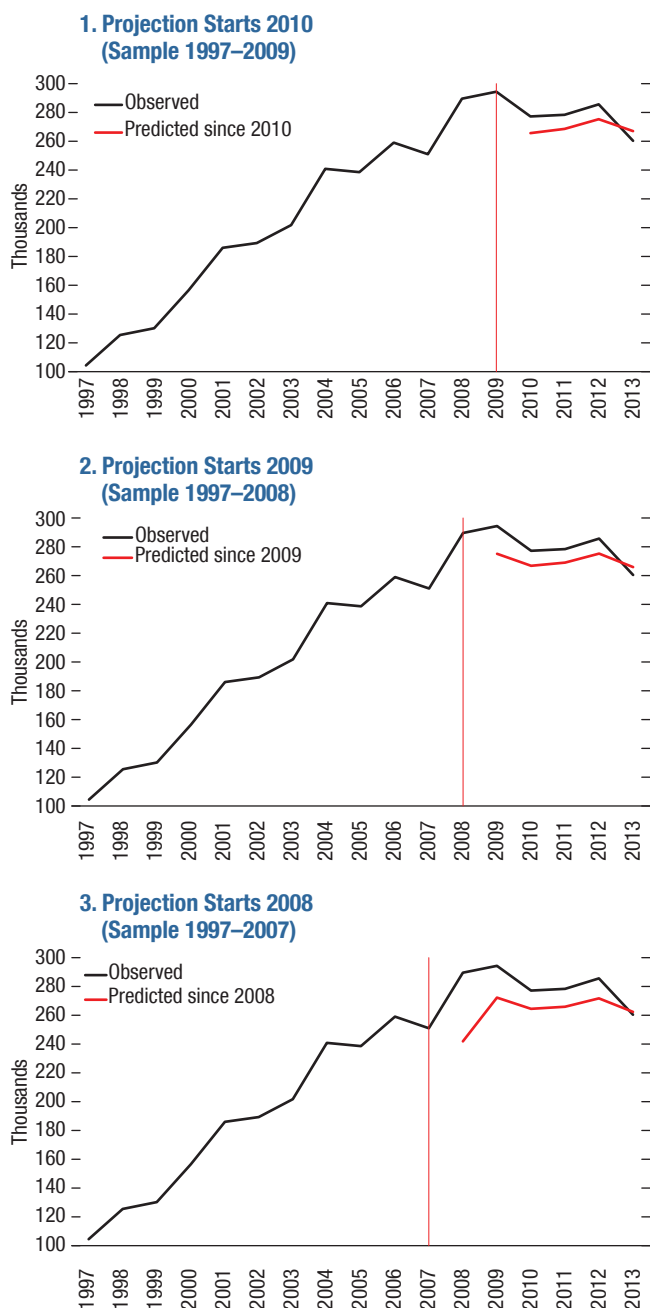
#### **Out-of-Sample Forecasts**

Alternative estimations allow the prediction capacity of the model to be assessed. Three alternative estimations were obtained using different samples, and their respective out-of-sample predictions are compared with the data. The estimations use samples starting in 1997

<sup>11</sup> See Jaumotte and others (2016).

## Annex Figure 1.1. Out-of Sample Forecasts: Annual Flow of SSA Migration

(Thousands)



Source: IMF staff calculations.

and ending in 2009, 2008, and 2007, respectively. The corresponding out-of-sample predictions cover 2010–2013, 2009–2013, and 2008–2013 and follow the observed data well, despite the large shock resulting from the global financial crisis.

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