CHAPTER 26

African Migration

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Contents

Abbreviations

CRED Center for Research on the Epidemiology of Disasters
DRC Democratic Republic of the Congo
EU European Union
FDI Foreign Direct Investment
GCC Gulf Cooperation Council
GDP Gross domestic product
IFAD International Fund for Agricultural Development
IOM International Organization for Migration
IV Instrumental variables
KIDS KwaZulu-Natal Income Dynamics Study
NGO Non-Governmental Organization
OECD Organization for Economic Cooperation and Development
OLS Ordinary least squares
PPP Purchasing power parity
SAMP Southern African Migration Project
SSA Sub-Saharan Africa
TEBA The Employment Bureau of Africa
UK United Kingdom
UN United Nations
UNCTAD United Nations Conference on Trade and Development
UNDP United Nations Development Program
UNECA United Nations Economic Commission for Africa
UNESCO United Nations Educational, Scientific and Cultural Organization
UNHCR United Nations High Commissioner for Refugees
US United States
WAEMU West African Economic and Monetary Union
WHO World Health Organization

Africa is no stranger to mass migrations. For more than 100 millennia, following their initial evolution, which may have been in the coastal area near the present-day borders of Namibia and Angola, *Homo sapiens* moved northwards then migrated out of Africa for the first time some 70,000 years ago (Tishkoff et al., 2009). Recent DNA evidence points to some potential interbreeding with *Homo neanderthalensis*, a prior inhabitant of Europe, before migrating onwards ultimately to populate all but the Antarctic region (Green et al., 2010). Starting about 2000 years ago, although the precise pattern of mobility remains disputed, the spread of the Bantu-speaking peoples, originating from today's Cameroon and Eastern Nigeria, led to one of the largest migrations seen in recent millennia, displacing or integrating with the indigenous inhabitants of East and eventually South Africa (Oliver, 1966). From the sixteenth to the nineteenth centuries, perhaps 12 million Africans were trafficked in the trans-Atlantic slave trade (Lovejoy, 1989); very rough estimates of the magnitude of the trans-Sahara slave market operated by Arabic traders, which began much earlier, suggest comparable and possibly even larger numbers (Austen, 1987). These immense movements have left their legacies (Nunn and Wantchekon, 2011), but the purpose in the coming pages is to record Africa's experience with cross-border movements in the modern era.

Two main strands run through the discussion: the features of migration that set Africa apart; and evidence from the African context on some of the cross-cutting themes in the migration literature. It is not uncommon to treat sub-Saharan Africa and Africa as synonymous—they are not. The coverage here encompasses both sides of the Sahara and is divided into six main sections. The first sets the stage, establishing some background information about the continent and noting some distinguishing features of its recent migration flows. The second documents key migration policies, both within and beyond the region, that affect these movements. The next two sections then turn to correlates and the composition of migration, followed by a look at remittance markets and patterns of these transfers, before turning to address some of the key consequences of these outcomes in Section 5. The chapter closes by drawing some tentative lessons from this review in looking to the future of African migration.

1. INTRODUCING THE SETTING

In their book on global migration, Hatton and Williamson (2005, p. 246) were moved to title a chapter "Where are all the Africans?" The question was posed by the authors because "Africans make up only a small minority of those who manage, one way or another, to become permanent residents in more-developed parts of the world, particularly Europe and North America" (Ibid.). Yet it is maintained, in the present chapter, that international migration is of considerable importance to Africa and likely to become far more so in the foreseeable future.

The data in answer to the question posed by Hatton and Williamson have subsequently undergone major enhancement. Estimates compiled in World Bank (2011a) show the number of persons, born in Africa and living, at the turn of the millennium, in a country other than where they were born, to be nearly 20 million. This represents some 2.4% of the home population of Africa, in comparison to the UN (2009a) estimate of a world migrant stock equal to 2.9% of global population at the time. Africa's diaspora is thus somewhat lower than that from the rest of the world, relative to population, but not by much.

Figure 26.1 draws upon those World Bank (2011a) data to depict the dispersal of the African diaspora at the time of the 2000 census for each host country. Clearly an important feature of African international migration is that well over half of African migrants live in another country in Africa.[1] In addition, by 2000 there were some 1.8 million Africans in the six countries of the Gulf Cooperation Council (GCC: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and United Arab Emirates) and a further 7 million were in the 34 states that were or became members of the Organization for Economic Cooperation and Development (OECD) by 2010. Relative to home population, the African emigration rate to the OECD countries is not especially low compared to other low-income regions, which is illustrated in Figure 26.2. Africa has far more migrants per capita
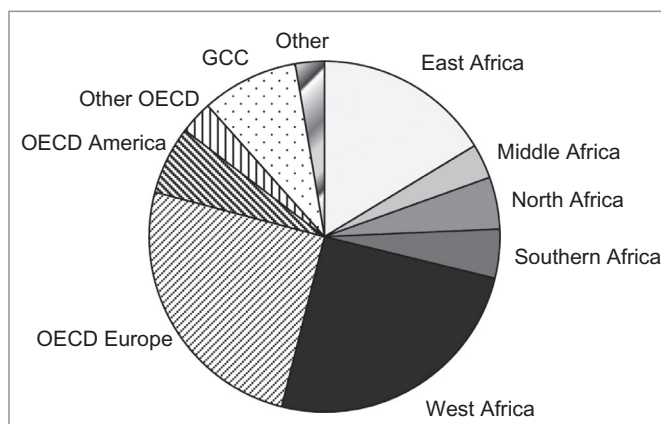
Figure 26.1 *Location of Africa's diaspora.* Source: *World Bank (2011a) data.*

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[1] Comparisons with other developing regions depend very much upon the regional classification adopted. Nonetheless it is interesting to note that only 15% of migrants from Latin America and the Caribbean remain within their region, as do 28% of those from South-East Asia. On the other hand, the partition of India contributed to the estimate of 51% of South Asian migrants observed within their own region (World Bank, 2011a).
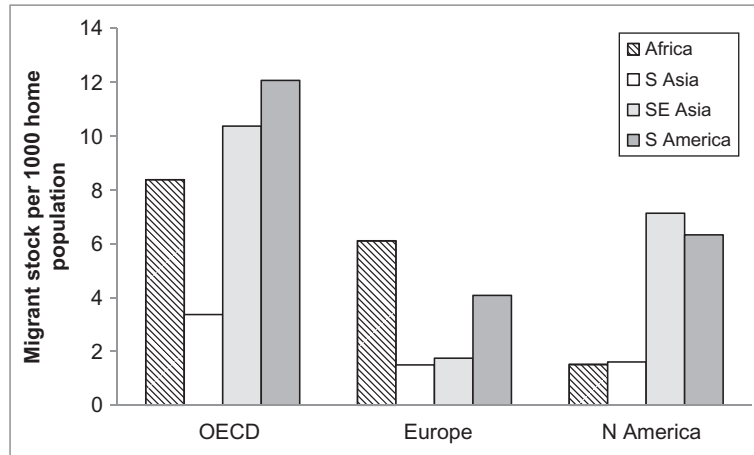
Figure 26.2 *Migrant stock in OECD relative to home population: major low-income regions in 2000.* Sources: *World Bank (2011a) and UN (2010a)*.
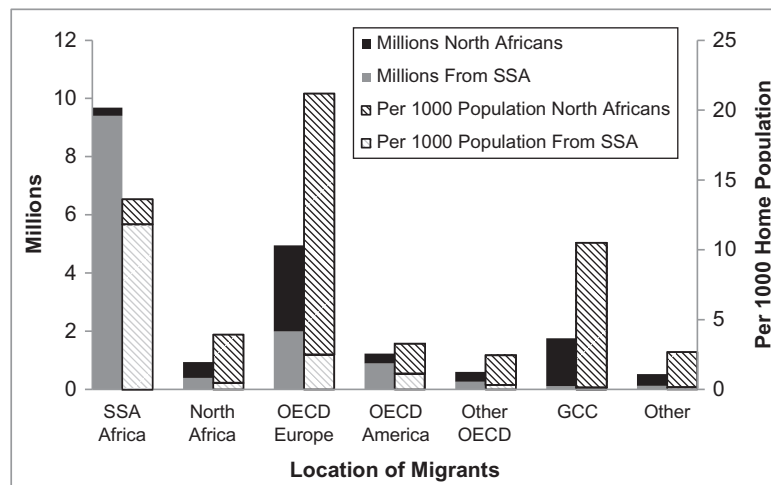
Figure 26.3 *North African and SSA migrants by location.* Source: *World Bank (2011a) data.*

in the OECD countries than does South Asia, though somewhat less than South-East Asia and South America.

However, an important distinction needs to be drawn that will permeate this chapter: over half of the Africans in the OECD are North Africans. As Figure 26.3 shows, nearly three-quarters of migrants from sub-Saharan Africa (SSA) remain within Africa and very

few of these cross the Sahara into North Africa. Sixty percent of Africans in OECD Europe, and 93% of those in the GCC, were from North Africa in 2000. Relative to home population, North Africans are nearly 7.5 times more likely to be in OECD Europe and over 70 times more likely to be in the GCC than are sub-Saharan Africans. Moreover, North Africans are generally more mobile between countries than are those from further South, such that North African expatriates number 41 per thousand home population, compared to less than 17 from SSA. However, in contrast to those from SSA, 87% of North Africa's diaspora is outside of Africa; mobility among the countries of North Africa is relatively limited. Nonetheless, the numbers in the OECD countries from SSA, per capita, are still much greater than for South Asians.

What are some of the broad features of Africa that underlie these migration patterns?

1.1 The colonial heritage

The specific colonial legacies of Africa's states and territories still reverberate today, shaping countries' boundaries, administrative and legal structures, second and sometimes first language, and educational systems. After the League of Nations mandated a transfer of former territories under German control (Togo, Kamerun, German East and South West Africa) in 1920, Africa was partitioned almost completely among six European colonial powers (Table 26.1). Egypt was unilaterally declared independent by Britain in 1922, otherwise only Ethiopia, Liberia, and South Africa were then independent states, though South Africa was a British Dominion and Ethiopia was later invaded by Italy in 1935.[2] Algeria actually remained an integral part of France itself until 1962, being divided into a number of French *prefectures*; both Mayotte and Réunion remain French *départements* today. St Helena also remains a British Dependent Territory, though its residents lost their prior right of abode in the UK under the 1981 British Nationality Act, while the fortified enclaves of Melilla and Ceuta on the Moroccan coast as well as the Canary Islands remain integral parts of Spain.

Among those who leave Africa, these former colonial links still impact the specific destinations. Table 26.2 shows the current locations of the African diaspora among the old colonial powers against the former colonial powers of the countries of origin; the diagonal elements are generally quite large, though there are exceptions. As of 2000, 45% of the diaspora from France's former colonies living outside of Africa was in France; 53% and 77% of the diasporas outside of Africa from the former Portuguese

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[2] The Italian territories again changed control during World War II: Ethiopia regained its independence in 1941 and Eritrea came under Ethiopian control; Italian Somaliland initially passed under British administration then became a United Nations (UN) Trusteeship until merging into Somalia at independence; separate portions of Libya briefly came under British and French administration prior to independence. Upon independence, Western Sahara was claimed by Morocco and remains disputed territory.

Table 26.1 African countries and areas: controlling power by 1922 and year of independence

Country	Power	Year	Country	Power	Year	Country	Power	Year
Algeria	France	1962	Gabon	France	1960	Nigeria	Britain	1960
Angola	Portugal	1975	Gambia	Britain	1965	Réunion	France	
Benin	France	1960	Ghana	Britain	1957	Rwanda	Belgium	1962
Botswana	Britain	1966	Guinea	France	1958	Saint Helena	Britain	
Burkina Faso	France	1960	Guinea-Bissau	Portugal	1974	SaoTome–Principe	Portugal	1975
Burundi	Belgium	1962	Kenya	Britain	1963	Senegal	France	1960
Cameroon	Britain/France	1961/60	Lesotho	Britain	1966	Seychelles	Britain	1976
Cape Verde	Portugal	1975	Liberia			Sierra Leone	Britain	1961
C. African Rep.	France	1960	Libya	Italy	1951	Somalia	Britain/Italy	1960
Chad	France	1960	Madagascar	France	1960	South Africa		
Comoros	France	1975	Malawi	Britain	1964	Sudan	Britain/Egypt	1956
Congo	France	1960	Mali	France	1960	Swaziland	Britain	1968
Côte d'Ivoire	France	1960	Mauritania	France	1960	Tanzania	Britain	1961
Dem. Rep. Congo	Belgium	1960	Mauritius	Britain	1968	Togo	France	1960
Djibouti	France	1977	Mayotte	France		Tunisia	France	1956
Egypt			Morocco	France/Spain	1956/58	Uganda	Britain	1962
Eq. Guinea	Spain	1968	Mozambique	Portugal	1975	W. Sahara	Spain	1976
Eritrea	Italy	1993	Namibia	South Africa	1990	Zambia	Britain	1964
Ethiopia			Niger	France	1960	Zimbabwe	Britain	1980

Table 26.2 African diaspora in non-African states by former controlling power and location in 2000 (%)

Location 2000	Former controlling power						
	UK	France	Belgium	Portugal	Italy	Spain	Independent
UK	26.8	4.2	8.8	19.1	5.8	6.6	1.7
France	2.1	45.1	2.8	4.2	0.7	2.6	0.3
Belgium	0.2	3.3	13.6	0.3	0.2	0.4	0.0
Portugal	1.0	0.6	1.7	53.2	0.0	0.0	0.0
Italy	4.0	11.9	3.4	1.3	5.1	0.4	2.2
Spain	0.9	7.8	0.8	1.1	0.2	77.0	0.1
Other EU	7.8	10.1	25.1	8.5	18.8	6.3	3.4
Commonwealth	17.9	2.3	18.1	1.1	10.3	0.5	4.1
Other non-Africa	39.1	14.6	25.6	11.1	59.1	6.2	88.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: World Bank (2011a).

and Spanish controlled portions of Africa were in Portugal and Spain respectively. From the former British colonial territories, 27% were in the UK itself, with an additional 18% in the other countries of the Commonwealth of Nations (notably Australia and Canada). Belgium's and particularly Italy's links with their former colonial territories seem much more tenuous in terms of the diaspora spread. However, it is interesting to note that more than 90% of the diaspora from the few parts of Africa that were independent during the 1920s were in none of the former major colonial power countries in 2000.

The mechanisms driving the various links can, of course, be manifold, including language, familiarity and information, preferential immigration policies, and spurious correlation with distance. Some of these factors are explored in later sections of this chapter, but certainly former colonial links are not the only ones that matter; for example, the second largest concentration of Ethiopians outside of their home country is in Israel, reflecting a mass movement of Ethiopian Jews.

1.2 Porous borders and the influence of geography

In the late nineteenth century, the colonial powers tended to draw borders quite arbitrarily to mark the limits of their conquests (McEwan, 1968). Many of these current borders cut across traditional tribal lands, migratory and nomadic routes. By 2010 the UN listed 57 countries or areas, fragmenting Africa, since when Sudan has divided. Nine of the territories are island states, of which only Madagascar had a population over 1.5

million in 2010, while the rest exhibit the high emigration rates typical of so many small island states.[3]

There are 51,581 miles of land boundaries separating the 48 states on the mainland of Africa.[4] Despite a large commitment of resources, the US has limited success in monitoring crossings along its 1952 mile land border with Mexico. In Africa, the potential to maintain any semblance of border control over most of the land boundaries is unthinkable, particularly given the severe resource limits.[5] The borders are generally extremely porous and, in many ways, any distinctions between internal and international migrations within the continent are quite artificial.

The porous borders help to explain the high incidence of inter-state migration within SSA. Geography helps to explain some of the patterns of intercontinental movement. The Strait of Gibraltar separates Morocco from Spain by less than eight miles, and the Italian island of Lampedusa lies 70 miles off of the coast of Tunisia; the three High Maghreb countries (Algeria, Morocco, and Tunisia) constitute 95% of the North Africans in OECD Europe, though their combined home populations are less than 40% of North Africa's total. Similarly, Egypt is separated from Saudi Arabia only by the narrow Gulf of Aqaba and provides more than three-quarters of the African migrants to the GCC. But Africa is vast, amounting to about a fifth of the earth's land mass; the US, European Union, Brazil, and China together occupy an area about equal to that of Africa. In consequence, large portions of SSA are quite remote from the higher income regions. Cape Town is just under 5000 flight-miles from the nearest OECD capital, which is Athens, nearly 7000 miles from Sydney and 8000 from New York. As we shall see, such distances play a significant part in deterring moves out of Africa.

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[3] The nine are: Cape Verde, Comoros, Madagascar, Mauritius, Mayotte, Réunion, St. Helena, Sao Tome and Principe, and Seychelles.

[4] Calculated from data in "Land boundaries: border countries by country", CIA World Factbooks, 18 December 2003 to 28 March 2011. Retrieved from <http://www.NationMaster.com/red/graph/geo_lan_bou_bor_cou-geography-landboundaries-border-countries&b_printable=1>.

[5] An officer of the African Union Border Program states: "African boundaries are characterised by a high level of porosity/permeability and poor or lack of management ... For instance, African international boundaries are 'protected' by about 350 official road crossing points ... most control posts are 16–20 kilometers away from the border ... There are some land boundaries in Africa that are not crossed by road, rail or waterway", giving the examples of Central African Republic-Congo and Tanzania-DRC (Okumu, 2011, p. 2). Similarly, "Niger's foreign minister says his country is unable to close its border with Libya to prevent fugitive Libyan leader Muammar Gaddafi fleeing south ... Asked if Niger might close its border, Mr Bazoum said: 'We have no means to close the border ... It is too big and we have very, very small means for that'" (BBC News, 7 September 2011), <http://www.bbc.co.uk/news/world-africa-14825541>. Kenya is currently embroiled in attempting to seal its border with Somalia against entry of al-Shabaab members, meeting with some success with African Union cooperation.

1.3 Economic growth and poverty

Economic development and migration are simultaneously intertwined; lack of development induces greater pressures to emigrate while limiting the resources to do so; in turn, migration can influence the speed of development at home, though not always in a positive fashion. Independence came late to most of Africa. At the outset of 1960, 47 of the African countries and areas listed in Table 26.1 remained under colonial control. The Portuguese territories achieved separation only in 1975 after the protracted Portuguese Colonial War. As a result, the process of post-independence economic development suffered a late start. Sadly, Africa's subsequent overall growth performance since independence has been lackluster: GDP per capita grew on average by less than 1% per year in the half century from 1960 to 2010 for sub-Saharan Africa (SSA) as a whole (Figure 26.4).

In purchasing-power-parity (PPP)$, South Asia's income overtook that of sub-Saharan Africa in 1998, leaving SSA the lowest income region in the world (Table 26.3) with a GDP per capita of $2022 (in 2005 PPP$) by 2010, which is slightly less than 70% of that in South Asia (World Bank, 2011b).

The low incomes in the region clearly help to understand why Africa has been a steady source of net out-migration. Meanwhile, the poverty of the region has, of course, detracted from its attractiveness to migrants from beyond Africa's shores, but there are many reasons for migrating. According to the World Bank (2011a) estimates there were just over 1.5 million persons, born outside of Africa, residing in Africa at the time of the 2000 censuses. As Table 26.4 shows, about 60% of these were Europeans, with some of the former colonial powers plus Germany representing the largest country sources. Many
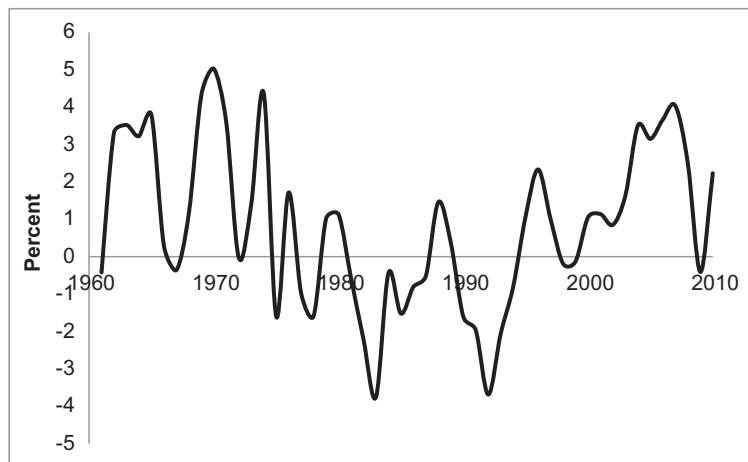
Figure 26.4 *Growth in GDP per capita: sub-Saharan Africa.* Source: *World Bank (2011b).*

Table 26.3 Income levels and population growth: major world regions and selected sub-regions

	GDP per capita (PPP$ 2008)	Annual population growth (%) 1985–2010
World	9693	1.41
Africa	3356	2.47
North Africa	5138	1.93
Sub–Saharan Africa	2584	2.62
Asia	5826	1.45
Eastern Asia	8651	0.89
Southern Asia	2894	1.90
South–Eastern Asia	4717	1.57
Western Asia	11,575	2.30
Europe	23,736	0.17
Latin America and Caribbean	9893	1.54
North America	42,525	1.02
Oceania	25,281	1.55

Sources: GDP, World Bank (2011b); population, UN Population Division (2010a).

Table 26.4 Persons born outside of Africa residing in Africa in 2000

Location of origin	Number
Eastern Asia	**58,298**
China	44,928
Southern Asia	**140,565**
India	112,512
Western Asia	**230,275**
West Bank and Gaza	88,963
Lebanon	45,791
Europe	**950,726**
France	334,140
United Kingdom	277,472
Portugal	79,949
Germany	47,228
Belgium	46,561
Italy	34,300
North America	**83,935**
United States	69,284
Other	**76,161**
Total	**1,539,960**

Source: World Bank (2011a).

from China, India, and Lebanon are traders of various kinds; the Chinese and Indians tend to be concentrated in East Africa while those from Lebanon are in West and North Africa.[6]

Yet the average economic performance of SSA masks considerable variation, both between and within countries. Equatorial Guinea has a GDP per capita more than 100 times that in the Democratic Republic of Congo (DRC), while even the DRC is apparently better off than Zimbabwe (Table 26.5).[7] Compared to the rest of the world Africa has relatively few countries with a Gini index below 30 and a correspondingly large fraction of countries with a Gini over 45, according to World Bank estimates. These same data show four African countries to be among the six most unequal in the world: Comoros, Namibia, South Africa, and Angola. Economic growth in the region has begun to pick up since the turn of the millennium. Nonetheless, for 17 African countries, real income levels stood lower in 2010 than in 1980 and poverty remains a serious issue throughout much of the continent. The poverty data in Table 26.5 report the average World Bank estimate that is available for each country between 2000 and 2010 (involving only a single-year estimate for most countries). For 21 countries the head-count ratio of people below the extreme poverty line of PPP$1.25 per day exceeds 50%, and is over 75% at the $2 level.

Understanding the roles played by these variations in African living standards in shaping regional migration is of considerable importance, posing important issues with respect to future prospects for population movements, and is the subject of closer scrutiny in later sections of this chapter.

1.4 Demographic transition

Lagging economic development has meant that demographic transition has come later to Africa than to most of the world. In their study of emigration rates from Europe during 1860–1913, Hatton and Williamson (1998) found that the high European birth rates of that era, lagged 20 years, increased emigration significantly and substantially. Such demographic factors may work both directly, by increasing the pool of potential migrants and particularly those in the high migration age interval from 15 to 30, and indirectly through dilution of earning opportunities. Over the last quarter century, Africa had the fastest rate

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[6] In 2000, the Palestinians (from the West Bank and Gaza in Table 26.4) were almost entirely in North Africa, equally split between Egypt and Libya; by the end of 2010, UNHCR reports 70,000 Palestinian refugees in Egypt and none in Libya.

[7] *Sources:* GDP and poverty data from World Bank (2011b) except: Somalia and Zimbabwe plus 1980 data for Angola, Cape Verde, Djibouti, Equatorial Guinea, Ethiopia, Guinea, Sao Tome and Principe (plus 2000), Tanzania, and Uganda from Penn World Tables (Heston et al., 2011). GDP per-capita data for Djibouti, Libya, Somalia, and Zimbabwe refer to 2009 not 2010. PPP GDP per-capita estimates for Mayotte in 2005, Western Sahara in 2007, and St Helena in 1998 are from the CIA World Fact Book. Population data are from UN (2010a).

Table 26.5 GDP, poverty, and population

	GDP per capita			Poverty			Population	
		Annual growth since		Headcount ratio		Poverty gap		Growth
	2010	2000	1980	PPP $1.25	PPP $2	PPP $1.25	2010	2000–10
	PPP 2005$	%	%	%	%	%	Millions	%
AFRICA							1022.2	2.34
Sub–Saharan Africa							856.3	2.50
Eastern Africa							324.0	2.56
Burundi	361	0.35	−0.59	81.3	93.5	36.4	8.4	2.78
Comoros	1071	−0.2	−0.33	46.1	65	20.8	0.7	2.71
Djibouti	2106	2.01	−2.07	18.8	41.2	5.3	0.9	1.96
Eritrea	492	−2.64					5.3	3.66
Ethiopia	912	5.62	1.43	47.3	82	12.9	82.9	2.38
Kenya	1465	1.39	0.21	19.7	39.9	6.1	40.5	2.63
Madagascar	893	−0.17	−1.22	72.1	89.2	33.9	20.7	3.03
Malawi	791	1.72	0.46	73.9	90.5	32.3	14.9	2.87
Mauritius	12,262	2.97	4.05				1.3	0.83
Mayotte	4900						0.2	3.21
Mozambique	844	5.28	2.2	67.1	85.9	30.3	23.4	2.54
Réunion							0.8	1.36
Rwanda	1079	4.84	0.95	76.7	89.9	39.6	10.6	2.75
Seychelles	20,269	1.06	2.09	0.1	0.9	0	0.1	0.95
Somalia	461	−0.04	−1.70				9.3	2.35
Uganda	1129	3.95	2.62	45.4	70.2	16.2	33.4	3.28
United Rep. Tanzania	1286	4.03	1.96	78.2	92.2	37.5	44.8	2.79
Zambia	1401	3.14	−0.3	64.4	83.3	29.9	13.1	2.52
Zimbabwe	143	−5.61	−1.66				12.6	0.05
Middle Africa							126.7	2.79
Angola	5480	7.87	2.84	54.3	70.2	29.9	19.1	3.20
Cameroon	2009	0.93	−0.01	21.2	44	5.7	19.6	2.26

Table 26.5 GDP, poverty, and population—cont'd

	GDP per capita			Poverty			Population	
		Annual growth since		Headcount ratio		Poverty gap		Growth
	2010	**2000**	**1980**	**PPP $1.25**	**PPP $2**	**PPP $1.25**	**2010**	**2000–10**
	PPP 2005$	%	%	%	%	%	*Millions*	%
Central African Rep.	691	−0.9	−1.08	62.6	81	29.8	4.4	1.75
Chad	1199	5.03	2.1	61.9	83.3	25.6	11.2	3.16
Congo	4096	2.43	1.13	54.1	74.4	22.8	4.0	2.57
Dem. Rep. of Congo	303	1.77	−3.08	59.2	79.6	25.3	66.0	2.89
Equatorial Guinea	31,471	13.93	12.26				0.7	3.02
Gabon	13,527	0.19	−0.77	4.8	19.6	0.9	1.5	2.00
Sao Tome and Principe	1699	5.78	0.30	29.7	55.9	8.5	0.2	1.61
Northern Africa							**209.5**	**1.75**
Algeria	7530	2.15	0.57				35.5	1.51
Egypt	5451	3.16	2.73	1.9	18.9	0.4	81.1	1.83
Libyan Arab Jamah.	14,985	2.17					6.4	1.97
Morocco	4164	3.64	1.95	4.4	19.2	0.7	32.0	1.05
Sudan	2023	3.77	2.17				43.6	2.45
Tunisia	7714	3.55	2.56	2.6	12.8	0.5	10.5	1.03
Western Sahara	2500						0.5	5.34
Southern Africa							**57.8**	**1.17**
Botswana	12,644	2.66	4.4				2.0	1.33
Lesotho	1444	2.43	1.84	43.4	62.3	20.8	2.2	1.01
Namibia	5994	2.54	0.66				2.3	1.88
South Africa	9482	2.18	0.26	21.8	39.3	5.7	50.1	1.14
Swaziland	4488	1.08	2.29	62.9	81	29.4	1.2	1.09
Western Africa							**304.3**	**2.59**
Benin	1368	0.68	0.58	47.3	75.3	15.7	8.8	3.11
Burkina Faso	1139	2.25	1.87	56.5	81.2	20.3	16.5	2.97
Cape Verde	3458	4.29	4.30	21	40.9	6.1	0.5	1.27

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Côte d'Ivoire	1559	−1.08	−1.75	23.5	46.6	7.2	19.7	1.76
Gambia	1249	0.8	0.04	34.3	56.7	12.1	1.7	2.91
Ghana	1472	3.47	1.35	30	53.6	10.5	24.4	2.44
Guinea	946	0.7	−0.25	56.7	78.4	23.6	10.0	1.81
Guinea–Bissau	979	−1.07	0.27	48.8	77.9	16.5	1.5	2.02
Liberia	366	−2.7	−5.11	83.7	94.8	40.8	4.0	3.44
Mali	955	2.33	0.81	56.3	79.6	22.3	15.4	3.13
Mauritania	1793	1.31	0.14	21.2	44.1	5.7	3.5	2.73
Niger	637	0.76	−1.26	54.5	80.8	20	15.5	3.57
Nigeria	2138	3.92	0.83	64.4	83.9	29.6	158.4	2.51
Saint Helena	2500						0.0	−2.21
Senegal	1675	1.35	0.43	38.8	65.8	12.6	12.4	2.72
Sierra Leone	746	6.02	−0.18	53.4	76.1	20.3	5.9	3.54
Togo	796	0.01	−1.03	38.7	69.3	11.4	6.0	2.32

Sources: See footnote 7.
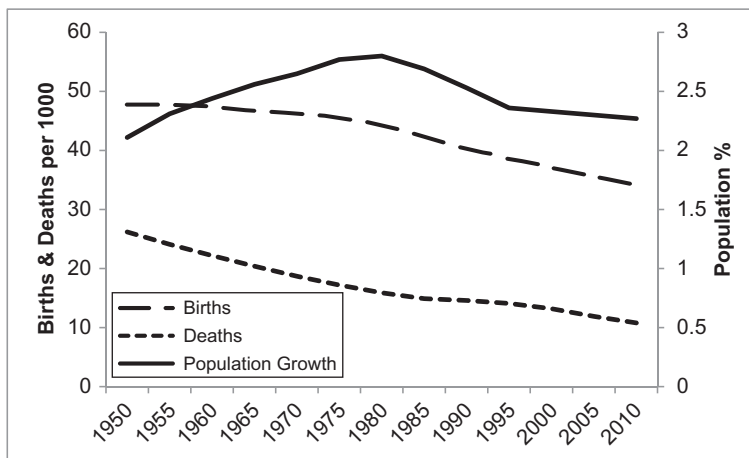
Figure 26.5 *Africa: crude birth and death rates and population growth.* Source: *UN (2010a).*

of population growth of any major region in the world (Table 26.3).[8] Total fertility rates of women in Africa peaked in the early 1960s but only began to decline more sharply after 1980. Meanwhile, despite the mixed record with respect to income progress, African death rates have declined fairly steadily, though somewhat less quickly with the advent of the HIV-AIDS epidemic. In combination, population growth reached its zenith in the early 1980s (Figure 26.5).

The overall region has thus undergone a transition point to diminishing population growth, as have most of the individual countries in the region (Eastwood and Lipton, 2011). Yet, despite the fact that fertility rates have now declined from their peak in every country in the region, and especially so in North Africa, questions remain about the underlying causes of a "delayed" demographic transition in particular countries (Economic Commission for Africa, 2001; Conley et al., 2007). Discerning turning points to declining population growth for some African countries is complicated by gyrations with multiple local maxima, even switching from negative to positive expansion, notably in countries that have suffered civil wars. Certainly, however, such countries as Burkina Faso, Madagascar, Mali, and Niger show little sign of abatement in their population growth to date. More generally, only Afghanistan and Timor-Leste had fertility rates higher than the figure of 5.1 children per woman in SSA during 2005–10. In combination, Africa's population crossed a billion in the decade after 2000, amounting to nearly 15% of global population; five countries now have populations over 50 million, by far the

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[8] All population data from UN (2010a).

largest being Nigeria, followed by Ethiopia, Egypt, DRC, and South Africa (Table 26.5). The total population of Africa is projected to cross 2 billion by mid-century. The rapidly rising population suggests the potential for extremely large increments to outward migration over the coming decades. In particular, increments to the youth population, amongst whom the likelihood of emigration is high, are focusing attention on the implications of slow economic development for high rates of youth unemployment throughout much of Africa (African Development Bank et al., 2012).

1.5 Conflict and refugees

Violence and poverty are intimately linked, though the directions of causality are not easy to identify (Collier and Hoeffler, 2004; Justino, 2006; Esteban and Ray, 2011). Ethnic and tribal fragmentation, within Africa's boundaries left by partition, has no doubt also contributed to the prevalence of civil conflicts in the region (Collier, 2003). The Uppsala Conflict Data show armed conflicts taking place within 38 African countries since 1980 and involving a further five states (Uppsala Conflict Data Program, 2011). Some of the small island states in the region are among the few to have escaped. The Foreign Policy ranking of failed states lists eight African countries among the 11 most critical in the world.[9]

This spate of widespread conflicts has pushed a large number of Africans into refugee status. Figure 26.6 illustrates that the stock of refugee population, originating from Africa, under the mandate of the UN High Commissioner for Refugees, rose fairly steadily from 1961 to a peak in 1994 of nearly 7 million, declining to just under 3 million by 2010. It is clear from Figure 26.6 that, throughout, almost all of these African refugees were in other African states. Moreover, the burden of refugee inflows has been quite uneven within the continent, as is apparent in Figure 26.7, and only three non-African countries (Yemen, the US, and UK) provided asylum to more than 1% of African refugees during the two decades to 2010. On average, from 1980 to 2010, Africans have represented a third of all refugees in the world. Although the refugee population originating from Africa has declined over the last 15 years, they still represented 27% of all world refugees in 2010. Of the wider Population of Concern[10] to the office of United Nations High Commissioner for Refugees (UNHCR), Africans amounted to nearly a third in 2010.

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[9] The eight (with ranking) are: Somalia (1), Chad (2), Sudan (3), DRC (4), Zimbabwe (6), Central African Republic (8), Côte d'Ivoire (10), and Guinea (11). Foreign Policy, Failed States Index 2011 at <http://www.foreignpolicy.com/articles/2011/06/17/2011_failed_states_index_interactive_map_and_rankings>.

[10] The Population of Concern includes the refugee and returned refugee populations, asylum seekers, protected and returned internally displaced persons, and stateless persons.

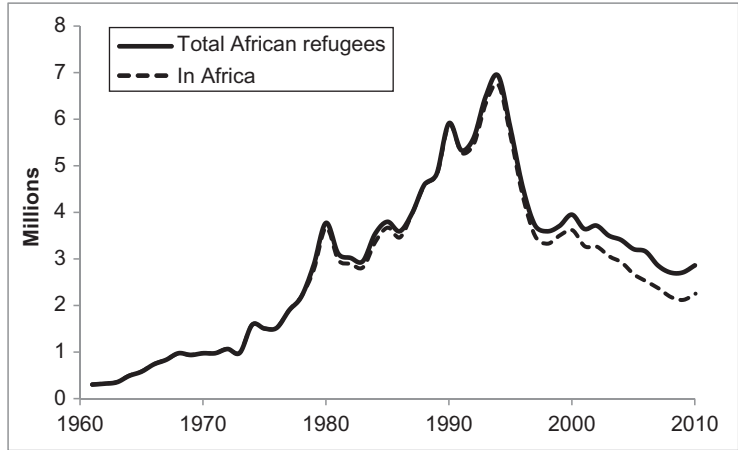**Figure 26.6 *Refugee population of African origin: total number and portion in Africa, 1961–2010.***
Source: *UNHCR Statistical Online Population Database at < http://www.unhcr.org/pages/4a013eb06.
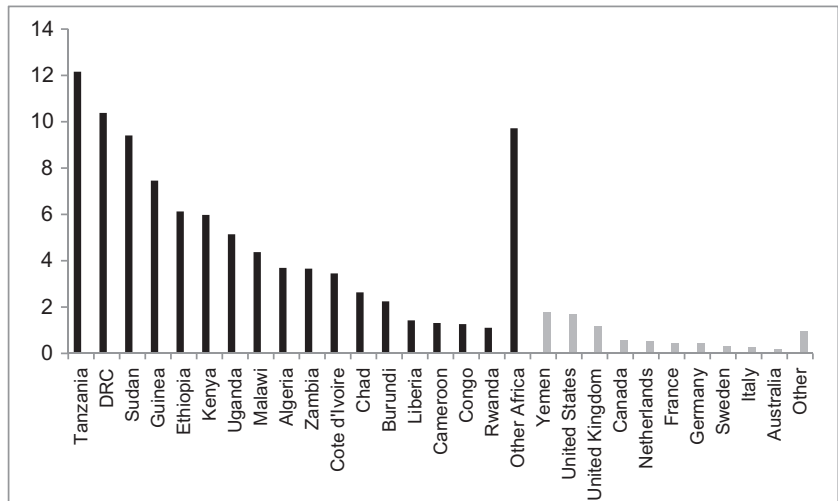html.>*

Figure 26.7 *Refugee population of African origin, by country of asylum: percent 1990–2010.*
Source: *UNHCR Statistical Online Population Database at < http://www.unhcr.org/pages/4a013eb06.
html.>*

Partly as a result of the sudden exodus and influx of refugees between African states, few countries have exhibited consistent patterns of net migrant inflow or outflow over time. The UN Population Division (2010a) reports estimates of net migration rates (net immigration minus net emigration per thousand population), for 197 countries and areas, in five-year intervals from 1950 to 2010. Outside of Africa, a third of states exhibit consistent net immigration or emigration throughout; of the 54 African territories distinguished in these net migration data, only seven (Burkina Faso, Egypt, Lesotho, Madagascar, Mali, Sao Tome and Principe, and Tunisia) generated constant net emigration and Gabon was the sole African country with continuous net immigration. Most African countries thus cannot be characterized as net sources of emigration or places of net immigration; these roles switch over time, complicating the story.

1.6 A challenging setting

Africa presents a number of severe challenges. Sub-Saharan Africa has become the lowest income of the major regions in the world and has the fastest population growth. The World Health Organization (WHO) reported nearly 22 million people living with HIV in Africa in 2009, which is about 70% of the global population living with HIV.[11] Conflict has been rampant in the region, leaving refugee flows as one of the major defining features of African migration. Poverty and conflict have served to limit immigration from the outside, while the colonial history left a rather arbitrary set of African borders that are today quite porous. The geography of this vast region influences the tendency of sub-Saharan Africans to migrate within Africa, while their more mobile neighbors from North Africa have a far higher propensity to move to Europe and the Gulf. The colonial heritage of the entire continent still, however, continues to dictate the pattern of emigration out of Africa to a significant extent. Over-generalization can be misleading though. This is a diverse region and not merely along the Saharan divide. Some countries' economies have grown rapidly while others have languished; some states have been more successful in avoiding civil conflict while a significant number are in a state of failure. A purpose of this chapter is to explore these disparities, the resulting differences and similarities in migration outcomes and consequences. The following section starts by looking at the migration policy framework, both with respect to African immigrants in some of the major destination areas and within Africa itself.

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[11] World Health Organization at <http://apps.who.int/ghodata/#>. Note, however, that the country coverage of these estimates is far from complete. For example, no data are reported for the DRC, Ethiopia, or Libya.

2. THE MIGRATION POLICY FRAMEWORK

Since development and migration are intertwined in a two-way framework, most aspects of economic policy touch more or less directly upon migration. In this section, however, the focus is exclusively upon migration regulations. The discussion is organized by four major regions: Europe, North America, the GCC states, and the countries of Africa. In each case, the mechanisms of ostensible control upon movements are described, together with their implementation and outcomes in relation to African migration.

2.1 Immigration policies of the EU member countries: implications for Africans

The Schengen Area comprises all of the European Union (EU) member states except Ireland and the UK, plus Iceland, Norway, and Switzerland.[12] Citizens of all African states are required to acquire a Schengen short-stay visa for entry to the Schengen Area for periods up to three months, either a long-stay visa or a residence permit for periods of 3–12 months, and a residence permit for any stay longer than a year. A long-stay visa or residence permit granted by any Schengen Area country then allows free entry into any other member country for a stay of up to three months in any six-month period.

2.1.1 Schengen visas, residence permits, and processing asylum seekers

Applications for Schengen visas from SSA, relative to population, are half that of non-African Third Countries for which visas are required, while the application rate from North Africa is more than quadruple that from SSA.[13]

	Applications per 1000 population	Refusal rate (%)
Sub-Saharan Africa	4.2	16.6
North Africa	19.2	24.7
Rest of World	8.4	6.2

The outcomes of any application process of this sort are clearly driven both by the profile of applicants and by decisions of the various authorities; indeed, the two typically interact, with the likelihood of approval affecting applications and vice versa. Nonetheless, the joint interaction of these two forces results in a much higher refusal rate for African

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[12] The EU countries of Bulgaria, Cyprus, and Romania are in the process of joining the Schengen Area as is Liechtenstein. Ireland and the UK have separate visa systems.

[13] I am extremely grateful to Mogens Hobolth of the London School of Economics for permission to use these summary data from the far more detailed dataset that he has assembled on Schengen visas. Hobolth (2011) noted that the data in his paper remain preliminary at this stage. Applications from Gambia, Lesotho, Liberia, Sierra Leone, Somalia, and Swaziland, plus a few small island states in the rest of the world, are not available. The data shown here are averages for the period 2005–09, drawn from Hobolth (2011, Table 2).

applicants than for the rest of the world on average, with particularly high refusal rates of North Africans.[14]

In 2009, an EU Council Directive introduced a new Blue Card to allow highly skilled, non-EU citizens to work in the Schengen member countries (except Denmark). This is designed as a one-stop application procedure to expedite entry and carries certain rights, especially with respect to family accompaniment. Some EU countries use this to target specific skills of entrants, but not all member states have yet ratified the law and at least initial use of this device appears to have been very limited, though no statistics have yet been released.

More generally, all EU member countries issue some form of residence permit to Third-Country nationals and in 2002 new EU regulations laid down a uniform format for these residence permits.[15] About three-quarters of the first-time residence permits issued by the EU during this interval were for long stays of more than one year. However, there is considerable issuing-country variation in this regard; Denmark and the UK do not issue short-stay permits, while Cyprus and the Netherlands strongly favor short stays. Predictably, the number of permits granted to North African citizens is very large relative to population, though permits to citizens of SSA countries are roughly in line with the rest of the world (Table 26.6).[16] The reasons for granting these permits differ substantially between Africans and others. Africans, particularly those from SSA, receive a smaller portion of their permits for remunerated activities, with permits for seasonal work in Europe being more common among North Africans. Africans also receive a smaller portion of their permits for educational purposes, compared to the rest of the world; on the other hand, per capita of home population North Africans receive far more residence permits for education than does the rest of the world, while SSA receives far less. Residence permits to sub-Saharan Africans as refugees or for other humanitarian reasons clearly stand out, especially in Malta, the Netherlands, and Sweden. For most of the individual EU countries, however, family reunification is the single largest reason cited for issuing residence permits to Africans, with France issuing the largest number of such permits.[17] Indeed, residence permits issued for family reasons by France, Spain, and Italy alone

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[14] Hobolth (2011) showed that these rates of refusal vary significantly across the Schengen states.

[15] In this context, a residence permit is defined as "any authorization issued by the authorities of a Member State allowing a Third-Country national to stay legally on its territory". <http://europa.eu/legislation_summaries/justice_freedom_security/free_movement_of_persons_asylum_immigration/l33043_en.htm>.

[16] Systematic data on issuance of such permits are available only during the three years from 2008 to 2010.

[17] Both joining EU citizens and joining non-citizens are important categories of family reunification. Intriguingly, however, in both cases the family reunifications are not recorded as joining a spouse, child or even other family member of the person. Family reunification has played an important part in French migration from Africa, at least since the shift in French immigration policy away from guest workers in 1974 (Giubilaro, 1997).

Table 26.6 First residence permits issued in the EU, 2008–10

	Permits issued to citizens of countries in		
	SSA	North Africa	Rest of World
Total number	719,158	818,982	5,807,517
Per hundred home population	8.61	39.77	10.92
	By reason for permit (%)		
Remunerated activities	**18.1**	**27.9**	**32.3**
Highly skilled workers	1.1	0.2	1.6
Researchers	0.1	0.1	0.3
Seasonal workers	0.1	4.4	3.2
Other remunerated activities	16.7	23.1	26.9
Education	**17.7**	**8.1**	**22.0**
Family reasons	**33.8**	**45.5**	**25.4**
Person joining an EU citizen	14.2	16.9	8.0
Spouse/partner joining an EU citizen	4.1	4.7	3.6
Child joining an EU citizen	1.6	0.9	1.1
Other family member joining an EU citizen	2.2	1.2	1.2
Person joining a non-EU citizen	19.6	28.5	17.4
Spouse/partner joining a non-EU citizen	5.5	10.2	6.2
Child joining a non-EU citizen	5.6	10.7	5.8
Other family member joining a non-EU citizen	3.9	2.0	2.8
Other reasons	**30.4**	**18.5**	**20.3**
International protection status	4.2	0.2	0.8
Refugee status and subsidiary protection	6.2	0.3	1.3
Humanitarian reasons	2.2	0.4	0.8
Victims of trafficking in human beings	0.1	0.0	0.0
Unaccompanied minors	0.1	0.1	0.0
Residence only	1.7	5.4	2.1
Other reasons not specified	16.0	12.0	15.3
Total	**100.0**	**100.0**	**100.0**

Source: Eurostat at <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/.>

amounted to more than a quarter of all permits issued, for all reasons, by the EU27 during 2008–10.

The cited reasons for granting residence permits may provide some insight into the decision processes of the granting countries, yet the cited reason is frequently not indicative of ensuing activities; persons granted permits as family members, refugees, or students may well work. Moreover, particularly within the Schengen Area, the issuing country is not necessarily the country of residence.

This last point has proved contentious in the treatment of asylum seekers. From 2000 to 2010, Africans represented 23% of the total applications for asylum to the EU27, with more than 91% of the African applications coming from SSA (Table 26.7). The

Table 26.7 Asylum applications by persons originating from Africa: 2000–10

| Applications per year: | SSA | | N Africa | |
| | 227,400 | | 26,223 | |
Applications to	Percent	% positive	Percent	% positive
Africa	57.8	45.8	34.7	62.1
EU	30.7	13.4	47.1	7.6
Europe other	3.4	11.0	5.1	10.4
North America	5.5	43.0	6.3	45.6
Other	2.6	26.1	6.8	12.9
Total	100.0	29.1	100.0	26.1

Source: UNHCR at <http://www.unhcr.org/pages/4a013eb06.html>.

recognition rate of these applications for asylum in the EU was only 13% among those from SSA and less than 8% among North Africans, though this is in line with the 9% recognition rate of those seeking asylum in the EU27 from the rest of the world during this period. Despite the much higher recognition rate of Africans seeking asylum in North America, the absolute number of positive responses from the EU27 exceeded those in North America by nearly 60%; relatively few (and probably a very select set) of African asylum seekers manage to reach North America. On the other hand, selection has resulted in more than 875,000 rejected (or case otherwise closed) African asylum seekers in the EU since 2000, with a further 36,000 cases still pending at the end of 2010.[18] A significant but unknown portion of those rejected actually remain in the EU, despite a number of government programs aimed at addressing return (Koser, 2001). By 2003, the UK led a group of EU countries (notably Denmark and the Netherlands) into exploration of the potential for extra-territorial processing centers for asylum seekers in North Africa and elsewhere, though this has met with limited support from the European Commission (Afeef, 2006). The Tunisian revolution, kindled in December 2010, came after the period covered by the data in Table 26.7; the resulting flood of asylum seekers from Tunisia, arriving in Italy then moving on to France, led to calls for reform in the basic Schengen agreement itself.[19] As the Arab Spring unfurled across North Africa, Europe became divided in its responses to asylum seekers and was criticized for its lack of willingness to share the burden in taking in refugees.[20]

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[18] More generally, there were 2.9 million rejected cases from the rest of the world, leaving 241,000 pending cases at the end of 2010 in addition to those from Africa.

[19] <http://www.bbc.co.uk/news/world-europe-13189682> (accessed 10/26/2011, 1:50:46 p.m.).

[20] See, for instance, "Europe must do more to help Arab Spring's double refugees", The Guardian, Friday 17 August 2012.

2.1.2 Bilateral agreements with African states

Overlaying the EU immigration provisions, several EU countries have bilateral migration agreements with third countries, often predating signing of their Schengen agreements but remaining in force (OECD, 2004). Most of these bilateral agreements are with non-African states. However, France has had guest- and seasonal-worker agreements with each of the Maghreb countries since the early 1960s; the Netherlands also had a guest-worker agreement with Morocco in 1964, while Spain signed agreements with Morocco in 2001, as did Italy with Tunisia in 2000. Meanwhile, Portugal reached a guest-worker agreement with Cape Verde in 1997 and Switzerland has a trainee program with a large number of countries, including Morocco and South Africa. The UK's Working Holidaymaker program in principle entitles youths, aged 18–31, from Commonwealth countries to work in the UK for up to 24 months; however, it seems that few Africans have been able to avail themselves of this opportunity. More recently, though before the economic downturn, an agreement was reached in 2006 to establish a lottery for 4000 Senegalese to work temporarily in Spain. In addition, Spain offered funding for training and employment creation for youths in Senegal, in return for cooperation with respect to restraining irregular migration through the Canary Islands.

Calls for the integration of migration into wider schemes of development, recognizing the duality of the two, have grown in Europe; these have ranged from co-development schemes, perhaps originating in France in the 1970s, to broader calls for coherence in policy strategies with respect to trade, aid, and migration (Cruse, 2005; Department for International Development, 2007; OECD, 2007a). Yet the European Neighborhood Policy Program, which was developed in 2004 with the aim of promoting development and stability in the EU's immediate neighbors, including most of North Africa, hardly addresses migration (Özden et al., 2011b).

2.1.3 Enforcement and outcomes

From 2008 to 2010, some 1.2 million African citizens were refused entry to one of the EU countries, 97% of those refused originating from North Africa.[21] In fact, Spain alone reports refusing entry to well over a million North Africans during this three-year interval, virtually all of whom were from Morocco.

Yet the efficacy of these border controls is clearly limited; on average, over half a million people per year were found to be illegally present in the EU from 2008 to 2010. Of these, nearly a third was Africans, over half of whom were from SSA. Among sub-Saharan African citizens, the rate of detention of those illegally present was almost double that from the rest of the world in relation to the number of residence permits issued. France, Italy, and Spain each found nearly 100,000 Africans illegally present from 2008 to 2010, with another 60,000 in the UK.

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[21] Data from Eurostat at <http://epp.eurostat.ec.europa.eu/portal/page/portal/eurostat/home/>.

A 2003 survey of apprehended, clandestine, migrants in Italy, of whom about a quar-ter are from Liberia, Sudan, Morocco, and Senegal, reveals a perception that they would earn 8–10 times their pay at home. However, the median cost of an entry trip approx-imates a year's income at home, some $1500, though most did not report incurring debt to finance the trip. Those apprehended were typically in their mid-20s and intended their family to follow them later (Chiuri et al., 2007).

The chief routes into the EU for undocumented migrants from Africa are apparently through the Spanish enclaves, Melilla and Ceuta on the Moroccan coast and the Canary Islands, through Malta, and via some of the Italian islands such as Lampedusa. Irregular migration from North Africa has been common for some time, but has also increased from SSA more recently (de Haas, 2008). From Senegal, some make the journey by sea directly to the Canaries, others from SSA transit through North Africa, with Agadez in Niger forming a major collecting point for the trans-Sahara passage. On the other hand, by no means all the sub-Saharan Africans in North Africa are necessarily in transit to Europe. De Haas (2008) claimed there may be as many sub-Saharan Africans residing in the Maghreb as in the EU. Similarly, although Bengazi in Libya has been a focal shipping point for migrants to Europe, Libya had also been a destination for sub-Saharan Africans in its own right until the recent regime change.

Frontex (the European Agency for the Management of Operational Cooperation at the External Borders of the Member States of the European Union) became operational in 2005 and has been active in patrolling the Mediterranean crossing points and around the Canaries in an attempt to stem landings by undocumented migrants. These attempts have met with criticism from humanitarian groups, particularly with respect to asylum seekers.

> EU countries have also attempted to "externalize" border controls towards the Maghreb countries by transforming them into a "buffer zone" to reduce migratory pressures at Europe's southern bor-der ... They have done so by pressuring certain North African countries ... to clamp down on irregular migration, toughening immigration law, and to re-admit irregular sub-Saharan migrants from Europe and expelling them from their own national territories. North African coun-tries have signed readmission agreements with several European countries, often in exchange for development aid and financial and material support for (joint) border controls, and, particularly in Italy, for a limited number of temporary work permits for immigrants.
>
> *(de Haas, 2008, pp. 11–12)*

De Haas (2008, p.10) concluded: "While failing to curb immigration, these policies have had a series of unintended side effects in the form of increasing violations of migrants' rights and a diversification of trans-Saharan migration routes and attempted sea crossing points" (see also Boubakri, 2004; Cuttitta, 2005; Lahlou, 2005; Goldschmidt, 2006; Schuster, 2005; Lutterbeck, 2006; Simon, 2006; NGO Statement, 2008).

Both undocumented entry and over-staying permitted entry are purported to be ram-pant, though, as usual, no reliable count of the number of irregular migrants is available.
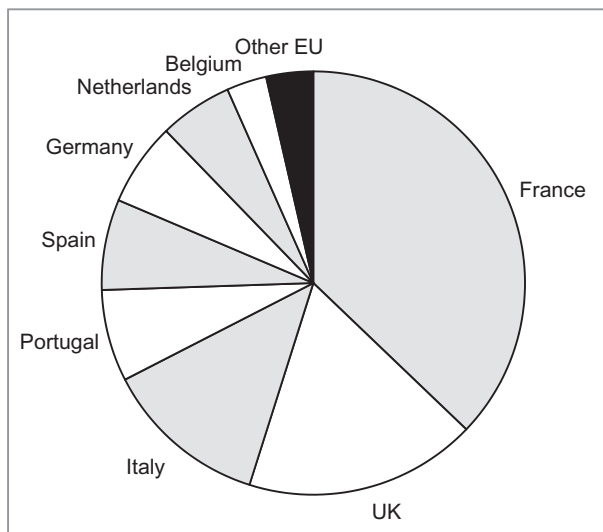
Figure 26.8 *Africans in EU: 2000.* Source: *World Bank (2011a) data.*

Indeed, it seems that many of those detained, refused entry, or denied asylum are simply released (Carling, 2007; de Haas, 2008).[22] The resultant distribution of Africans within the EU by 2000, purportedly including both irregular and documented migrants, is shown in Figure 26.8; nearly 40% were in France with another third in the UK and Italy. Overall, 60% were North Africans, 56% of whom were in France; 40% of those from SSA were concentrated in the UK alone.

In the end, it remains unclear how effective have been attempts to limit entry of Africans into the EU. The data from World Bank (2011a) indicate a stock of African migrants, in the 15 countries that were EU members by 2000, which remained fairly flat from 1960 to 1980 but then increased sharply over the next two decades (controlling for fixed effects for each African country of origin). Germany and the Netherlands certainly followed this pattern. In Italy the surge in African migrants came earlier, during the 1970s, while Spain has exhibited steadier expansion. Only France among the major EU states shows a drop in the presence of Africans, coming between 1970 and 1980, following attempts to repatriate their guest workers.

Comparable data for 2010 are not yet fully available at the time of writing, but initial indications from Eurostat point to quite dramatic changes in the number of African citizens in the interim. In Portugal, which had over 33 African-born persons per thousand inhabitants in 2000 (the highest ratio in the EU), the stock of African citizens increased by

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[22] For instance, despite (or perhaps because of) the extremely high refusal of entry rate from Morocco to Spain during 2008–10, nearly 41,000 Moroccans were found to be illegally present in Spain.

nearly 40% during the next decade. Meanwhile, African citizens present in Spain jumped from 200,000 to over a million. A shift may well be underway in the implications of the question ''Where are all the Africans?'' quoted earlier in this chapter.

2.2 Entry of Africans to the US and Canada

In the US, Africans received far fewer visas, relative to the population of Africa, than did the rest of the world. Table 26.8 shows summary data both for permanent residence visas and temporary visas (excluding temporary visas for pleasure and business and transit aliens). Note that many recipients of permanent residence status are already in the US on temporary visas and some individuals acquire multiple visas so the data are not simple

Table 26.8 Canada and US: visas issued 2005–10

	SSA	North Africa	Rest of World
Canada			
Intake of permanent residents per year: Number	15,826	12,527	226,770
Per 1000 home population	0.021	0.065	0.041
Intake of temporary residents per year	9513	3757	343,769
Average stock of temporary residents	27,738	8347	526,335
USA			
Permanent resident visas per year: Number	85,634	19,627	1,015,010
Per 1000 home population	0.113	0.102	0.183
Percent: Family sponsored	5.1	5.7	20.5
Employment based	6.0	6.9	16.2
Immediate relatives of US citizens	37.8	34.3	45.6
Diversity	16.2	31.1	2.5
Refugees and asylees	34.4	21.7	12.7
Others	0.5	0.3	2.4
TOTAL	100.0	100.0	100.0
Non-transit visas per year: Number	88,885	21,451	3,891,467
Per 1000 home population	0.117	0.112	0.700
Percent: H–1B	7.2	5.9	10.5
Other temporary work	7.2	3.4	14.7
Business transfers	4.2	3.3	15.8
Officials	24.4	33.4	7.3
Students	30.4	31.7	33.6
Family of temporary visas	5.6	11.2	10.0
Family reunion	2.9	3.6	1.7
Refugees	15.4	5.0	1.1
Other	2.6	2.5	5.1
TOTAL	100.0	100.0	100.0

Source: US Department of Homeland Security at <http://www.dhs.gov/files/statistics/publications/yearbook.shtm>, Research and Evaluation Branch, Citizenship and Immigration Canada, Digital Library of Facts and Figures, 2010.

to read in terms of inflow. Since its introduction in 1990, the diversity lottery has become a particularly important vehicle of entry and receipt of permanent residence in the US for Africans, especially for North Africans. Receiving permanent residence status as a refugee or asylee is also far more common from Africa than elsewhere, on average. The US issues a wide array of temporary visas, representing different bases of admission. These categories are aggregated into broad types in Table 26.8. Africans receive less US visas on the basis of employment (including H-1B, specialty occupations) and of business transfers (intra-company transfers and treaty traders) compared to the rest of the world. This is counterbalanced by a high portion of sub-Saharan Africans entering as refugees and Africans more generally admitted for official purposes (government officials and representatives to international organizations). Indeed, a remarkable quarter of all US temporary visas issued to Africans in this interval were for such official purposes.

Residence in Canada may be granted on a temporary (including temporary workers, foreign students, and refugee claimants) or permanent basis (family class, economic immigrants, and refugees). During the interval from 2005 to 2010, the intake of Africans on both bases was substantially below that from the rest of the world, relative to respective home populations (Table 26.8). However, a disproportionate fraction of the intake of permanent residents was of North Africans, who received 44% of the permanent residence permits during this interval.

As in the EU, the stocks of African migrants in North America have grown over time, again controlling for country-of-origin fixed effects. In the US, two surges came in the 1970s and again after 1990, the latter perhaps partly reflecting the new diversity lottery.

2.3 GCC contracting of Africans

Following the oil price increases in the 1970s, the countries of the GCC began massive labor importation, initially dominated by workers from nearby Arab countries, notably from Egypt but also to a lesser extent from Sudan. During the 1980s, bilateral recruiting agreements were signed by the UAE with Tunisia, Morocco and Sudan, and by Qatar with Tunisia (Kapiszewski, 2006).

Since 1980, Saudi Arabia has several times proclaimed a policy of Saudization of their labor force, with similar policy pronouncements from some of the other GCC states. In the longer run this has so far had little effect on total recruitment:

> . . . in mid-1990s when trying to reduce the expatriate labor in order to find more jobs for young unemployed Saudis, Saudi Arabia reduced the number of work permits issued to Egyptians. As a result, their number decreased from 900,000 in 1995 to 670,000 two years later.
>
> **(Kapiszewski, 2006, p. 9)**

Nonetheless, recruitment of Arab workers has been limited. In part this reflects access to cheaper sources of labor from South and South-East Asia. In part it also reflects security

concerns that radical, and particularly anti-monarchist, elements among Arab migrants may prove destabilizing.

By 2000, the World Bank (2011a) estimated there were some 1.3 million Egyptians in the GCC states, nearly three-quarters of whom were in Saudi Arabia, with another quarter million from Sudan.[23] There are very few from SSA in the Gulf; only five countries of SSA are estimated to have had more than 10,000 workers in the GCC countries in 2000.[24] Obtaining citizenship in the Gulf States is out of the question irrespective of one's country of origin; all workers are on short-term contracts, though expulsion of overstayers is common (Lavergne, 2003), and only professionals are typically permitted to bring their families to join them. Entry to the GCC states is clearly restrictive in general and particularly so from SSA.

2.4 Movements in Africa

For most countries in the world, the main policy instruments aimed directly at shaping international migration are various forms of immigration regulation. Before turning to examine the use of regulations in Africa, however, it is worth digressing to remark that certain African states have also made a disturbing use of emigration controls.

2.4.1 Exit restrictions and expulsions

Mirroring but qualifying Article 13 of the UN Universal Declaration of Human Rights (adopted in 1948), Article 12 of the African Charter on Human and Peoples' Rights (adopted in 1981) states:

> Every individual shall have the right to leave any country including his own, and to return to his country. This right may only be subject to restrictions, provided for by law for the protection of national security, law and order, public health or morality.[25]

These last qualifications to this declaration open the door to exceptions, and well after the signing of the Charter a number of African states continued to restrict exit.

Based largely on US State Department Country Reports, Dowty (1989) identified 47 countries in the world that imposed some level of exit restriction as of 1985; 22 of these countries were in Africa. Dowty (1989, pp. 185–186) distinguished three categories (countries in brackets being listed by Dowty within these categories at the time):

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[23] At the onset of the second Gulf War substantial numbers of Egyptians were evacuated from the Gulf, about 158,000 leaving Kuwait alone (Shaban et al., 2002).

[24] The five are Chad, Eritrea, Ethiopia, Nigeria, and Somalia.

[25] African [Banjul] Charter on Human and Peoples' Rights, adopted 27 June 1981, entered into force 21 October 1986 (see Organization of African Unity, 1982). Under the apartheid regime, South Africa blatantly ignored the other part of the UN article, which asserts that "Everyone has the right to freedom of movement and residence within the borders of each state." <http://www.un.org/en/documents/udhr/index.shtml#a12>.

. . . states that bar the exit of citizens often enough to form a pattern, but not so consistently as to constitute a predicable policy. The restrictions are usually directed at specific individuals and imposed on a case-by-case basis. [Burundi, Congo, Ghana, Kenya, Lesotho, Liberia, Malawi, Swaziland, Zaire, Zimbabwe]

   . . . states that feature systematic but partial curbs on emigration; in these cases, restrictions are generally directed at particular groups. [Cameroun, Namibia, Rwanda, South Africa, Tanzania, Togo]

   . . . states that, as a matter of policy, carefully control all exit. Although many may occasionally leave such states, legal exit is basically viewed as a privilege rather than a right. [Angola, Ethiopia, Mozambique, São Tomé and Principe, Somalia].

Several of the countries identified by Dowty on this list have undergone profound change since 1985. For example, the current government of Somalia has little ability to control anything, and the new South African Constitution, which came into effect in 1996, explicitly guarantees the right of exit and the right of all citizens to a passport. Attempts to restrict exit are probably less common today, though they do persist.[26]

Some African states have not only sought to restrict exit but have enforced mass expulsion of population groups. This was particularly true in the initial phases of nation-building when, for instance, the government of Idi Amin expelled large numbers of Asians from Uganda in 1972 (Zlotnik, 2003). In 1969, Ghana expelled Nigerian immigrants and in the 1980s Nigeria retaliated by expelling Ghanaians. In 1998, Ethiopia expelled perhaps 75,000 persons of Eritrean origin, to which Eritrea later responded in reverse. Such practices have continued into the new century, with the mass expulsion of non-Arabs from Sudan since 2003 as a prime example, or the expulsion of the Arab population from Niger in 2006. Some, but not all, of these mass expulsions have been conducted in the name of repatriating irregular migrants (Adepoju, 1984); this was the case for the expulsion of Cameroonians from Equatorial Guinea in 2004, of Rwandans and Burundians from Tanzania in 2006, the deportation of Zimbabweans from South Africa apparently at a rate of some 200,000 per year prior to a moratorium in 2009, and the expulsion of hundreds of sub-Saharan Africans from Morocco in 2012, for example.

2.4.2 Immigration controls
Over the last three decades, most African states have enacted immigration laws for the first time, though ability to enforce the new regulations is severely limited by lack of resources and the extensive and indefensible land borders already noted. In the early stages, controls tended to be confined to entrants from overseas. More recently, attempts

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[26] For example, the recently deposed Tunisian regime of President Zine El Abidine Ben Ali removed the right to travel and refused passports to activist dissidents (Human Rights Watch, 2001). Harvey and Barnidge (2007) documented resistance to providing passports by the Libyan regime of Mu'ammar al-Qaddafi.

to implement entry restrictions on migrants from neighboring African states have increased but with very limited success. Certainly irregular migration between African states is the norm (Brennan,1984; Shaw, 2007). Instead, reliance is frequently placed on limiting employment of irregular migrants by requiring employers to obtain evidence of appropriate documentation. Yet such requirements can typically be implemented only in the formal labor market and very few employers are ever penalized.

Under the draconian methods of the apartheid regime, South Africa did prove an exception in being able to limit undocumented border crossings, but even in South Africa the emphasis has now shifted to apprehension after entry.[27] For example, during Operation Crackdown (a police crime blitz in March 2000) over 7000 persons, alleged to be undocumented migrants, were arrested. In the process, the police and government have been widely accused of human rights violations. "In practice police officials have interpreted the 'reasonable grounds' test as a right to arrest and detain persons who look or behave foreign, not illegal" (Southern African Migration Project, SAMP, 2003, p. 3). The White Paper on International Migration, published by the South African Department of Home Affairs in 1999, called upon South African citizens and institutions to be involved in the detection, apprehension, and removal of undocumented foreigners. The extent to which this strategy has contributed to growing xenophobia and the 2008 riots against migrants from Malawi, Mozambique, and Zimbabwe remains disputed (Misago et al., 2009). As usual, estimates of the number of undocumented migrants vary wildly, although there seems agreement that the South African 2001 census substantially underestimated the number of aliens residing in South Africa (SAMP, 2001).

More generally, the porous African borders pose a security concern beyond the region. The US Department of State, for example, has supported the African Coastal and Border Security program, as well as the Trans-Saharan Counterterrorism Initiative, under which "Civilian, police, and military programs will enhance border control and rapid response capabilities . . .".[28]

2.4.3 Regional mobility agreements

A confusing array of overlapping regional economic communities exists within Africa, including:

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[27] See Minnaar (2001) and Waller (2006). The South African Department of Home Affairs releases only very intermittent data on deportations. From 1990 to 1997 the annual rate of deportations averaged about 112,000. In the period from January to August 2006 the annualized rate was 248,000. During the 1990s, Mozambicans represented more than 80% of those deported, but by 2006 Zimbabweans were half of the deportees. Certainly the bulk of all deportations are to neighboring states. See SAMP (2001) and the Global Detention Project at <http://www.globaldetentionproject.org/countries/africa/south-africa/introduction.html>.

[28] <http://www.state.gov/t/pm/c17671.htm. >

		No. of member states
CEN-SAD	Community of Sahel-Saharan States	28
COMESA	Common Market for Eastern and Southern Africa	19
EAC	East African Community	5
ECCAS	Economic Community of Central African States	10
ECOWAS	Economic Community of West African States	15
IGAD	Intergovernmental Authority for Development	15
SADC	Southern African Development Community	5
UMA	Union de Maghreb Arabe	8

Together these encompass 54 countries, 42 of which belong to more than one community (Kenya belongs to four). Each of these is a Pillar Community of the African Economic Community, established by the 1991 Abuja Treaty, which sought not only economic integration, particularly in trade, but also the free flow of people and labor, together with the right of residence and establishment.[29]

Limited progress has been made toward easing travel document requirements in certain communities. Citizens of ECOWAS states may enter and reside in other member countries without a visa for up to 90 days and ECOWAS also issues a common passport for travel outside of the region. Yet Adepoju (2005) argued that access to employment has nonetheless been restricted by various mechanisms. In 1999 Ghana, for instance, began to require all aliens to register and possess identity cards and Nigeria issued national identity cards starting in 2003 and, as Adepoju (2005, p. 8) noted, "Community citizens have been expelled by most Member States." By 2011, Nigeria's Foreign Minister is quoted as stating that:

> It is regrettable to note that the ECOWAS Protocol on Free Movement of Persons, Goods and Services and the Right of Residence and Establishment, a key element in our integration objectives, is yet to be fully implemented after 32 years[30].
>
> *Quoted in Panapress (17 August 2011)*

The EAC common passport is valid only within the community itself, but entitles holders to an automatic, six-month, multiple-entry visa. After nearly a decade of negotiation, a protocol on free movement of persons was finally signed by the EAC member countries on 20 November 2009. Fallon (2008) outlined a number of factors that are nonetheless likely to inhibit the legal movement of workers, including maintenance of distinct work permit systems in each member country and lack of portability of benefits. SADC has yet

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[29] See United Nations Economic Commission for Africa (UNECA, 2007). Other blocs exist in Africa, such as: Greater Arab Free Trade Area (GAFTA), Economic Community of the Greater Lakes Countries (CEPGL), Indian Ocean Commission (COI), Liptako-Gourma Authority (LGA), Mano River Union (MRA), and West African Economic and Monetary Union (WAEMU).

[30] <http://www.panapress.com/ECOWAS-countries-urged-to-implement-Free-Movement-Protocol–12-790585-100-lang2-index.html>.

to agree upon a protocol for free movement: "some SADC countries allow citizens of specific SADC countries visa-free entry for 90 days, while South Africa and some other countries are reluctant to do so" (UNECA, 2007). Given the highly porous borders in most of Africa, it is not evident that agreements on free entry in any of the regional mobil-ity agreements alter mobility very much, though easing access to legal employment may be far more potent.

South African mine labor

For more than a century, South Africa's mines have provided legal employment to workers from the Southern African region. At its peak in 1973 there were over 300,000 foreigners working on the South African mines. Recruitment of miners, initially largely from Mozambique, was organized through the Witwatersrand Labour Organiza-tion, founded in 1900, and the Native Recruiting Organization, which started in 1912, until they merged into The Employment Bureau of Africa (TEBA) in 1977 (Harington et al., 2004). In diversifying the international pool, a part of the objective was to spread the risk of disruption from any one source, as well as to discourage unification amongst the miners. Until the last couple of decades, foreign miners were effectively interred in mine-owned compounds, with no family accompaniment. Contracts varied in length by country of origin, from six months for Lesotho to two years for Malawi. Although many miners repeated, the term contracts were designed to allow return for harvesting, thus lowering the alternative wage. More recently, subcontracting has become common, pos-sibly to permit greater flexibility in manpower levels as retrenchments and mine closures became common in the 1990s (Crush et al., 2001).

The mix of foreign workers on the South African mines has shifted over time (Figure 26.9). In the early 1970s, an upsurge in the number of Malawian workers occurred as prior caps on recruiting were lifted by the newly independent country. The resulting rise in wages in Malawi soon resulted in reinstatement of the limits (Lucas, 1987). Together with growing nervousness about the political atmosphere in Mozambique at the time, this contributed to a decision on behalf of the South African Chamber of Mines to shift toward greater use of South African labor, at the same time intending to upgrade skill levels with more permanent workers. Localizing jobs left the mining industry with concerns over rising labor costs and there is evidence that the min-ing houses acted in accord, within a monopsonistic framework, after 1974 (Lucas, 1985a). Nonetheless, by 1986, total mine employment reached its all-time peak and 56% of the workforce was South African, as gold prices doubled in the interim. Localization has also empowered the Mine Workers Union; escalating costs combined with stable gold prices during the 1990s resulted in a halving of total employment. Gold prices again began to rise after 2001 and the onset of the financial crisis since 2007 has witnessed phenomenal price increases, reaching close to $2000 per ounce in 2011. Correspondingly there has
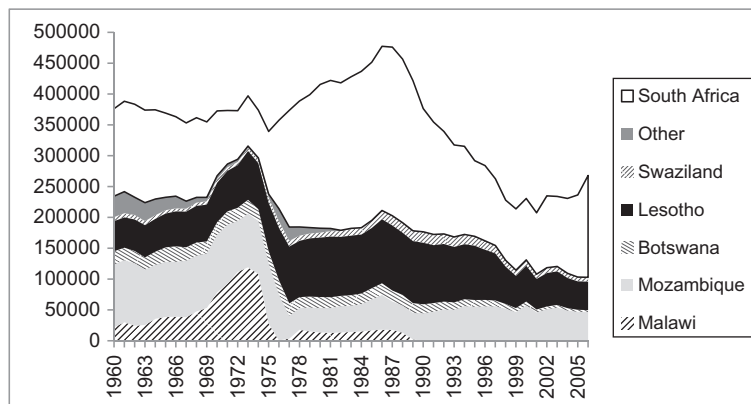
Figure 26.9 *Workers on South African mines by origin, 1960–2006.* Sources: *Crush et al. (1991)*, *Crush (2008)*.

been an upturn in total mine employment, though the aggregate use of foreign labor has continued downward.

Despite the temporary contract arrangements, some of the foreign miners *de facto* managed to become fairly permanently employed. In 1995, foreign miners were offered an amnesty, granting permanent residence to those "who have been working on the mines since 1986 and who had voted in the 1994 election."[31] Of those who applied, more than a half was Basotho, though most continue remittances and visits to Lesotho. Today, TEBA continues to recruit foreign labor, with 68 offices in Botswana, Lesotho, Mozambique, South Africa, and Swaziland.

2.4.4 Processing refugees

The total Population of Concern to UNHCR in Africa at the close of 2010 was just over 10 million. Seventy-one percent of these were Internally Displaced Persons who had not crossed an international border. Yet even though the Internally Displaced dominate in Africa, nearly 30% of the world population that had been granted refugee status in other countries of asylum originated from Africa, and Africa provided asylum to nearly a quarter of the world's refugees at the end of 2010. At this point in time, there remained some 300,000 pending cases of asylum seekers in Africa.

How are asylum seekers processed in Africa and what is the fate of those granted refugee status? Between 2000 and 2010, 1.74 million people originating from an African state applied for asylum in another African state. Decisions are reported by UNHCR on 1 million of these applications, 47% being recognized as refugees, 23% being rejected,

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[31] Crush, J. at <http://www.queensu.ca/samp/transform/Crush.htm>.

and the remaining cases being otherwise closed. In the recognition rate there is substantial variation across the 45 African countries where decisions are reported, the rate of rejection rising significantly with the level of income. Each 1% increment to PPP-GDP per capita in 2005 is associated with a 0.52% decrease in the odds of being recognized as opposed to rejected, on average, over the decade. Thus Gabon, one of the highest income countries in Africa, has a recognition rate more in line with EU recognition rates. Partly as a result, across the 48 African countries that are not small island states, the average stock of refugees from 2001 to 2010 fell with the level of income. Much of the refugee burden falls upon the lower income countries within Africa, who nonetheless seem willing to recognize asylum seekers pouring in (for some of the implications for the receiving economies, see Section 5.2.3).

By the end of 2010, UNHCR reported that they were assisting 84% of the populations in Africa who were recognized as refugees or in refugee-like circumstances. Yet this certainly does not mean that all of these were in camps; on average, throughout Africa only just over half of the refugees recorded by UNHCR were in camps and refugee centers, notably in East Africa. In other words substantial portions, even of the refugees recognized by UNHCR, are mixed in with the host population either in rural or urban settings, particularly in South Africa.

UNHCR records the gross increase and gross decrease in the numbers of persons counted as refugees during each year. From these a turnover rate can be calculated: the sum of gross increases and decreases relative to the stock of refugees at the start of each year. In the five years leading to 2010 this gross turnover rate averaged 37% amongst refugees in Africa compared to 23% in the rest of the world. During this interval only 4% of the gross reductions in the number of refugees in Africa were recorded as resettlements, typically meaning moving on to an industrialized country. In the rest of the world, this resettlement rate was three times greater.

Much remains unknown about the processing of refugees in Africa. Although repatriation from refugee camps may be a major source of the decreases in recorded refugees each year, how many of the substantial number of refugees not in camps are ever repatriated is unclear. The portion of repatriations that are voluntary is difficult to detect and define; the UNHCR data for Africa jump from 52% of the gross decrease being recorded as "voluntary repatriation" in 2007 to 17% in 2010. No doubt a good deal of diplomatic resolution enters into this estimate.[32] Quite how many persons fleeing violence across African borders simply go unrecorded by UNHCR obviously remains unclear; counting in camps is not easy at the moment of crisis, leave alone those who never reach a camp.

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[32] UNHCR (2010, Appendix, Table 3) warns: "Voluntary repatriation shows a best estimate, based on country of asylum and country of origin reports."

Most shockingly, relatively little is known about the fate and economic condition of those refugees who do go home. An interesting exception is the work of Kondylis (2008), in which she compared agricultural productivity of returned refugees with that of stayers in Rwanda. Kondylis listed several reasons why those who had been displaced may have suffered a loss of skills, affecting their productivity: as a result of the trauma of displacement, the lack of relevant work experience while in camps, through loss of locally specific knowledge upon return to a new environment, and from fractionalization of households diminishing intergenerational transfer of learning. On balance, Kondylis actually found that returns to labor are higher for those who had been displaced than for stayers, noting that this could be attributable to greater motivation among the former. However, this must be seen in the context of the 1997 (*imidugudu*) policy of the government of Rwanda to settle those who had been displaced and to provide them with land. Displaced persons tended to be assigned to higher productivity prefectures and Kondylis found that controlling for prefecture fixed effects the apparent advantage of returned households in the returns to their labor disappear. Interestingly, given the level of seed inputs, returned households prove more productive in non-*imidugudu* contexts and Kondylis noted the possibility that this may reflect learning from local stayers in such contexts as opposed to being surrounded by other returned families in the *imidugudu* settlements.[33]

3. DETERMINANTS AND COMPOSITION OF MIGRATION

Two strands run through the discussion of migration outcomes: the extent and the composition of migration. Both may be thought of as the outcome of the interplay between the supply of migrants, the desire to move, and demand, including state attempts to restrict or control inflows addressed in the previous section. The composition of African emigration, in terms of specific characteristics of those migrants, is taken up in Section 3.2. In the interim, in Section 3.1 the focus is upon the magnitude of observed migration.

3.1 Multivariate analyses of the magnitude of migration

In any context, a study of the determinants of migration is bedeviled by two major issues: the first is the common problem of inferring causality; the second is the paucity of migration data. Although there is a tendency to refer to the determinants of migration, the usual suspects (omitted variables and endogeneity) befuddle the picture. Most states lack

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[33] In other contexts in Africa, by no means are all returned refugees provided with land or alternative means of support. Fagen (2011), for example, emphasized the tension over land following repatriation of refugees to Burundi. Hammond (2004) described the lack of awareness in the humanitarian assistance community and the failures in integrating repatriated refugees from Ethiopia. See also Allen and Morsink (1994), and Janzen (2004) on Rwanda and McSpadden (2004) on Eritrea.

meaningful data on emigration, though a few track numbers of contract workers; instead, analysts typically turn to host countries for their data sources—certainly household surveys do not normally enquire about emigrants.[34] In the balance, four types of evidence have emerged on the correlates of African migration: cross-country panel analyses of net (out) migration flows; individual country studies, mostly based on time-series information about emigration; investigations of the cross-country movements of refugees over time; and household surveys primarily addressing internal migration. Although the last of these is not the focus here, given the porosity of Africa's borders, international movements within the region may simply be perceived as an extension of internal moves and some of the more salient features of internal migration studies are therefore included in this review. After reviewing the existing evidence, this section also presents some fresh evidence on the correlates of African international migration, based on newly available data.

3.1.1 Existing evidence

A primary focus of almost all of this literature is on the influence of the opportunity to improve incomes through migration: How responsive is migration to gaps in income between home and host? The measures of income gap vary a good deal, depending upon the context. For instance, the cross-country studies of net migration flows lack any direct information about the dispersal of emigrants across destination countries; in these contexts a weighted average of incomes in some of the principal hosts is usually adopted, either in some of the OECD countries or in SSA as a whole.[35] Household surveys normally lack data either on earnings of absent migrants or data on migrants' original families' incomes, necessitating prediction either at origin for migrants or at destination for those remaining at home.[36] While some inquiries used wage data to represent the opportunities at each end, others adopted broader income measures, such as GDP. Whether wages or GDP is superior is unclear; subsistence farming predominates throughout large

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[34] On collecting information about absent migrants in household surveys, see Lucas (2000).

[35] Hatton and Williamson (2003) deployed US Census Bureau estimates, derived from a demographic model, of annual, net out-migration rates in an unbalanced panel of 20 SSA countries from 1977 to 1995 (see also Hatton and Williamson, 2005). In both, Hatton and Williamson measured real wages averaged over countries within the same major region of Africa and eight OECD countries to represent host opportunities. Marchiori et al. (2011) used the same US Census Bureau estimates but covering 39 countries from 1960 to 2000; they also deducted estimates of the net flow of refugees from the total. Naudé (2010) adopted the UN quinquennial net migration rate data from 1960 to 2005, averaging GDP in SSA at the time to represent opportunity abroad. Marchiori et al followed Naudé in his measure of income but weight by distance within Africa.

[36] The sophistication in addressing issues of sample selection and unobservable traits in predicting varies across the studies on Africa, but the broad nature of the findings is little affected. See, for example, Hay (1980) on Tunisia, Lucas (1985b) on Botswana, Vijverberg (1995) on Côte d'Ivoire, Agesa and Agesa (1999) then Agesa (2000, 2001, 2003) on Kenya, and Meka'a (2011) on Cameroon.

parts of SSA, leaving the incidence of wage employment relatively low;[37] moreover, movements for labor purposes are not the sole component of migration.

In their seminal paper, drafted with Kenya in mind, Harris and Todaro (1970) argued that the chances of employment probabilities and not just wage rates affect the decision to relocate. Accordingly, Faini and de Melo (1995) found that annual gross migration from Morocco expanded with GDP per capita in Belgium, France, Germany, and the Netherlands during 1977–88, given GDP per capita at home; but in addition, the rate of movement also increased with employment expansion in Europe and shrank as employment grew in Morocco's modern sector.[38] Moreover, in the context of internal migration in Botswana, Lucas (1985b) explored the role of employment probabilities in addition to earnings if employed, failing to reject the Harris–Todaro hypothesis that it is the gap in expected earnings that matters.

Despite these variations in representations of the gap in income opportunities, and no matter whether this gap is instrumented or not, virtually all found a significant association: the higher the income gap the more people move, which is not surprising.[39] Yet there are exceptions: in the examination of African refugee flows by Hatton and Williamson (2003), a real wage gap measure proves insignificant, though this may be attributable to sample size restrictions.[40] The extent to which refugees respond to income gaps is

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[37] The International Labour Organization reported data on employment status for 17 countries of Africa, omitting most of the lowest income states, between 2000 and 2008 (http://laborsta.ilo.org/). Adopting the latest of these data for each country, about a third of men and women in employment are considered employees; two-thirds are termed own-account or contributing family workers.

[38] Hatton and Williamson (2003) found that the faster is GDP per capita growth at home in SSA, the lower are net departure rates, given the wage gap between countries. They took this GDP growth to proxy for employment growth, though this is not necessarily the case, Libya providing a counter-example, for instance.

[39] In addition to the aforementioned papers, Lucas (1987) estimated a simultaneous equation model of migration by men to South Africa's mines, from Botswana, Lesotho, Malawi, and Mozambique, during 1946–78. The demand for miners and hence wages vary over time with fluctuations in the prices of gold, diamonds, and coal (Lucas, 1985a). Meanwhile, the supply of miners from the main sending countries is shown to shift with economic opportunities at home; plantation wages in Malawi and Mozambique, urban wages in Botswana, and the value of crop production and incidence of rainfall across each of the countries. Myburgh (2004) looked at the intercontinental, official emigration data from South Africa to the US, UK, Australia, and New Zealand, finding a positive association with the gap in average, annual wages between origin and destination countries, from 1987 to 1999. Myburgh noted that immigration controls may explain why emigration to the US has been less responsive to wage differences. Hatton and Williamson (2005) also traced the evolution from 1970 to 1995 in the wage gap between Ghana and its West African neighbors, especially Nigeria, describing the role of underlying instability of cocoa prices, the vagaries of domestic economic policies, and shifting political regimes in shaping these wage movements, which are shown to correlate with net migration from Ghana.

[40] Also, from his work on the Kenyan Labour Force Survey, Agesa (2003) showed that Kenyan women appear not to respond significantly by migrating to town to take advantage of a given wage gap, whereas Kenyan men do.

an important and controversial issue, to which the following subsection returns. Meanwhile, Hatton and Williamson (2005, p. 252) concluded more generally that:

> Within Africa, cross-border migration has responded to wage gaps and demographic forces, and it has waxed and waned with each commodity price boom and bust in host countries. This cross-border migration confirms that Africans are very responsive to economic opportunities, but its magnitude, averaged over booms and busts, has not been very large. The explanation is pretty clear. Most African countries have neighbors who are at similar levels of development.

Yet this seems difficult to square with the fact that the bulk of African migration is intracontinental, unless the fluctuations have happened to average out at a consistently high level. Nonetheless, Ruyssen and Rayp (2010, p. 15) also found that, "Because of the small potential income gains of migration from one sub-Saharan African country to another, the per capita incomes in source and destination countries play no significant role in determining migration." On the other hand, the gap in growth of PPP GDP per capita between origin and destination does prove strongly positive in this cross-sectional gravity model (as does the gap in employment rates). Presumably over time this would imply that gaps in income levels would be positively associated with a larger cumulative emigrant stock.

Beyond income gaps, income levels at home may also play an additional part in the story. The concept of a "migration hump" has attracted much attention in the international migration literature despite the absence of supporting evidence. The notion is that out-migration first rises, then declines with income levels at home, with the important implication that economic development among the low-income African countries would tend to exacerbate emigration pressures (for a more general discussion of the migration hump hypothesis, see Lucas, 2005, Chapter 2).

One of the arguments that may justify a migration hump is the difficulty of financing moves, especially more expensive international moves. A couple of papers attempted to address the influence of constraints on financing the costs of moving in Africa. Gelderblom (2007), for instance, suggested that poverty appears to limit the likelihood of rural–urban migration in South Africa. As the author recognized, however, the evidence is very limited, hinging largely upon the interaction of lower education with greater distance from town in diminishing mobility. On a more systematic basis, Meka'a (2011) noted that even controlling for available income gaps, persons from households with access to loans, land, and houses are more likely to leave rural Cameroon for town, finding that some heads of household are then able to move even though their potential gain in income is relatively low.[41] Wouterse and van den Berg (2011) used a household survey

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[41] See also Hoddinott (1994), who found a positive association between family land holdings and the probability of rural–urban migration in Kenya, though without explicit controls for income gaps available. Kirsten and Kirsten (2000) reviewed some of the related literature on the interactions between rural asset inequality, demographics, environmental outcomes, and migration, partly in the context of Africa.

of two villages in Burkina Faso, demonstrating that members (predominantly male) of households with larger land holdings are both significantly more likely to undertake intercontinental moves and less likely to move within Africa, suggesting the importance of wealth in enabling the more distant moves.

A slight migration hump is detected in a sample survey taken in Egypt in 1986–87, in which the probability of emigration rises from 9.7% among the lowest income group to 13.4% at its peak among the middle-income families (using predicted household income excluding remittances); men from poor, landless households do, however, have the highest likelihood of emigrating (Adams, 1993).[42] Naudé (2010, p. 330) more explicitly reported that "evidence is found of a 'migration hump' in migration from SSA, which is consistent with the finding that much migration from SSA is forced." This apparently refers to the steady state in his generalized-method-of-moments estimation of a dynamic model in which GDP per capita enters through five of the right-hand variables. Unfortunately it is not possible to discern the turning point in this relationship since the estimated coefficient on the key variable, GDP per capita squared, is reported to be 0.00, though statistically significant. Nor is it clear why such a pattern would be consistent with the predominance of "forced migration".[43]

In addition to incomes, at least two aspects of the role of source-country demographic patterns in shaping migration have been investigated in Africa, though with mixed results. Migration, both internally and internationally, tends to be concentrated among young adults. It therefore seems reasonable to postulate that countries with a larger proportion of their population between the ages of 15 and 29 might have greater emigration rates; Hatton and Williamson (2003) found supporting evidence for this proposition in their panel data on net migration from Africa; Naudé (2010) found counter evidence. The two, however, agree with respect to population pressure on land increasing emigration, presumably by lowering marginal contributions to agricultural incomes for the family.

The effect of climate change on migration has garnered considerable notice in global forums of late (Brown, 2008; Raleigh et al., 2008; Piguet et al., 2011). In the African context, precipitation and temperature fluctuations as well as natural disasters have been

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[42] The data were collected by Adams on about 1000 households in three villages in rural Egypt. The sampled villages are not representative of Egypt though the selection of households was random within the villages. This is a rare example of a household survey that collects information about absent and returned emigrants, though the survey was not able to collect information on earnings of the absent members. In an earlier study, El-Dib et al. (1984) also noted the preponderance of landless agricultural laborers among Egyptian emigrants to the Gulf.

[43] I am most grateful to Michael Clemens for correspondence on this point. In most contexts, the negative coefficient on Naudé's lagged endogenous variable would be surprising. However, the author argued that this "accords with the cyclical/volatile nature of migration in SSA. It is also consistent with migration that is mainly forced" (Naudé, 2010, p. 346).

explored as potential determinants of international migration. Over the last half century, on average Africa has experienced a significant upward trend in temperatures and a downward trend in rainfall. The focus of the paper by Marchiori et al. (2011) was upon the impact of these rainfall and temperature departures from the norm, upon net non-refugee migration. Their hypothesis was that weather anomalies increase the rate of urbanization but depress urban earnings, hence encouraging departure abroad. A three-equation model was estimated by instrumental variables (IV), with GDP per capita, the degree of urbanization, and net migration rate as the three dependent variables. GDP and urbanization were modeled as dependent upon weather, both alone and interacted with the importance of agriculture, and the incidence of war. The net migration specification includes the same measures plus the GDP gap between home and the rest of SSA and the extent of urbanization. One drawback of this study lies in treating weather anomalies symmetrically, rather than distinguishing episodes of drought from those of torrential rains, for instance.[44] Nonetheless, simulating with their model, the authors estimated that weather anomalies resulted in a net international displacement of some 5 million persons during the 40 years of observation. Most of this displacement derives from fluctuations in rainfall, interacted with an index of the relative importance of value added in agriculture, which jointly affect income levels at home and hence net migration. Indeed, the simulated consequence would appear to be extremely large, according to the authors' calculations amounting to perhaps a third of all sub-Saharan Africans who left their country during this interval.[45]

Certainly, the vagaries of the weather completely dominate the incidence of natural disasters in Africa, with droughts being particularly onerous.[46] Nonetheless, rather than measuring precipitation and temperature directly, an alternative is to look at the prevalence of natural disaster outcomes. CRED reports both the number of natural disasters occurring and the number of victims. Naudé adopted the former, the count of disasters,

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[44] Barrios et al. (2006) similarly treated departures of rainfall from the norm symmetrically in their analysis of urbanization in SSA and in the rest of the world. Controlling for population size, GDP per capita, a measure of openness, democracy, civil war, decolonization and country fixed effects, they found that shortages of rain indeed accelerated the rate of urbanization in SSA during 1960–90 (though not in the rest of the world, on average).

[45] Marchiori et al. (2011, footnote 22). See also Henry et al. (2003) on rainfall variation and inter-regional migration within Burkina Faso.

[46] Defining and measuring natural disasters is recognized to be difficult (Guha-Sapir et al., 2004), but the Center for Research on the Epidemiology of Disasters (CRED) attempts to do so, distinguishing between hydrometeorological (drought, flood, and windstorm) and geological (earthquake and volcanic) disasters. Between 1974 and 2003 CRED estimates that less than 2% of the victims of disasters globally and less than 1% of those in Africa suffered from geological events. Africa is particularly drought-prone, 87% of all victims resulting from this source compared to 37% globally. Relative to population size, there are more than twice as many victims of drought in East Africa than in the continent as a whole, though drought in the Sahel region is clearly problematic too.

in two papers, though reaching somewhat different conclusions. In Naudé (2009, p.165) he concluded:

> *that natural disasters have a significant impact on migration from SSA, raising the net out-migration by around 0.37 per 1000. No direct evidence was found that natural disasters lead to further migration through impacting on GDP growth. It is however established that natural disasters is [sic] associated with a slightly increased probability that a country will be in conflict in a subsequent period.*

In Naudé (2010, p. 346) he explored what appears to be a very similar specification on the same data, but adding controls for population density, land under irrigation, and whether the country is landlocked, finding that "Natural disasters . . . do not appear to have any significant impact on net migration rates". In fact, the estimated coefficients on the natural disasters indicator are roughly of the same order of magnitude in both papers, but less precisely estimated in the latter.

Given the preponderance of refugees in Africa it would be a travesty not to consider violence as a determinant of migration, though, viewing it more deeply, the causes of violence become the determinants. Three main routes have been explored: the effect of refugee outflows on net migration; the correlation between violence and net migration; and the magnitude of effect of violence upon refugee flows. Hatton and Williamson (2003) adopted the first approach. Since refugees are part of the net migration rate, the left-hand variable in their study, it is unsurprising that the association between net refugee outflow and net migration outflow proves positive; that the associated coefficient is substantially less than 1 is more intriguing. The authors doubted that this simply reflects errors in measurement and suggested instead:

> *. . . that refugee inflows generate offsetting movements by 'economic' migrants in the opposite direction. This result implies that refugees crowd out others, and that the crowding out is very significant—for every two refugees, one local is pushed out of the home labor market.*
> **Hatton and Williamson (2003, p. 474)[47]**

The second approach is to include some measure of conflict among the potential determinants of net migration. Conflict may have a direct effect, expelling persons recorded as refugees and probably others fleeing the violence but not officially recognized as refugees, and indirect effects such as through economic disruption. In his analysis of net migration, Naudé (2010) included the number of years during each five-year interval in which at least 25 battle-related deaths occurred in the country of origin, as well as several measures of income and its growth. Violent conflict is estimated to have had a significant direct

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[47] The Mariel boatlift of Cuban refugees into Miami in 1980 is estimated to have led to out-migration of local workers from Miami too (Filer, 1992). However, for the effect suggested by Hatton and Williamson the displacement would need to be in the form of emigration, and not merely internal movement, in view of which the magnitude seems excessively large. See Section 5.2.3 on the effects of refugee inflows on the local economy in Africa.

effect in enlarging net out-migration, which is not too surprising given the magnitudes of refugee flows suffered in Africa. In contrast, in the gravity model estimated by Ruyssen and Rayp (2010), the number of years in conflict at origin, from World War II until 1995, is estimated to have no effect on the bilateral migrant stocks within the countries of SSA by 2005, possibly suggesting that cumulative effects do not persist.

The third approach was taken by Hatton and Williamson (2003) and Iqbal (2007), looking at annual panel data on African refugees as the dependent variable.[48] In the former, the stocks of refugees from a balanced panel of 40 SSA countries were examined, relative to population in the originating country, from 1987 to 1992. Iqbal's dependent variable is the logarithm of the number of refugees present in each of 50 African countries originating from the same set of African countries each year from 1992 to 2001.[49] In either case the issue of treatment of zero refugees arises. In Hatton and Williamson's data in just over 40% of the country-year observations, a positive stock of refugees was reported and, given the preponderance of zero observations, the authors adopted a Tobit estimator. Iqbal reported that approximately 99% of his dyad-year observations are zeros, yet from the number of observations in his estimation sample it appears these zeros are included despite the use of a logarithmic form. Hatton and Williamson found that dummy variables for coups d'état, government crises, guerilla warfare, civil war, and military deaths in civil war each additively and significantly increase the numbers of refugees generated. Lagged values of these measures generally prove insignificant, and Hatton and Williamson (2003, p. 472) concluded: "Thus, refugee migrations appear to be temporary and quickly reversed."[50] Iqbal's results also confirmed that the difference, between origin and host, in the frequency of conflict (including both civil and interstate wars) exacerbates refugee flows, but that this effect diminishes sharply with distance between countries' capitals. In fact, the results point to a sharp discontinuity: distance is irrelevant between non-contiguous states. In other words, Iqbal's results really serve to bring out the dominant pattern of refugees concentrating almost entirely in neighboring states.

This last result begins to touch on some of the roles that spatial distribution may play as a determinant of migration. The issue is important for at least two reasons. First, from the discussion in Section 1.2 it has already been surmised that distance may play a significant part in shaping African international migration; omission of distance as a control variable

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[48] Hatton and Williamson used estimates from the US Committee for Refugees (1994, 1998), whereas Iqbal adopted the measures reported in the UNHCR Statistical Yearbook (2001).

[49] Iqbal referred to these as refugee flows, but from the summary statistics reported it appears they may actually be stocks rather than flows.

[50] The dynamics of refugee flows are difficult to track given data limitations. Some contexts show rapid reversals in the UNHCR data, while others do not. For instance, the stock of refugees in Burundi from Rwanda peaked at about 235,000 in 1982 and did not fall below 200,000 until 1994. Meanwhile Rwandan refugees in the DRC went from 50,000 in 1993 to over 1.25 million in 1994 and back to below 40,000 by 1997.

may well bias estimates of other effects. Second, a dynamic interaction between distance, lack of establishment of migrant networks and, hence, cumulative inertia can result in isolation from the migration process, maintaining poverty among more remote locations.[51] Whether the deterrent effect of distance represents travel costs, lack of familiarity, or diminished information remains generally unclear in this literature on gravity models of migration (Lucas, 2001). However, an interesting insight is offered by Aker et al. (2011), who reported on two randomized experiments, which distributed cell-phones in rural locations in Niger; access to the information technology substantially increased the incidence of seasonal migration, pointing to a critical role for limited information in constraining internal migrations.[52]

Unfortunately, it seems analysis of the specific role of distance in affecting African migration has generally been neglected.[53] An exception is the analysis by Ruyssen and Rayp (2010) of the cross-sectional, bilateral migrant stock from 46 countries of SSA living in 35 of the same countries as of 2005.[54] These data permit estimation of an augmented gravity model. Controlling for dyads of countries with a common border, which proves strongly positive in enhancing the volume of migration, distance still diminishes migration beyond these neighbors; a 1% increment to distance is estimated to deter migration by 1%.[55] Given a positive effect of home country growth on outward migration, Ruyssen and Rayp (2010, p. 15) appropriately noted that "this finding might also point to the existence of a so-called poverty trap".

Two migration patterns are particularly difficult to examine, though important: circular and irregular migration. Circular migration is often characterized as a common feature of African population mobility (Findley et al., 1995; Adepoju, 2005). Yet the extent of return migration is difficult to quantify; surveys and censuses that ask only place of origin and of current location miss this feature entirely. Some interesting insights were nevertheless gained by Collinson et al. (2006) from panel household survey data,

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[51] Molho (1995). Wouterse and van den Berg (2011) described the role that attendance at a Koranic school may play in building network contacts in Burkina Faso and demonstrated that intercontinental migration from the two villages surveyed is more likely to occur the larger the number of household adults who have attended Koranic school.

[52] I am most grateful to Michael Clemens for permission to note these preliminary results. See also Sabates-Wheeler et al. (2009) on the importance of information flows in expectations formation with respect to return migration in Ghana.

[53] Augmented gravity models of inter-regional migration within South Africa and Burkina Faso have been estimated but without an explicit role for distance. See Bouare (2001) and Henry et al. (2003) respectively.

[54] The data are drawn from the Global Migration Matrix (World Bank, 2010), which is based on the estimates described in Parsons et al. (2007) with updates for 56 developing countries, referring to 2005. See Ratha and Shaw (2007, Appendix A).

[55] Naudé (2010) examined a separate spatial issue, finding no evidence that net migration differs between landlocked and coastal countries, given his measures of income levels and growth.

collected annually on a rural district in South Africa since 1992. Extremely high rates of circular movement were identified, especially between the home area and Johannesburg, 500 kilometers away. Whereas there were more females, particularly in the age range 15–35, who entered or left the rural district permanently, males tended to dominate the circular migration and continued to do so over the entire age range of working life. Posel (2006) pointed out that given the restrictions on permanent relocation, both internally and internationally, during the apartheid era in South Africa, circular migration might have been anticipated to decline with the change in regime. However, using pseudo-panel data from a national, annual household survey, the study argued that no decline has been observed, which Posel (2006, p. 217) attributed to "rising labor market insecurity in South Africa, access to land, retirement preferences and the role of the household of origin in the care of children". More generally, in reviewing some of the evidence on urbanization, return and circular migration in SSA, Tacoli (2001) painted a very diverse picture. She argued that given the dominance of the public sector in driving formal and induced informal sector employment in urban Africa, the structural adjustments necessitated in several countries during the 1980s increased urban poverty, narrowing the income gap between town and countryside. This might have been anticipated to initiate one-way return migration back to rural areas, with consequent de-urbanization, but this review suggested that this was not true in all instances. In some contexts continuous circular migration grew instead, while in others international migration tended to substitute for declines in internal rural-urban migration. Tacoli concluded that rural–urban links, including circular movements in between, remain a key aspect of African livelihood strategies.

Arcand and Mbaye (2011) undertook perhaps the only study of the decision to migrate irregularly from Africa to the North. Specifically, the authors interviewed 367 individuals, self-identified as interested in migrating, during 2006–07 in Dakar, Senegal. Using a tightly specified model, parameters of implied absolute risk aversion and of the intertemporal discount rate were backed out for each observation. Three modes of migration were described and modeled: the "visa method" in which the migrant pays for a visa and airfare then enters legally; the "canoe method" whereby the migrant pays a passeur to provide irregular entry, usually to France, Italy, or Spain, either by motorized canoe, inflatable, or overland through Morocco, Tunisia, or Libya; the "embassy method" involves a bribe to a corrupt visa official, resulting in legal entry through illegal methods. The canoe approach involves considerable physical risk so the passeur's fee is far lower than the necessary bribe to an embassy official. Both a binary choice model (with Heckman selection correction since only willing migrants are sampled) and a conditional logit model of the three methods of migration are estimated, using reported willingness to choose these outcomes. The higher the discount rate, the more likely is some form of irregular movement to be contemplated; the potential migrant is anxious to obtain the payoff and the "visa" route is highly unlikely to

succeed. The larger is the expected foreign wage, the more likely the person is to be willing to pay the higher cost of bribery and adopt the "embassy" method. Naturally, the higher the cost of either form of illegal movement, the less likely they are to be chosen. Any hardening of legal entry requirements significantly increases the likelihood of choosing an irregular route.

3.1.2 Fresh evidence

A number of the ideas emerging from the prior literature can be re-examined and extended with the rich data panel data that have recently appeared on bilateral migrant stocks. This section begins by applying these data to augmented gravity models, looking at migration net of refugees, followed by a comparative analysis of African refugees.

Estimates of augmented gravity models for African non-refugee migrants

The results in Table 26.9 apply a two-part model, distinguishing between the intensive (volume of migration) and the extensive (likelihood of any migration occurring) margins.[56] The sample refers to the stock of migrants from 55 African states and territories in 220 states or territories worldwide (including other African states), each decade from 1960 to 2000.[57] Turn first to the results presented in the first panel of this table.

The gap in GDP per capita between home and potential destinations is divided between gaps with countries having higher incomes and those with lower incomes. In 2000, whereas 96% of North African non-refugee migrants were in countries with higher incomes than had their own country, nearly a quarter of those from SSA had actually moved to lower income countries. Accordingly, the elasticity of migration with respect to a negative income gap proves low in SSA; the fact that another country has even lower incomes than a state of SSA does little to deter movement. In addition, the elasticity of response to positive income gaps for SSA proves substantially lower on both the intensive and extensive margins than for North Africa.[58] A possibility is that low incomes in SSA present a financial barrier to relocation, inhibiting ability to take

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[56] Given the ambiguity with respect to the zero observations, as real zeros versus failure to report, the separate estimation in the two-part model offers some particular appeal. Appendix B reports and discusses three alternative estimates of the identical specification, each treating the incidence of zero migration differently. The results differ little, at least in their qualitative nature, and even the point estimates are close to the intensive margin values in Table 26.9, as are the estimates if fixed effects for each African country of origin are inserted into the intensive margin equations.

[57] Missing data, primarily on GDP per capita, explain why the sample size is less than 60,500 even when zero cases are included. Mayotte, which is listed as an African territory in the GBMD, is omitted for lack of data, as are six non-African states or territories.

[58] Applying dyad fixed effects to the intensive margin estimates in Table 26.9 reveals that even within the average pair of countries, bilateral migration has responded positively to changes in income gaps over time. The North African results more closely resemble those for non-African low-income countries, from where 90% of all migrants were in higher income countries.

Table 26.9 Augmented gravity model: African non-refugee migrants

	SSA		North Africa		SSA		North Africa	
	Ln mig	*Logit*	*Ln mig*	*Logit*	*Ln mig*	*Logit*	*Ln mig*	*Logit*
Ln GDP gap positive	0.441	0.301	1.075	0.524	0.430	0.311	1.092	0.479
	(26.07)	(22.04)	(20.51)	(10.24)	(19.05)	(17.02)	(15.76)	(7.20)
Ln GDP gap negative	0.126	0.025	0.294	0.122	0.239	0.071	0.109	0.161
	(2.29)	(0.59)	(4.48)	(1.96)	(3.20)	(1.21)	(1.16)	(1.82)
Ln GDP origin	−2.731	−0.238	−0.950	−1.747	−1.545	2.236	−2.507	−7.595
	(8.19)	(0.71)	(1.46)	(2.72)	(2.98)	(3.50)	(1.65)	(4.48)
Ln distance ln GDP origin	0.355	0.059	0.173	0.262	0.205	−0.228	0.401	0.955
	(9.34)	(1.55)	(2.34)	(3.62)	(3.48)	(3.17)	(2.28)	(5.01)
Ln distance	−4.269	−1.730	−2.669	−2.589	−3.382	0.000	−4.899	−8.352
	(16.20)	(6.54)	(4.46)	(4.42)	(8.50)	(0.00)	(3.52)	(5.68)
Contiguous states	2.675	−0.155	2.216	0.053	2.513	−0.175	2.344	−0.513
	(24.99)	(1.11)	(8.40)	(0.16)	(18.25)	(0.99)	(7.51)	(1.39)
Landlocked country	−0.413	−0.347			−0.336	−0.264		
	(7.89)	(8.61)			(4.54)	(4.52)		
Major episodes of violence	0.057	−0.018	−0.017	−0.047	0.098	−0.027	−0.012	−0.028
	(4.25)	(1.71)	(0.44)	(1.28)	(3.91)	(1.30)	(0.22)	(0.56)
Polity index at origin	0.004	0.009	−0.037	0.024	−0.007	−0.002	0.005	0.013
	(0.97)	(2.67)	(1.57)	(1.15)	(1.36)	(0.44)	(0.15)	(0.40)
Common language	1.082	0.687	1.303	1.046	1.145	0.777	1.037	1.332
	(22.95)	(18.05)	(12.31)	(9.50)	(20.22)	(16.85)	(7.72)	(8.67)
Colonial link ever	2.690	1.579	1.467	0.146	2.572	2.304	1.355	−0.093
	(15.71)	(4.63)	(3.66)	(0.19)	(11.93)	(3.79)	(2.40)	(0.12)
Ln population at origin	0.305	0.361	0.447	0.645	0.281	0.404	0.495	0.397
	(15.82)	(24.01)	(6.28)	(9.03)	(8.61)	(15.82)	(3.49)	(2.95)
Ln population at destination	0.538	0.413	0.648	0.517	0.563	0.425	0.626	0.508
	(47.97)	(52.19)	(25.35)	(22.17)	(38.68)	(41.36)	(20.11)	(17.38)
Ln population/area	0.226	0.100	0.017	−0.039	0.337	0.165	−0.011	−0.304
	(5.13)	(3.01)	(0.20)	(0.49)	(5.28)	(3.31)	(0.04)	(1.28)

Continued

Table 26.9 Augmented gravity model: African non-refugee migrants—cont'd

	SSA		North Africa		SSA		North Africa	
	Ln mig	*Logit*	*Ln mig*	*Logit*	*Ln mig*	*Logit*	*Ln mig*	*Logit*
Ln percent population urban	0.178	0.170	0.087	0.833	0.304	0.183	0.036	0.668
	(3.25)	(4.07)	(0.30)	(3.31)	(3.74)	(2.90)	(0.09)	(1.86)
Percent pop. aged 15–29	0.035	0.026	0.039	0.007	0.043	0.035	0.008	−0.040
	(2.22)	(2.18)	(1.39)	(0.28)	(1.78)	(1.91)	(0.19)	(0.97)
Ln percent area arable	−0.286	−0.043			−0.425	−0.200		
	(5.42)	(1.07)			(6.11)	(3.70)		
Long-term average rainfall	−0.313	−0.258			−0.536	−0.365		
	(6.30)	(6.83)			(7.76)	(6.76)		
Abs. diff. min. rain/average	−1.138	−0.147			−1.591	−0.734		
	(3.98)	(0.71)			(3.82)	(2.35)		
Ln % arable diff. min. rain	0.428	−0.057			0.502	0.198		
	(3.83)	(0.70)			(3.27)	(1.75)		
% pop with ≥second. educ.					−0.294	−0.594	−0.230	−0.194
					(3.80)	(7.51)	(1.94)	(1.59)
% sec educ. ln distance					0.037	0.070	0.028	0.028
					(4.23)	(7.90)	(2.22)	(2.09)
Year	−0.016	−0.012	−0.012	−0.033	−0.026	−0.018	−0.015	−0.026
	(6.13)	(6.08)	(1.55)	(4.74)	(6.92)	(6.11)	(1.36)	(2.58)
Intercept	60.605	29.217	33.127	69.269	73.632	25.607	55.729	108.595
	(11.21)	(6.55)	(2.22)	(5.11)	(9.34)	(3.57)	(2.31)	(4.60)
No. observations	12,388	28,209	2581	4038	7253	16,838	1634	2604
(Pseudo) R^2	0.465	0.213	0.509	0.231	0.481	0.221	0.515	0.250

Author's calculations: For data sources see Appendix A.
T-statistics for a zero null hypothesis are shown in parentheses. Standard errors are robust to heteroskedasticity.

advantage of specific income gaps.[59] Indeed, if an interaction term between the positive log of income gap and the log of home GDP is added to the specification for SSA, the associated coefficient proves significantly positive. Yet, even if GDP per capita in the average state in SSA were to reach US levels, the elasticity of response in SSA$ to any income gaps would be projected to remain well below those for North Africa and other low-income countries. Low incomes are not the only underlying cause for the low responses to positive income gaps from SSA. Whether the fairly inelastic average response to positive income gaps among sub-Saharan Africans reflects additional constraints on the ability to move or simply hesitance to relocate must await further analysis.

The combined implications of the three terms incorporating home income in Table 26.9 are that the volume of migration from North Africa diminishes with higher incomes at home over the entire range of actual distances; for SSA this is not true. For the average country in SSA, the extent of migration decreases the greater is GDP per capita at home up to a distance of about 7500 kilometers, beyond which the elasticity of migration with respect to home income becomes slightly positive.[60] In other words, higher incomes in SSA tend to be associated with less movement to other states within SSA but with greater movement to countries beyond the region. Obviously this raises interesting issues about the implications of future development prospects for out-migration from SSA, though it may be noted that no sign of an overall migration hump is detected for Africa, as sometimes hypothesized.[61]

The propensities to migrate lessen with distance between states, though this limiting effect diminishes at higher incomes in the home country for almost every context in Table 26.9.[62] Over the entire sample range of incomes, distance remains a negative effect in every case, yet the propensity to move over larger distances does increase at higher income levels, from Africa as elsewhere. As communications and transport improved over the 40 years spanned by the data, one might expect distance to have become less of a barrier to migration with passage of time. If an interaction between the logarithm of distance and year is added to the specifications in Table 26.9, a more nuanced picture emerges. On the intensive margin, distance has actually become slightly more of a deterrent to expanded migration over time, from North Africa and from both low-income and

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[59] Alternative possibilities clearly exist; for instance, lower education levels in the lower-income countries may play a role, an issue to which subsequent results in this section return.

[60] For the non-African low-income countries a similar pattern is observed, though with the transition to a positive association occurring at a much greater distance of nearly 13,000 kilometers.

[61] A simple, piecewise linear specification (not tabulated), including only a trend variable and fixed effects for each country of origin, with GDP break-points at 72,500, 1250, 4000, 10,000, and 20,000 PPP$ at 2005 prices, supports the lack of a general migration hump. For Africa as a whole, the pattern exhibited is of monotonically declining migration as incomes at home rise. The same holds for SSA and North Africa separately, given omission of the remaining controls in Table 26.9. More generally, a U-shaped pattern, not an inverse U-shape, is observed from this specification applied to the global data.

[62] The logit case for non-African low-income countries proves an exception to this.

other countries in the rest of the world, but not from SSA where no significant change is detected.[63] On the other hand, time has seen opening of migration to more distant destinations from both SSA and from the non-African low-income countries, but not from North Africa.[64] Given the mean income levels of states south of the Sahara in 2000, migration out of SSA proves more sensitive to distance than from North Africa or other low-income countries and, as noted earlier, distances from SSA at least to the OECD countries are large.

The propensity to migrate is greater to a bordering country than to non-contiguous states, in Africa as elsewhere, even given distance. However, from the average state in SSA and in North Africa this propensity to move next door is estimated to be greater than in the rest of the world on average, which is a reminder of the porosity of African borders. On the other hand, landlocked African countries generate about a third less migrants than do measurably equivalent African countries with a coast. Non-African landlocked countries exhibit a similar, but much smaller, influence from the absence of a coast. Whether being landlocked reflects transportation issues, differences in cultural attitudes, or some other factor for migrants is unclear.[65]

In SSA, though not in North Africa, major episodes of political violence in the home country have been positively associated with higher rates of departure. On the other hand, *ceteris paribus*, whether African states are more or less democratic proves essentially irrelevant to the extent of emigration.[66] Escaping violence, but not autocratic rule, appears to have underlied departure, even of these migrants not recognized as refugees from SSA.

Two measures common to both trade and migration gravity models follow. If the host and destination states possess a common language, spoken by at least 9% of their populations, the number of migrants is substantially greater. Added to this is an even larger positive influence on migration if the dyad of countries has ever had a colonial relationship. Prima facie, the relatively low role of a colonial link for North Africa may seem surprising. However, this average masks strong contrasts within the region; that the colonial link is extremely strong for the three countries of the High Maghreb is readily confirmed by the addition of an interaction term. For the remaining countries of North Africa, any

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[63] Such positive trends in the influence of distance have also been noted in the trade literature and are referred to as the "distance puzzle" (Cairncross, 1997; Disdier and Head, 2008; Anderson and Yotov, 2010).

[64] Some of the transitions from zero to positive migrants may well represent under-reporting in the earlier years. By 2000 Spain and the Netherlands were the two countries with the largest migrant populations originating from countries of SSA that had no migrants reported in these hosts in either 1960 or 1970.

[65] Conversely, the island states of SSA exhibit greater rates of emigration, *ceteris paribus*, than do their landed counterparts. North Africa has neither a landlocked nor island state.

[66] See Appendix A for variable definitions and sources. The polity index in Table 26.9 ranges from −10 (full autocracy) to 10 (full democracy). In 1960, Africa on both sides of the Sahara averaged similar polity scores of about −5; by 2000 SSA was substantially less autocratic than North Africa according to these data, though the Arab Spring has the potential to herald changes.

colonial ties prove essentially irrelevant to migration outcomes.[67] As noted previously, these colonial ties (and by extension the common language measure) may reflect many underlying factors: information channels and familiarity, ease of transition and integration, network effects drawing migrants in, and willingness to admit both migrants and refugees (cf. Ruyssen and Rayp, 2010).

A set of demographic factors follow next. First, not surprisingly, African countries with larger populations generate more international migrants. However, the elasticity estimates with respect to population are significantly below unity; in other words, smaller-population countries generate greater numbers of migrants per capita, an effect that is stronger among African than among other low-income countries.[68] Second, greater population density relative to total land area is associated with higher rates of out-migration from SSA though not from North Africa.[69] Third, the evidence supports the notion, hypothesized by Marchiori et al. (2011), that greater rates of urbanization are associated with more emigration, at least in SSA (Adepoju, 1998). Fourth, as suggested by Hatton and Williamson (2003), though with counter evidence in Naudé (2010), the greater is the fraction of population in the prime migration age range of 15–29, the larger is out-migration from SSA. The magnitude of this association is actually very similar in North Africa too, though statistical confidence in this instance is low. To what extent pressure on African youths to emigrate reflects the lack of employment creation for them at home remains unclear, given the lack of systematic data to explore the issue, though certainly this has been a major source of concern (African Development Bank et al., 2012).

The remaining elements in this first panel of Table 26.9 address issues of climate and risk in SSA. Countries with heavier, annual, average rainfall generate less emigration, *ceteris paribus*. Episodes of drought are measured here by the largest shortfall in annual precipitation, during the decade prior to observation, relative to the long-term mean. For countries where arable land is scarce this is not associated with additional emigration. However, the results indicate that for countries in which the land under arable use

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[67] In addition to the colonial link explored in Table 26.9, bilateral migration is greater, both on the intensive and extensive margins, from countries of SSA to countries that share a common colonial heritage, though this is not true on average for North Africa.

[68] This size effect is reminiscent of the common finding that large economies trade a smaller proportion of their output internationally, which is dubbed the "border puzzle" (Trefler, 1995). Anderson and van Wincoop (2003) argued that, in the trade context, this puzzle may be resolved by including measures of multilateral resistance to trade. Stouffer (1940) introduced a related concept of intervening opportunities in migration. This notion has subsequently received some attention in the empirical literature on internal migration but has largely been neglected in the context of international migration. See, however, Akkoyunlu (2012) on Turkish emigration to Germany.

[69] A good deal of North Africa is barely habitable desert. Yet even if population relative to total area is replaced with population relative to arable area there is no sign that population pressure on land has been a factor associated with greater emigration from North Africa.

exceeds about 14%, which is close to the sample mean, the more severe the drought during the prior decade, the greater the migrant stock from that country at the end of that decade. At 20% arable coverage, a 10 percentage point increase in the maximum rain shortfall, relative to the mean, is estimated to increase the stock of bilateral emigrants by about 1.5% on average. On the other hand, a measure of the average number of victims of natural disasters per capita proves insignificant in affecting the migrant stock. This same measure of natural disasters is indeed negatively and significantly associated with income levels, controlling for country fixed effects and time. Nonetheless, even if all terms in home income are omitted from the migration equation, the number of victims of natural disasters still remains unassociated with the extent of migration. A number of other measures of rainfall and temperature variation similarly proved largely insignificant.[70] On the whole, any evidence that climate fluctuations substantially affect African international migration, *ceteris paribus*, must be considered somewhat tenuous.

In the second panel of regressions in Table 26.9, a measure of educational attainment of the adult population in the country of origin, adopted from the data in Barro and Lee (2000), is inserted. The reason for exploring this measure in a separate regression is that the Barro–Lee data are available for only 31 of the countries in Africa, which limits sample size. Any resulting selection bias appears, however, to be fairly small, the foregoing results not altering a great deal. The educational measure, together with its interaction with logarithm of distance, indicate that having a larger portion of the population with at least a secondary education increases the magnitude of migration only over distances in excess of about 3000 kilometers. In other words, this suggests that more advanced education tends to increase intercontinental migration but not shorter movements within Africa.

Finally, it may be noted that, *ceteris paribus*, the migration trend is small but negative in each context in Table 26.9 (though weakly so with respect to the volume of migration from North Africa). In contrast, the crude number of African migrants exhibits a strong, significant, positive trend over this sample period both from SSA and from the North; it seems the rapid population growth in Africa and widening income gaps with the rest of the world over time more than account for this growth in migration.

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[70] The data on victims of natural disasters are available only for the last three decades of our observations, thus limiting the sample size. Some of the other climate fluctuation measures generated, considered, and found insignificant were: mean annual rainfall during the decade relative to long-term mean, the mean average gap in annual rainfall below the long-term mean during the decade relative to the long-term mean, and the number of years during the decade in which annual rain fell more than two standard deviations below the long-term mean. Comparable measures were also considered for the wettest month and for temperatures, though focusing upon heat above normal.

Comparative estimates on African refugees

The data on bilateral African refugee stocks are available on an annual basis from 1961 to 2009. During this period more than 90% of African refugees originated from south of the Sahara, so for present purposes the data on SSA and North Africa are pooled, though with a dummy variable for North Africa. Table 26.10 first presents estimates of an identical specification applied to both refugees and to non-refugee migrants for comparison. These specifications omit a few of the measures considered in Table 26.9, either because annual data are not available or because the measure is deemed less relevant to refugees. Some important contrasts may be drawn between the results for refugees and other migrants.

North Africa has generated more non-refugees and significantly fewer refugees, *ceteris paribus*, than has SSA.[71]

Although political violence at home significantly increases non-refugee out-migration, the impact in generating more refugees is far larger (Neumayer, 2005). Incidents of violence in the countries of destination within Africa, on the other hand, are found to do nothing to diminish the volume of refugees from other African states entering, though the likelihood of any bilateral refugees being reported is significantly lower (result not tabulated).

The profile of refugee movement proves much flatter with respect to the gap in incomes between home and potential destination than is the case for other migrants. In particular, the mere fact that the destination country has a lower income than at home does nothing to diminish refugee flows. As a result, as of 2000, fully a third of all African refugees were in a country with a lower GDP per capita than their home state.

As with non-refugee migrants, refugee flows occur over larger distances the higher is the income of the home country. Although this association is smaller for refugees, it may nonetheless point to more affluent (or better educated) refugees being able to settle in the higher income countries. Unlike their non-refugee counterparts, however, greater incomes at home have a comparatively small, negative influence on the number of refugees generated by African countries over the entire range of distances.

The preponderance of refugees pouring into neighboring states is strongly reflected in the coefficient on contiguous states. However, beyond this, distance does less to diminish refugee flows than movements of other African migrants. Whereas the vast bulk of refugees arrive in neighboring states, as we have seen earlier, for those lucky few who manage to relocate further, distance is only a weak factor in determining their location.

African states that approach full democracy on the polity score generate significantly less refugees, *ceteris paribus*, than do their autocratic counterparts, which contrasts with the

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[71] Despite the fact that nine of the ten most violent African countries during the sample period were in SSA, the average level of violence was actually higher in North Africa. Algeria, Morocco, and especially Sudan have all suffered high levels of civil or ethnic conflicts, and Egypt underwent international incidents. Nonetheless, of these, only Sudan generated a large number of recognized refugees.

Table 26.10 African refugees and non-refugee migrants

	Non-refugee migrants		Refugees			
	Ln mig	Logit	Ln refugee	Logit	Ln refugee	Logit
North Africa	0.122	0.300	−0.448	−0.063	−0.448	−0.194
	(2.10)	(6.04)	(8.39)	(2.35)	(7.93)	(6.60)
Major episodes of political violence	0.039	−0.037	0.283	0.303		
	(3.38)	(3.97)	(36.78)	(79.86)		
War of independence					0.183	0.357
					(0.85)	(2.99)
International violence					0.279	0.441
					(5.19)	(13.48)
International warfare					0.072	0.115
					(2.29)	(6.72)
Civil violence					0.208	0.140
					(2.80)	(3.42)
Civil warfare					0.276	0.228
					(24.11)	(34.57)
Ethnic violence					0.192	0.176
					(10.47)	(15.34)
Ethnic warfare					0.211	0.270
					(15.62)	(36.50)
Skirmish 25–1000 dead					0.249	0.336
					(5.53)	(15.04)
Cumulative intensity >1000 dead					0.276	0.424
					(5.45)	(14.33)
Ln GDP gap positive	0.495	0.316	0.219	0.374	0.225	0.379
	(30.98)	(24.22)	(16.84)	(51.04)	(17.31)	(51.49)
Ln GDP gap negative	0.278	0.021	0.035	0.241	0.043	0.237
	(7.04)	(0.64)	(1.04)	(14.52)	(1.27)	(14.22)
Ln GDP origin	−2.644	−1.642	−0.602	−0.465	−0.626	−0.467
	(10.72)	(6.47)	(5.61)	(9.25)	(5.82)	(9.11)
Ln distance • ln GDP origin	0.359	0.225	0.075	0.070	0.081	0.072
	(12.56)	(7.81)	(5.86)	(11.78)	(6.29)	(11.92)
Ln distance	−4.337	−2.799	−0.759	−0.880	−0.791	−0.897
	(20.81)	(13.46)	(8.59)	(21.42)	(8.95)	(21.41)
Contiguous state	2.574	−0.087	4.411	2.228	4.433	2.260
	(25.68)	(0.68)	(53.38)	(49.81)	(53.74)	(50.21)
Landlocked	−0.431	−0.336	−0.032	−0.243	−0.123	−0.469

Continued

Table 26.10 African refugees and non-refugee migrants—cont'd

| | Non-refugee migrants | | Refugees | | | |
| | | | | | | |
	Ln mig	Logit	Ln refugee	Logit	Ln refugee	Logit
	(10.64)	(11.05)	(0.86)	(13.03)	(2.75)	(22.12)
Polity index at origin	0.016	0.017	−0.040	−0.038	−0.040	−0.035
	(4.40)	(6.25)	(10.58)	(22.10)	(10.62)	(20.30)
Common language	1.080	0.692	0.387	0.608	0.420	0.617
	(25.23)	(20.18)	(10.17)	(30.47)	(11.00)	(30.76)
Colonial link ever	2.373	1.438	1.645	1.301	1.644	1.322
	(13.99)	(4.60)	(19.11)	(21.40)	(19.21)	(21.44)
Ln population in origin	0.364	0.416	−0.033	0.077	−0.034	0.077
	(24.28)	(34.94)	(3.47)	(15.46)	(3.52)	(15.43)
Ln population in destination	0.553	0.417	0.154	0.357	0.156	0.360
	(54.72)	(57.14)	(16.36)	(93.39)	(16.64)	(93.77)
Year	−0.007	−0.008	−0.014	0.182	−0.016	0.181
	(4.55)	(6.47)	(4.71)	(125.41)	(5.19)	(120.25)
Intercept	42.313	29.858	34.967	−363.74	38.476	−362.35
	(12.10)	(10.14)	(5.76)	(124.45)	(6.22)	(119.31)
No. observations	15,072	32,781	23,264	357,158	23,264	357,158
(Pseudo) R^2	0.462	0.220	0.360	0.346	0.365	0.352

Author's calculations. *T*-statistics for a zero null hypothesis are given in parentheses. Standard errors are robust.

pattern for non-refugee migrants; it is the more democratic states that generate more non-refugee migrants. Over the range from full autocracy to democracy the results point to about 32% less refugees and nearly 18% more non-refugee migrants, allowing for both the extensive and intensive margins.[72]

In common with their non-refugee counterparts, African refugees are more likely to be located in countries that share a common language and a colonial link, though both associations are weaker for refugees.

If the index of political violence at home is divided into international versus civil and ethnic conflicts, the latter generate significantly larger numbers of refugees, though there is no difference in their effects on non-refugee migrants (cf. Schmeidl, 1997). The last two regressions in Table 26.10 take a closer look at the case of refugees and the nature

[72] A list of coups and the degree of their success is available but no evidence is found that these coups exacerbated either refugee or non-refugee outflow but rather the opposite, given the polity measure, in contrast to the results of Hatton and Williamson (2003).

of violence. International warfare has substantially less impact on refugee outflows than do any of the other forms of politically violent episodes; otherwise there are no major differences observed irrespective of the form of violence. Skirmishes in which 25–1000 died, as well as more deadly wars, have resulted in significant increments to refugee flows, while the cumulative effect of wars at home add even greater pressures on refugees.

The distinction between behavior of refugees and economic migrants has been a subject of substantial discussion in other global contexts (Stanley, 1987; Cortes, 2004; Boustan, 2007). Among African migrants, the foregoing evidence points to a clear distinction in patterns of movement, at least between refugees recognized by UNHCR and other migrants.

3.2 Characterizing African migrants

The profile of African migrants in the OECD countries is far better documented than that of migrants within the continent. Systematic data on the personal characteristics of cross-border migrants remaining in Africa hardly exist. The descriptive statistics on education and labor force status, reviewed briefly in this section, are consequently almost entirely confined to intercontinental migrants. Even the gender mix of migrants proves contentious.

3.2.1 Gender

According to the UN Population Division estimates, in all five of the major regions of Africa there has been an upward trend from 1960 to 2010 in the percentage of females in the migrant stocks (see Figure 26.10). There are, however, substantial regional differences; whereas more than half of the migrant stock in Middle and Southern Africa were females by 2010, the proportion of women in the migrant stocks in West and North Africa were markedly lower and indeed these proportions have declined in more recent years.

Traditionally there has been a stigma attached to unaccompanied female migration in much of Africa, though this may be changing:

> In many parts of Africa, independent female migration is generally frowned upon on account of culture and religion that regard migration of single or unaccompanied married women as inappropriate. Traditionally, men migrate leaving behind wives and children (who may join them subsequently) in the care of the extended family . . . the impact of two decades of economic distress is forcing communities in various African countries to condone female migration, which is largely a new phenomenon . . . A significant proportion of educated women, single and married alike, have migrated alone to developed countries.
>
> *(Adepoju, 2006, p. 37)*

This last perception is supported by the evidence in Docquier et al. (2009), who estimated that the number of African women in the OECD countries rose by nearly three-quarters
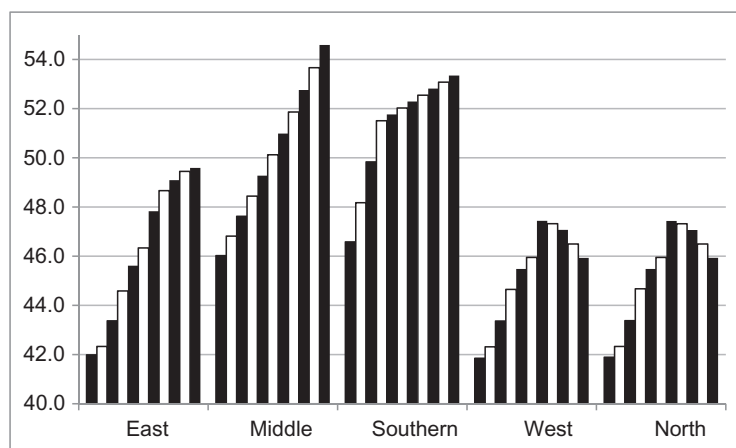
Figure 26.10 *Percent of migrant stock females in major African regions at five-year intervals, 1960–2010.* Source: *UN Population Division (2009a).*

Table 26.11 Females as percentage of African migrant stock in OECD by major African region of origin: 1990 and 2000

	OECD					
	Overall		**Europe**		**N America**	
	1990	*2000*	*1990*	*2000*	*1990*	*2000*
East	48.2	50.7	50.6	52.0	42.4	48.1
Middle	44.2	47.3	44.2	47.7	44.6	43.8
Southern	51.4	52.2	53.3	53.1	48.1	51.0
West	36.8	42.4	37.6	42.0	35.0	43.5
North	39.0	41.1	38.5	40.8	41.6	41.9

Source: Docquier et al. (2009).

of a million from 1990 to 2000. Again, there are substantial differences across the regions of Africa, in line with the patterns noted on migrant stocks within Africa, West and North African women having a lesser role in migration to the OECD than from the remainder of Africa (see Table 26.11).

A recent World Bank study reports a gender gap in migration of a different order of magnitude. Based on household surveys in Burkina Faso, Ghana, Nigeria, and Senegal, this report estimated that between 70% (Ghana) and 80% (Senegal) of emigrants to the OECD countries are male; of the intra-African, international migrants the estimates range from 63% (Ghana) to 90% (Burkina Faso) being male (Ratha et al., 2011,

Table 1.5). The explanation for the large differences from those indicated by the data from the UN and Docquier et al. is not apparent. However, the data in both Figure 26.10 and Table 26.11 are based largely upon recipient country data, whereas the estimates in Ratha et al. are derived from reported absentees in household surveys at origin. For example, the Nigerian questionnaire asks "Does your household currently have a member living outside the household?" then goes on to enquire about the location and gender of this person. Three potential explanations for the difference between the African survey data and the macro estimates might then be suggested: first, that female migrants may simply be under-reported in the African household surveys, possibly because of the stigma mentioned by Adepoju or because they are not considered members of the household for some reason; second, that the data in Figure 26.10 and Table 26.11 refer to migrants who have resided abroad for more than one year whereas the African surveys include both short- and long-term migrants, though the dominance of men in short-term migration would need to be extremely large; third, that all four of the Africa surveys are for West African countries where, as noted, the proportion of women in migration does tend to be low.

Although the magnitude of the gender gap is thus disputed, there is at least agreement that there are more male than female migrants. Overall, the data of Docquier et al. (2009) suggested that 44% of the Africans in the OECD countries were female in 2000, and the UN estimated that 47% of the migrant stock in Africa was female in 2010.

3.2.2 Education
Systematic evidence on the education profile among the cross-border migrants within Africa does not appear to exist. The common presumption is that most possess relatively little education, in contrast to their intercontinental counterparts, which would be consistent with the augmented gravity model findings from the previous section.

South Africa is often thought to be an exception, attracting some of the more highly skilled migrants from other parts of Africa. Yet according to the South African census data, of the foreign-born Africans in South Africa 86% possessed at most a primary education in 2001. On the other hand, about 9% possessed a tertiary education in 1996, rising to 13% in 2001, the latter amounting to some 70,000 tertiary-educated Africans. However, almost all of these highly skilled migrants were drawn from the neighboring states of Southern Africa; longer distance migration of highly skilled Africans to South Africa thus appears to be quite rare. Of the foreign-born tertiary-educated population in South Africa, only about 40% are estimated to have been born in Africa.[73]

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[73] The data in this paragraph are from Docquier et al. (2009), who drew upon the 10% samples in population censuses obtained from Statistics South Africa available at <https://international.ipums.org/international/>. The 2001 census in particular has been criticized for seriously underestimating the foreign population (Slabbert, 2009). To what extent this biases the resultant educational profile of migrants in South Africa remains unclear.

On the other hand, the rate of brain drain from Africa to the OECD countries is amongst the highest in the world. About 13% of sub-Saharan Africans with a tertiary education are estimated to have been in the OECD 2010 member countries by 2000; the comparable figure for North Africans is just under 8%. Moreover, the number of highly skilled Africans in the OECD countries rose by 90% (665,000 persons) from 1990 to 2000, though the emigration rate of these highly skilled declined slightly during the 1990s, as the base of highly skilled at home expanded even more quickly (Table 26.12).[74]

Table 26.12 Education levels of African migrant stock in OECD

	1990		2000	
	SSA	North Africa	SSA	North Africa
Emigration rates				
Primary	0.3	2.6	0.4	2.6
Secondary	1.2	2.7	1.4	2.3
Tertiary	13.2	9.3	12.8	7.9
OECD composition				
Primary	41.9	73.5	31.9	65.0
Secondary	18.3	11.2	24.5	14.8
Tertiary	39.7	15.3	43.6	20.2
Location within OECD				
Primary				
Europe	89.9	98.0	85.2	97.6
North America	8.5	1.4	12.6	1.8
Other	1.6	0.6	2.2	0.6
Secondary				
Europe	72.0	83.7	75.8	87.8
North America	19.7	11.7	19.3	10.1
Other	8.3	4.6	4.9	2.0
Tertiary				
Europe	39.5	53.4	44.0	57.1
North America	50.6	39.2	46.5	38.0
Other	9.9	7.4	9.5	4.9

Source: Docquier et al. (2009).

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[74] Emigration rates to the OECD in Table 26.12 are defined as the migrant stock in the education class as a percentage of the combined migrant stock and working-age population with comparable education at home.

In contrast, the emigration rates to the OECD of those with primary and secondary education levels are far lower. In part this contrast reflects the relatively small base of tertiary-educated Africans. On the other hand, as the second panel in Table 26.12 shows, more than 40% of sub-Saharan Africans and 20% of North Africans in the OECD had a tertiary education according to these estimates for 2000. Indeed, only about a third of those from SSA had a primary education or less, though nearly two in three North Africans possessed very low education levels. At least among the set of migrants from SSA, the proportion who are highly skilled is surprisingly high.

An important contrast exists between migrations from Africa to North America versus those to Europe. Of the low-education migrants in the OECD from North Africa, virtually all are in Europe and so are some 85–90% of those from SSA. On the other hand, about half of the tertiary-educated sub-Saharan Africans in the OECD are in North America, as are nearly 40% of those from North Africa. Between them, Canada and the US thus represent a major destination for the highly educated leaving Africa, but almost no low-skilled African migrants make it to North America.

Study abroad

Study abroad is not only a form of migration in its own right but may, potentially, contribute to the extent of more permanent departure of the highly skilled. Both domestic and host country policies shape the extent to which tertiary-level education takes place abroad. Domestic policy matters in determining the extent to which students complete secondary education and are qualified for tertiary education anywhere, in the quality and private cost of college education provided at home, and in subsidizing the cost of study abroad. Host countries affect study abroad both through provision of student visas and through offsetting costs. Table 26.13 illustrates the net outcome of this interaction for Africa.

In 2008 there were 328,000 African students studying, full time or part time, outside of their country of origin at a private or public tertiary institution. For only 21 African countries are data available by gender on those studying abroad. The median fraction of female students among these is 32%; women were slightly over half of those studying abroad only from Mauritius, Swaziland, and Ghana. About 20% of Africans studying in colleges outside of their own country were elsewhere in Africa (Table 26.13). Seventy-two percent of internationally mobile students from Southern Africa and a third of those from East Africa were at African institutions, virtually all of them in South Africa, though from West Africa about 5% were in Morocco.[75] Europe, however, dominates in training Africans abroad: France alone was educating nearly a third of Africans studying at the tertiary level abroad in 2008 and this ratio was 60% of North African students. The US

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[75] See Malan (2001) on the role of South African universities in the higher education of Africans.

Table 26.13 African tertiary students abroad in 2008

	Students from					
Studying in	Africa	East Africa	Middle Africa	Southern Africa	West Africa	North Africa
South Africa	55,405	22,978	2841	20,383	655	42
Morocco	5932	619	1026	21	3956	300
Other Africa	3245	1792	177	234	164	41
France	105,855	8993	14,019	156	24,781	57,904
UK	32,279	9991	1021	2306	14,955	4003
Germany	16,814	1101	5352	194	2013	7769
Italy	6521	747	2524	29	797	2424
Russia	6102	1557	1286	157	1637	1400
Other Europe	22,692	3751	4036	517	6441	7941
USA	35,692	12,670	3408	2097	13,638	3861
Canada	12,369	1806	1229	383	3579	4964
Malaysia	7702	3273	283	256	1699	2191
Australia	7312	5294	29	1321	287	265
Saudi Arabia	3065	571	142	43	1082	1041
Other	7130	1723	688	622	1461	2265
TOTAL	328,115	76,866	38,061	28,719	77,145	96,411
Enrollment rate	0.37	0.26	0.44	0.50	0.31	0.48

Source: United Nations Educational, Scientific and Cultural Organization (UNESCO) at <http://www.unesco.org/new/en/unesco/>.

and UK take much smaller numbers, both having around 10% of African students abroad, though both host relatively large numbers of West Africans.

The tertiary enrollment rate abroad reported in the last row of Table 26.13, which measures the number of students abroad in 2010 per hundred home population aged 20–24, is generally greater among the higher income African countries; scale economies in the provision of tertiary education may well explain why countries with smaller populations have higher rates of study abroad, with the five small island states having by far the highest rates; however, given these factors, the countries that have larger tertiary enrollment at home also generate a greater incidence of study abroad. An OLS regression on the natural logarithm of the tertiary enrollment rate abroad (enrab) for each African country yields:

$$enrab = -6.15 + 0.612gdp + 54.7ipop + 0.162enrhm \quad \text{No. of obs.} = 46$$
$$(7.83) \quad (5.44) \quad (3.04) \quad (2.87) \quad\quad\quad R^2 = 0.70$$

where *gdp* and *enrhm* represent the natural logarithm of PPP GDP per capita and of the tertiary enrollment rate at home respectively, and *ipop* is one over the population ages

20–24. *T*-statistics for a zero null hypothesis are shown in parentheses with hetero-scedasticity robust standard errors.

Motives for Africa's brain drain: existing and new evidence

What motivates the high rate of brain drain from Africa? The existing evidence, which is summarized first in this section, is quite thin, so in a modest extension the issue is subsequently examined a little more closely.

At least three quite different approaches to the issue of motives for emigration of the highly skilled from Africa have appeared previously.

Mattes and Mniki (2007) conducted an opinion survey in 2002 about the intent to emigrate among South African students. Any hesitation with respect to the interpretation of reported intent notwithstanding, some of the findings are interesting: the differences in stated intent to emigrate are fairly small across racial groups; most cite opportunities abroad as an important magnet but downplay pressures to leave South Africa, including concerns about crime; those with more family resources are more likely to intend emigrating; among those students committed to repayment of government bursaries the intent to emigrate is greater than if no commitment exists; moreover, those whose bursaries require them to remain in the country, or to perform specific work assignments, were no less likely to intend emigrating than their counterparts (see also Stern and Szalontai, 2006).

Collier et al. (2004, p. ii15) concluded that: "Our results suggest that the same economic factors influence human and financial portfolio decisions, namely the relative returns and the relative risks in the competing locations." The conclusion is reached after an examination of panel data on the migration to the US from 15 African countries, of adults with at least some secondary education, relative to the comparable stock at home. Risk at origin is represented by an indicator of time since regime change, defined on the polity score, and by the incidence of civil war; more durable regimes are associated with significantly lower emigration, but civil wars have little effect on the brain drain. Educated emigration is higher, the greater is GDP per capita at home (which may reflect many underlying factors), though one cannot tell from these estimates the extent to which educated emigrants respond to an income gap between home and the US. This study also emphasizes the lags involved, concluding that network effects result in large momentum effects on emigration, rendering responses extremely slow to any changes at home.[76] Several limitations of the data available for this project may, however, raise some concern about drawing strong generalizations for Africa. First, the results are confined to US immigration alone; as shown in Table 26.12, Europe is an important destination for Africans with a tertiary education, especially North Africans, and a far more

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[76] Various Koyck lag lengths are explored and the coefficients on the alternative lagged dependent variables all exceed 1. This feature, together with an *R*-squared of 1.000 when a one-year lag is adopted, may indicate some issues with respect to the time-series properties of the data.

important magnet for those with a secondary education than is the US. Second, the Africa data are actually pooled with comparable estimates for 20 countries of Asia and Latin America; although fixed effects are adopted for the major regions in the annual panel data, pooling may present risks in drawing inferences with respect to "Africa's exodus". Third, the annual data on US migrant stocks are in fact interpolated between observations available in 1970, 1980, 1990, and 1998.

De Vreyer et al. (2009) picked up on the concept of returns to education as a driving force in the migration decision, but focus on migration amongst the capital cities of Benin, Burkina Faso, Côte d'Ivoire, Mali, Niger, Senegal, and Togo, using surveys conducted simultaneously in each capital in 2001–02. A three-step strategy is adopted: first, a reduced-form, multinomial logit model of location choice is estimated on individuals' personal characteristics; this first step is then used for sample selection correction in estimating earnings equations for each location; finally, the estimated earnings equations are used to predict expected earnings in each location for each individual as an explanatory factor in the choice of location. A good deal of two-way migration is observed among the capitals of the seven sample countries, with particularly high movement into Côte d'Ivoire, and the last step in the estimation indicates that expected earnings, differentiated according to such factors as education, gender, and father's situation, play an important role in shaping these two-way movements.[77] In principle, migration may increase the returns to education if the more highly educated gain most by moving. However, the results in this study found little difference in these returns when correcting for location choice. As the authors pointed out, however, this may result from the fact that much of the migration within their sample is by persons with relatively little education; on average, migrants have completed less years of schooling than natives. The brain drain from West Africa is largely to the OECD countries rather than intra-regional.

Data limitations have clearly hampered examination of the determinants of emigration by highly skilled Africans specifically. However, the data compiled by Docquier et al. (2009) on the stock of migrants in the OECD countries by country of origin, by education level and gender, in 1990 and 2000, now permit a fresh look at some of these correlates. A simple OLS regression of the bilateral emigration rates of tertiary-educated adults from 53 African countries to 29 OECD countries in 1990 and 2000 is reported in Table 26.14.[78] For both males and females, the emigration rate to an OECD country is significantly greater the larger the gap in GDP per capita between home and host

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[77] Note that all the sample countries are members of the WAEMU, possessing a common language and permitting free movement of labor.

[78] Let mig_{ijgt} be the stock of migrants of gender g with a tertiary education, originating from African country i, residing in OECD country j, in year t. The dependent variable (the emigration rate) is then defined as $\{mig_{ijgt} \times 1000\}/\{(\Sigma_j\, mig_{ijgt}) + edt_{igt}\}$, where edt_{igt} is the stock of tertiary-educated adults of gender g at home in country i in year t.

Table 26.14 Emigration rate of tertiary-educated Africans to OECD countries

	Males	**Females**
Study abroad rate	1.132	1.626
	(2.13)	(2.23)
Ln GDP gap	5.340	6.827
	(7.21)	(7.41)
Ln GDP origin	3.982	3.726
	(5.79)	(3.80)
Ln distance	−1.119	−0.750
	(1.46)	(0.76)
Landlocked	−3.184	−4.425
	(3.83)	(3.63)
Common language	16.87	25.95
	(6.26)	(7.04)
Colonial link ever	35.59	64.29
	(7.54)	(7.96)
Year	−0.071	−0.048
	(0.74)	(0.39)
Intercept	110.1	58.88
	(0.58)	(0.24)
No. observations	2987	2987
R^2	0.157	0.236

Author's calculations: Data. *T*-statistics for a zero null hypothesis are shown in parentheses. Standard errors are robust to heteroskedasticity.
Sources: Docquier et al. (2009) and see Appendix A.

country.[79] Given this gap, emigration rates are also greater the higher is the logarithm of home country GDP per capita. However, the latter coefficient is lower than on the income gap. Thus, the emigration rate actually falls with higher home income levels, given income abroad, an association that is statistically strongly significant for both genders. Being from a landlocked country, having a language overlap with the OECD destination country, and possession of a former colonial link between the two countries all exhibit strong influences similar to the more general results on African migration in Table 26.9. On the other hand, distance plays no particular role in shaping the emigration rates of the highly educated to specific OECD states. This last result may reflect either the lesser importance of distance to the highly educated or the fact that any difference in distances, at least amongst the European OECD countries, is not large.[80]

[79] Naturally it would be preferable to measure, instead, the gap in earnings for tertiary-educated Africans of the relevant gender, as in de Vreyer et al. (2009) for West African cities, but such data are not readily available.

[80] The results in Table 26.14 prove quite robust to censuring observations on zero migration and to estimating for 1990 and 2000 separately. Neither the indicator of major incidents of political violence nor the polity index at home has any significant impact, the former tending to support the findings in both Collier et al. (2004) and Mattes and Mniki (2007).

Table 26.14 also includes a measure of the incidence of study abroad, which proves positively correlated with the emigration rates of both highly skilled males and females.[81] To suggest causality in this association would be premature; closer investigation is required. Nonetheless, the result would be consistent with students being trained abroad and not returning home. In turn, this raises the potential that some of the cost of this overseas training may be borne by the OECD hosts, reducing at least this element of any cost inherent in the high rates of brain drain.

3.2.3 Labor force status, occupations, and field of study

Some insights can also be gained into the employment situation of African migrants, both skilled and less skilled, at least in the OECD countries in 2000. Overall, the unemployment rates among this set of Africans declined with the level of education and were significantly greater amongst those from North Africa and for females, given the education level (Table 26.15). Nonetheless, even the unemployment rate of tertiary-educated men from SSA, who exhibit the lowest unemployment rate of any group distinguished in Table 26.15, was over 7%, which is above the overall national rates for most OECD

Table 26.15 Labor force status of adult Africans in OECD by education level in 2000

		Employed	Unemployed	Inactive	Unknown	Total
		Labor force status (%)				
Sub-Saharan Africa						
Males	Primary	60.1	11.7	28.1	0.0	100.0
	Secondary	70.3	8.6	21.0	0.0	100.0
	Tertiary	80.1	6.2	13.7	0.0	100.0
Females	Primary	40.3	9.9	49.7	0.1	100.0
	Secondary	56.3	8.7	34.9	0.1	100.0
	Tertiary	71.0	6.0	23.0	0.0	100.0
North Africa						
Males	Primary	48.4	13.3	38.3	0.0	100.0
	Secondary	63.4	12.3	24.3	0.0	100.0
	Tertiary	72.3	8.0	19.7	0.0	100.0
Females	Primary	21.1	9.7	68.9	0.2	100.0
	Secondary	42.8	12.3	44.9	0.1	100.0
	Tertiary	58.6	7.9	33.5	0.0	100.0

Source: OECD (2010a).

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[81] This rate is defined as the average number of students abroad from each country during 1998–2000 as a percentage of home population aged 20–29. The gender composition of these students abroad and data prior to 1998 are not available from UNESCO. An interaction of the study abroad rate for 1998–2000 with a dummy variable for 1990 proves insignificant; the fixed effect of countries that send more students abroad is thus equally correlated with the brain-drain rate in both time periods.

countries at this point in time. Among North African women with less than secondary education completed, the unemployment rate exceeded 30%. The few low-skill Africans in the US (perhaps primarily refugees) have fairly high unemployment rates; however, the tertiary-educated Africans in the US have substantially lower unemployment rates than do their counterparts in OECD Europe (and the difference is probably too large to be explained by differences in definitions of unemployment).

A potential explanation for the high unemployment of tertiary-educated Africans in Europe is a mismatch in terms of the type of tertiary training. To some extent this seems true; the unemployment rate among Africans with college training in some form of "general program" was 27% in 2000 according to the OECD (2010a) data. However, as of 2000, about a quarter of the tertiary-educated Africans in the European OECD countries had studied science and engineering, with another quarter from the social sciences; the unemployment rates among both were well over 10%.[82]

Among US immigrants, Mattoo et al. (2008) considered an additional component, which they term "brain waste", namely the performance of low-skill occupations by the highly educated individuals. The 2000 OECD data point to about two-thirds of tertiary-educated African males and females employed in what might be deemed professional and technical occupations in US terminology (US Census Bureau occupation codes 1–10). Direct comparisons with Europe are not possible, given the differences in occupational classification schemes; however, of the tertiary-educated Africans who are in employment in the OECD countries of Europe, about 80% of both males and females, from both south and north of the Sahara, are employed in essentially professional and technical occupations.[83] (Even among the Africans in Europe with only a primary education or less, performance of general laboring jobs is fairly rare among men, though less so among women.) The US labor market leaves less highly trained Africans unemployed compared to Europe. Instead, the US leaves a slightly higher fraction of tertiary-educated Africans performing less demanding occupations.

4. REMITTANCE MARKETS AND CORRELATES

The literature on Africa's remittances may broadly be divided into three categories: contributions on the magnitude and mechanisms of transfer; estimates of the determinants of remittances; and explorations of the consequences of inflows for recipient countries and households. The first two are addressed in this section; consequences are relegated to the following section.

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[82] Comparable measures on field of study among Africans in the US are not readily available.
[83] That is, in International Standard Classification of Occupations-88 categories 1–4.

4.1 Magnitudes and mechanisms

Taken at face value, the data on remittances received by the countries of SSA suggest tiny amounts on average (see Figure 26.11). Remittance inflows, according to World Bank estimates, amounted to about US$23 per capita in 2010 for SSA as a whole, compared to nearly US$60 for the non–African developing regions and US$117 for North Africa. For North Africa (and for Egypt in particular) it is apparent in Figure 26.11 that remittance inflows expanded considerably following the oil crises of the 1970s and recruitment to the GCC. Global remittance aggregates have exploded since 2001, with a temporary dip in 2009 reflecting the global recession, though how much of this is real expansion as opposed to improvements in reporting and diversion of moneys from informal remittance channels is unclear. Even to SSA, reported remittances grew by more than 450% from 2001 to 2010. Yet in 2010, 13 countries of SSA reported zero remittances and a further 17 reported receiving less than US$10 per capita, the latter including such countries as Ghana, which has a substantial diaspora in the OECD.

A part of the explanation for the tiny amounts of recorded remittances to SSA clearly lies in under-reporting. One reason for this failure is that "Some estimates suggest that the prevalence of informal transfers in Africa is the highest among all developing regions" (Ratha et al., 2011, p. 78). The bulk of cross-border, intra-African transfers pass through informal channels, though where financial services are better developed (such as in Kenya) formal transfers assume some importance. The informal channels range from individuals who carry cash, to taxi and bus drivers acting as intermediaries, to
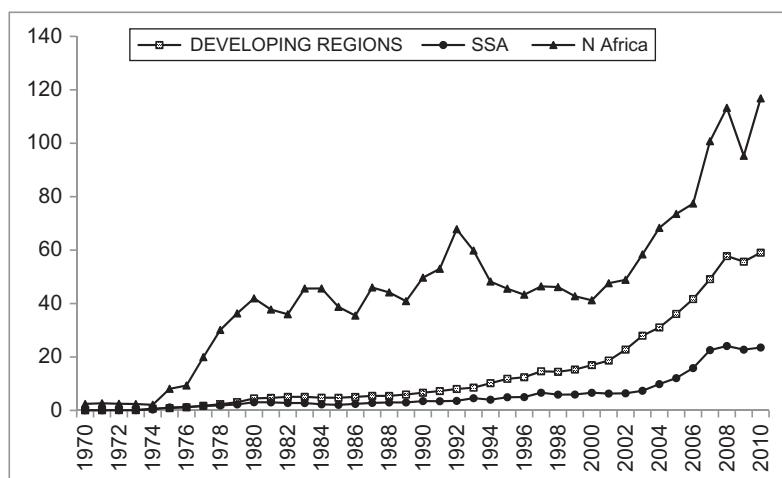

Figure 26.11 *Reported remittance receipts, US$ per capita, 1970–2010.* Source: *World Bank estimates at <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/0,contentMDK:21924020~pagePK: 5105988~piPK:360975~theSitePK:214971,00.html>.*

single-destination services provided by business people, and broader services akin to the Hawala system (see the evidence and references cited in Ratha et al., 2011). Quite how much of the remittances into Africa from the higher income countries pass through informal channels is less clear; different studies point to contrasting roles, perhaps in part because of regional variations.[84] Remittances through formal channels are undoubtedly under-reported to several African countries, though more generally they are also limited by the high cost of transfers and difficulties in accessing Money Transfer Operators, particularly in rural areas.

Using data from the World Bank Remittance Price Database,[85] Ratha et al. (2011, p. 73) noted: "The cost of sending remittances to sub-Saharan Africa is the highest among developing regions." Financial regulations at both ends of remittance corridors contribute to these high costs. Sander and Maimbo (2005) provided an excellent review of the African regulations, which obviously vary by country but include:

- Money Transfer Operators, such as Western Union and Moneygram, cannot be licensed directly in much of SSA, tying their services exclusively to banks, which requires Central Bank clearance and monitoring.
- "only banks that are part of the Society for Worldwide Interbank Financial Telecommunication (SWIFT) interbank transfer system or a similar system can receive international transfers. This limitation excludes many postal banks that may not be licensed to deal in foreign exchange ... Similarly, card-based systems with automated teller machines (ATMs) are expanding, but often these are not yet integrated into interbank networks" (Sander and Maimbo, 2005, p. 66).
- The Financial Action Task Force rule "know your customer" limits bank access for many (see Horst and van Hear, 2002, on Somalia).
- Foreign exchange controls prevent the use of foreign currency denominated accounts and of subsequent reverse transfers out of the country.[86]

The restrictive environment not only contributes to the high monetary costs of remitting to Africa, but also can result in substantial delays in transfers.[87]

Moreover, access to banks, both in the sense of proximity and in terms of cognizance, is quite circumscribed, particularly in rural areas, where more than 60% of the population lives. Post offices are more widely spread but not always licensed to transact in foreign

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[84] Russell et al. (1990) found that more than a third of Sahelian migrants sending remittances home from France did so by hand. Hamdouch (2005, p. 70) reported that in Morocco "Private intermediaries are used very little (3.4%)." From household surveys in six countries of SSA, Ratha et al. (2011) found informal channels range from more than half of remittances from outside Africa to Burkina Faso, to less than 10% in Kenya.

[85] <http://remittanceprices.worldbank.org/>.

[86] See the account of capital account liberalization effects on remittances to Uganda in Kasekende (2000) and Hamdouch (2005) on the use of foreign currency denominated accounts for remittances in Morocco.

[87] Hamdouch (2005) noted that formal remittances to Morocco can take more than three weeks to clear.

exchange. Sander and Maimbo (2005, p. 67) also reported "regular incidents of insufficient cash on hand or other delays in receiving funds" in the context of East African post offices, and that "not all post offices in South Africa can offer money orders because of the risk of robberies".

In general, the formal sector has been slow to evolve new technologies in remitting (Developing Markets Associates Ltd., 2011). Most transfers still follow a traditional cash-to-cash operating model; online transfers, prepaid cards, and mobile banking have been slow to evolve. In part this reflects the reliance of some of the newer technologies upon the recipient holding a bank account, which is rarely the case in Africa. Meanwhile the non-banking sector has been far more innovative in introducing new methods.

In particular the rapid increase in the use of cell phones, even among the poor in Africa, has brought with it new ways of transferring funds and doing business more generally (McGovern, 2011; Ratha et al., 2011, Box 2.2). The introduction of M-Pesa (mobile money) by Vodafone's Safaricom subsidiary in Kenya in 2007 has transformed the remittance business within Kenya and has now extended to cross-border transfers too. Similar systems have now emerged in other African countries, with Ecobank (headquartered in Lomé, Togo) operating in more than 30 countries, for example. Banking by mobile telephone provides a cheap and safe way to transfer funds even to remote rural areas, though domestic regulations prevent cross-border transfers through this route in a number of countries, including South Africa.[88]

In Africa's states in failure and among refugees remaining in Africa, access to formal banking services hardly exists. Moreover, most refugees lack the income to afford to remit. On the other hand, those few African refugees who manage to gain asylum in higher-income countries may well be able to remit, either to those remaining at home or to fellow refugees still in their country of first asylum (van Hear, 2003; Lindley, 2009). Some case studies suggest substantial flows; Omer and El Koury (2005) estimated that remittances from about 40 different countries to Somalia amount to US$700 million to a billion dollars annually, despite the absence of a functioning central bank or effective central government.

Formal remittances are only a part of the story in Africa and even these are almost certainly underestimated, at least in SSA, which substantially affects any analysis of the determinants of remittances.

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[88] Other innovations have also been introduced. For instance, Sander and Maimbo (2005, pp. 67–68) described how "For Kenyan migrants, a US-based Internet service, Watuwetu, offers vouchers that can be redeemed at stores in Kenya; Leppe provides a money transfer service and delivery of staple products and key services to Senegal from France and the US. These vouchers and services highlight an important point: although remittances are normally monetary, some are in the form of goods (for example, foods and electronics) or services (religious ceremonies and airline tickets)." They also described (p. 67) how "In Egypt . . . several exchange companies now offer door-to-door delivery of money" mimicking the informal transfer services.

4.2 Determinants: macro and micro correlates

In their survey, Rapoport and Docquier (2006) distinguished six potential motives for remitting that have been hypothesized by various authors: altruism; exchange, including trading for care of assets or family at home, often in the context of intended return; strategic behavior to influence the pool of migrants in the context of asymmetric information about worker's abilities and statistical discrimination; mutual insurance arrangements, particularly to protect families in risky agricultural settings and urban migrants during an initial job hunt; repayment of loans, such as the private costs of education; and aspirations to inherit family assets.

   The translation of these ideas into empirical counterparts takes quite different forms when looking at the macro correlates of aggregate remittances over time, as opposed to micro household survey data. As Rapoport and Docquier (2006) emphasized, neither is rich enough to distinguish among the overlapping predictions of the potential, underlying motives. Nonetheless, the correlates themselves can contain information that is useful to understand some of the implications of the migration–remittance nexus.

4.2.1 Aggregate remittance inflows

As we have just seen, the validity of the reported remittance inflow data must be seriously questioned, at least for SSA. As a result, African remittance inflows have served as the context for macroanalyses in only a couple of contributions. Nowhere do bilateral remittance-flow data exist. Any analyses are therefore usually confined to examination of gross inflows with information about the source countries represented by some form of weighted average.

   Despite the data limitations, at least two studies braved the reported, cross–country remittance panel data for SSA. Singh et al. (2010) and Arezki and Brückner (2011) adopted different country and time-period coverage but both attempted to relate remittance inflows to measures of financial deepening within a fixed-effects framework. Competing hypotheses are clearly possible: financial deepening may indicate greater investment opportunities for remitters, leading to a positive association; alternatively, remittances may substitute for poor domestic credit availability, suggesting a negative association.[89] Singh et al. found evidence supporting the first of these, a positive association. This view is buttressed by their additional results showing a positive association between remittance inflows and an index of institutional quality, as well as a negative correlation with the differential in interest rates between home and host (interpreted

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[89] Singh et al. represented financial deepening by M2 and domestic credit relative to GDP, whereas Arezki and Brückner deployed a time-invariant index of financial development for each country. In the former there is potential for reverse causality if remittances are monetized and Singh et al. accordingly adopted system IV. Arezki and Brückner instrumented their measure of income changes with rainfall variations.

to reflect uncertainty when home interest rates are high). Instead, Arezki and Brückner allowed their financial development index to interact with GDP growth; at low levels of financial deepening remittances increase with rising income at home, but this association reverses at higher levels of financial development. Arezki and Brückner (2011, p. 1) concluded that this is "consistent with the view that remittances take advantage of unexploited domestic investment opportunities that can exist due to domestic credit market frictions".

In a sense, both of these cross-country investigations focus more on investment opportunities and constraints as the determining factors in shaping remittances to SSA, rather than altruism. However, Singh et al. also found that remittances rise with a weighted average of host-country incomes and decline with home-country income, indicating countercyclical behavior. This is closer to the message from the time-series study of Faini (1994), which took advantage of the more complete data on remittance flows, from 1977 to 1989, into Morocco and Tunisia, pooled with flows into Portugal, Turkey, and Yugoslavia. In particular, Faini developed a model of altruistic behavior in which real exchange rate depreciation makes it cheaper to support those at home, this substitution effect encouraging higher levels of transfer, yet any given level of support requires less foreign exchange providing an offsetting effect. Pooling across countries, but with fixed country effects, Faini estimated that real remittances (expressed in terms of the recipient country's prices) increase with a real devaluation of the currency in the short run. In the long run (adjusting for a Koyck lag), transfers also increase if remittances are expressed in host-country prices, indicating a greater sacrifice for the remitter. Faini also founds a countercyclical effect of home income levels upon real amounts remitted, which would be consistent with altruism as an important motivator though, as Rapoport and Docquier (2006) argued, this pattern could also support strategic motives or even exchange.[90]

The macro literature thus focuses upon very policy-relevant issues: whether remittance inflows are countercyclical, the effect of real exchange rate changes upon remitted amounts, and the response of transfers to the investment climate at home. The tiny number of contributions in this vein, based on African data, offers no consensus. The differences in specification, sample coverage, and paucity of the data prevent much by way of conclusion, though perhaps some support for countercyclicality may be discerned.

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[90] Faini's results also showed only a tiny effect of the difference in asset returns between home and host countries upon amounts remitted. For a more recent treatment of investment versus altruistic motives in analyzing the cyclicality of macro remittance flows, see Serdar and Tekin-Koru (2010). See also Elbadawi and de Rezende Rocha (1992) on a comparable set of countries to those examined by Faini, and El-Sakka and McNabb (1999) on Egypt. In contrast to Faini, Singh et al. (2010) reported no correlation between the real exchange rate and reported remittance inflows in their data on SSA, *ceteris paribus*.

4.2.2 Household survey data on remittances

The analysis of microeconomic correlates of remittances in Africa is far more prolific. The household survey data on which these are based do, however, present limitations of their own, in Africa as elsewhere.

Most surveys choose either to ask about remittances received and rely upon respondents' replies about the sender, or to ask about remittances sent and rely upon responses about the situation of the recipients. The extent of measurement error in observing income of the sender or recipient may depend upon which strategy for data collection is adopted, biasing estimates of responses to these variables (Posel, 2001).

A few studies addressed the issue of direct observation by asking returned migrants to recall their remitting behavior, though the issue of selection in return must then be addressed. In addition, a couple of studies in Africa have attempted to trace both ends of the remittance channel (Osili, 2007; Mazzucato, 2009).

Remittances reported to be sent almost always exceed amounts reported to be received and the differences are too large to be explained by transaction costs alone. Recent evidence points to another potential explanation discussed below.

Only observations on current household income are typically available. Yet today's income may well depend upon prior remittance receipts, leading to potential simultaneity bias (an element common to macroanalyses too).

In the absence of panel data, estimating the impact of policy changes on remitting behavior is typically not feasible in most micro studies. An important exception, however, is the literature examining crowding out effects of public transfers on remittances (Cox and Jimenez, 1990).

Internal remittances

The early contributions on determinants of remittances, using household survey data in Africa, focused largely on internal remittances. Virtually all are based on information about remittances received by families, with some information asked about the sender. In contrast, Posel (2001) adopted observations from the 1998 round of the South African KwaZulu-Natal Income Dynamics Study (KIDS) in which each person was asked if they had sent transfers to others.

Lucas and Stark (1985, p.901) considered a "model of tempered altruism or enlightened self-interest in which remittances are one element in a self-enforcing arrangement between migrant and home". A pure altruistic model would predict that remittances should be greater to families with lower resources. The evidence in this study, which utilizes remittances reported to be received, over the course of a year, by Botswana households from members absent in other parts of Botswana, rejects this outcome; if anything remittances tend to rise (weakly) with the family's income from other sources, per consumer unit at home. The threat of disinheritance and an obligation to repay schooling costs both appear to motivate larger remittances, which is consistent with an

intertemporal understanding between migrant and family. An exogenous shock in the form of drought in Botswana is also shown to result in greater remittances to families with cattle and arable land assets that would otherwise be sensitive to the shock, suggesting the presence of an insurance understanding between the two parties.[91] Moreover, it seems that rural–urban migrants are not expected to remit in the initial stages of settling in town, which would be consistent with mutual insurance offered to the migrant during this risky step. The family is a key element in all of these arrangements: closer kin remit more than distant relations. Female family members tend to remit more than men, given the migrant's projected earnings, but absent heads of household remit the most. These kinship ties could well reflect a degree of altruism, though the family may also provide an important repository of trust for investments by a migrant intending to return home.

Several analyses of the micro determinants of internal remittances in Africa confirm certain of these findings. Hoddinott (1992b, 1994) noted that Kenyan children are observed caring for their elderly parents and that the concern to inherit is positively correlated with amounts remitted, though signs of altruism are also discerned with sons caring for their widowed mothers. Schrieder and Knerr (2000) adopted a different approach, treating each senior person in the household as a distinct, potential remittance recipient in their study of Cameroon, rather than examining household remittance receipts in total. Both a probit on the likelihood of remittance occurring and a tobit on the transfer amount were estimated by Schrieder and Knerr to show that remittances act in lieu of social security for the elderly in this context also, though only in the presence of sizeable, inheritable assets (see also Hoddinott (1992a) on Central Province, Kenya, and Lambert (1994) on Côte d'Ivoire). Posel's (2001) analysis of remittances reported to be sent in the KIDS South Africa data showed that spouses of family members remit most to their home, perhaps indicating altruistic motives, though asymmetry in the effects of senders' and recipients' incomes upon amounts remitted point to incomplete pooling of incomes. Posel also found some signs that as remitters become more secure in their employment the amounts transferred taper off, perhaps signaling a weakness in dynamic enforcement of a mutual understanding.

Public transfer schemes are not common in most of Africa, though post-apartheid South Africa has introduced a number of extensive programs. Jensen (2003) and Sienaert (2007) both examined whether these South African policies crowd out private transfers, with conflicting results (see also Cox and Jimenez, 1993; Maitra and Ray, 2003). Jensen used a difference–in–differences approach to a pseudo-panel of households in the Venda area of South Africa in 1989 and 1992. From the sharp change in eligibility of females for old age pensions during this interval, Jensen (2003, p. 89) estimated ". . . that each rand of

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[91] Examination of migration as a family risk-spreading strategy in Africa has tended to focus on remittance outcomes rather than migration decisions themselves. See, however, the case study of Namibia in Frayne (2007).

public pension income to the elderly leads to a 0.25–0.30 rand reduction in private transfers from children living away from home". Sienaert (2007) used the KIDS panel data spanning 1993–2004 correcting both for attrition and sample selection effects. The latter correction proves important: the incidence of old age pensions is estimated to increase the likelihood of migration. Although pensions diminish remittances per migrant, the combined effect is to crowd in remittances; in essence, the income effect dominates substitution.

International remittances

More recently a few specialized surveys have enabled microanalyses of African cross-border transfers. At least four very different approaches have been adopted, the disparities affecting both interpretation and comparisons.

Certainly the most comprehensive study of the micro correlates of remittances to Africa is by Bollard et al. (2010). Eleven existing immigrant surveys from nine OECD countries were compiled to provide the data on nearly 36,000 migrants, about a third being Africans. The sample coverage and variable definitions clearly differ across the host-country datasets, though in each the information includes remittances sent.[92]

In her survey of the Kayes area of Western Mali, Gubert (2002) compiled data on remittances received by households from male migrants, distinguishing remittances received from France, from elsewhere abroad, and internally within Mali.

Collier et al. (2011) took a different tack, looking at remittances that migrants, who have returned to Algeria, Morocco, and Tunisia, had sent prior to returning home.[93] Without sample selection correction for having returned or having migrated in the first place, these data clearly refer only to the population of returned migrants and must be interpreted accordingly.

Two studies on Africa built matched samples, interviewing both the overseas migrants and their families in Africa. This comes at a price: the samples are very small; the cost, in time spent tracing and financial costs of implementation, can be prohibitive; and tracing virtually always introduces elements of attrition bias. Osili (2007) drew a random sample of 120 individuals from a list of Nigerian last names in the Chicago telephone directory and matched them with their families in Nigeria, censoring to confine the Nigeria interviews to the Igbo of south-eastern Nigeria. Given attrition and some non-response, the resulting sample amounted to 61 observations on matched pairs. Mazzucato (2009) found a sample of 106 Ghanaian migrants in Amsterdam through 11 gateways known to be

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[92] For instance, the average amounts remitted differ quite drastically between the two Spanish surveys. The nine countries in the sample are Australia, Belgium, France, Italy, Netherlands, Norway, Spain, UK, and US.
[93] The data were collected in 2006 as part of the Migration de Retour au Maghreb project.

frequented by Ghanaians. Remittances from these migrants were then followed to Ghana and the networks involved in Ghana traced.

From their data, Bollard et al. (2010, p. 3) reported that "Compared to other developing country immigrants in the OECD we find African migrants to be both more likely to remit, and to remit more."[94] Gubert (2002) added to this picture, finding that, at least in the context of Kayes, remittances from France are larger than those from elsewhere abroad, which in turn exceed domestic remittances, both overall and controlling for migrant and household characteristics.[95] Intercontinental remittances appear to be an important part of the story for Africa. Indeed, Ratha et al. (2011, Figure 2.2) projected that only 10% of remittances in SSA originate from within Africa; for North Africa their estimate is just 4%.

Information about earnings of absent migrants is typically unreliable and asking the earnings of returned migrants while abroad must rely upon recall. Consequently, neither the survey conducted by Gubert nor the data available to Collier et al. included measures of the migrants' incomes or earnings. On the other hand, Bollard et al. were able to regress three measures (a binary indicator of remittances, the amount remitted, and the logarithm of positive amounts remitted), upon a vector of personal characteristics of each migrant, with fixed effects for each dataset and for each African country of origin, finding that migrants with larger incomes and those who are in work remit more. This is unsurprising, but controlling for earnings may well affect comparisons of remittances by gender and by education level. Thus, Ballard et al. found that male Africans remit slightly more than females, given income, but the difference is not statistically significant. Gubert examined remittances only from males, but Collier et al. noted that females returned to North Africa had remitted no less often than males but sent less when they did transfer, which may well reflect the lower earnings of women.

The extent to which educated migrants remit more than their less-skilled counterparts is an important component in evaluating the brain drain (see Section 5.1.2).

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[94] In these data, North Africans are less likely to remit than those from SSA, but North Africans remit more if they remit. On balance, though, North Africans remit less than those from SSA once zero remitters are included. On the other hand, something does not seem to add up. Bollard et al. (2010, pp. 2–3) estimated that "Only one-third of the migrants in our sample remit, with those remitting sending an average of $US2638 annually". A rough calculation suggests the total implied remittances to Africa from the OECD would amount to about $6 billion (in 2003 prices), compared to reported remittance inflows of nearly $16 billion in 2003 and the authors themselves note that "actual flows are . . . believed to notably exceed this recorded amount" (Bollard et al., 2010, p. 2).

[95] Gubert (2002) looked at correlates of these transfers using several alternative estimators, including Heckman two-step correction and Powell's censored least absolute deviation. Statistical confidence in the sign of comparable coefficients varies somewhat with the estimation technique. The dominance of remittances from France is, however, robust. In this study, transaction costs of remitting from abroad are proxied by dummies for the village of interview.

Controlling for the migrants' incomes, Bollard et al. found that the probability of remitting rises with the level of education, but not the amount remitted. Obviously incomes rise with education, so Gubert found that more highly educated migrants tend to remit more in a context with no control for earnings of the migrant. Somewhat surprisingly, though, the Collier analysis showed more highly educated migrants had remitted less often and sent no more than those with lesser schooling. However, the distinction between returned and current migrants is important here. As Collier et al. noted, the contrasting results may reflect a tendency for the more highly educated to settle permanently abroad; they also point to a possible interpretation that educated, returned migrants may feel less affected by social pressures to remit (see Faini, 2007; Dustmann and Mestres, 2010). Thus, although the amounts remitted rise the longer the returned migrant has been away, this was less true as the education of the migrant rises.

In the OECD migrant data, Bollard et al. noted that, controlling for fixed effects differences across the host-country data, remittances per migrant are greater to Africa the lower is the home country income level. This would be consistent with an altruistic motive, though it may also be consistent with some of the other potential motives discussed in Rapoport and Docquier (2006). Whatever the motive, this does suggest an important potential for remittances to alleviate poverty (see Section 5.3). In their examination of remittances from returned migrants, Collier et al. lacked data on incomes of the migrant's family prior to departure, so the authors looked instead at self-reported, categorical data on financial situation before departure. There is no evidence that those reporting a "bad" situation remitted more, which runs contrary to a pure altruism model.[96] Interestingly, those migrants who have invested in an enterprise of some form since returning have both a greater likelihood of having remitted and larger amounts remitted. As the authors noted, this may reflect a migration strategy to circumvent credit market constraints at home by target-saving while away (see also Mesnard (2004) on the case of Tunisia). Osili, in her matched sample, divided remittances into those sent to the family versus those for investment on behalf of the migrant, though it would seem inevitable that these are fungible to some degree. She then used measures of family land and buildings owned in Nigeria as indicators of pre-migration standard of living, noting

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[96] Van Dalen et al. (2005) used a similar, self-reported financial status measure in looking at remittances received in Egypt, Morocco, and Turkey from migrants in the EU and GCC states. These data were collected in comparable, large-scale household surveys conducted in 1996–97, where the surveys were specifically timed to try to capture home visits by migrants in order to collect first-hand information to the extent possible. The authors concluded that "one cannot argue exclusively either for altruism or self-interest as motives, since for each country the data tell a different story and both motives can be identified as driving forces behind remittance behaviour" (van Dalen et al., 2005, p. 375). These deductions are based, however, solely upon examination of the likelihood of remitting rather than the amount remitted, and the family's income is represented by self-reported, perceived adequacy of household resources; actual household wealth is estimated to be uncorrelated with the probability of receiving remittances.

that remittances to the family decline with these measures while investment remittances increase.

In the context of the Ghanaian matched sample, Mazzucato (2009) raised an interesting point with respect to risk-sharing and remittances. In particular, she noted that most studies of consumption smoothing assume that the village, or some other clustered community, provides the relevant reference group, whereas insurance through international migration involves extremely disparate communities. Her evidence pointed to mutual risk sharing across transnational networks despite the great distances involved, with funerals and illness in Ghana presenting common forms of risk. Gubert's evidence on Mali also offered some support for an insurance motive, with larger inflows to families that have suffered a negative shock to their crops or if someone has been ill or died.

Family relations and their location generally prove important where examined. Such findings have important implications for the influence upon remittances of family reunification, which is the prime stated reason for documented migration to Europe. For instance, having a spouse, children, or parents at home are all associated with larger remittances reportedly sent by migrants in the OECD. Among the returned migrants in the Maghreb, those who were married prior to departure remitted more but no more frequently than single returned migrants; on the other hand, those with children prior to departure remit more often but actually send less; having had family abroad with the returned migrant does not diminish the likelihood that they remitted but does reduce the amounts sent. Mazzucato noted, however, that friends, not relatives, are typically chosen to monitor remittances sent from the Netherlands, because friends lack some of the cultural sanctions that kin may use as leverage, such as blocking the right to a traditional burial in Ghana.

There seems to be agreement that intent to return home occasions larger transfers. Gubert found this to be true when reported by the home family, supported by the self-reported intent of migrants in the OECD data of Bollard et al. Collier and co-authors offered an illuminating perspective on this; remittances are larger among their returned migrants in the Maghreb who invest, only if the return was voluntary (and hence presumably intended) as opposed to forced return. Circular (or repeat) migrants from the Maghreb, who oscillate between countries, are largely seasonal workers, who work abroad to consume at home, and typically exhibit a high intent to return home; again Collier et al. found that these circular migrants are more likely to have remitted than are other, measurably equivalent, returned migrants.

With respect to the effect of legal status of migration upon remittances there is, however, conflicting evidence. Interviews among African migrants in the OECD indicate that the likelihood of remitting is higher if the person possesses immigration documentation, though reluctance to self-identify as undocumented could influence this finding (Bollard et al., 2010). In contrast, returned migrants in the Maghreb that had been abroad without proper documentation are not only more likely to remit but also remit

larger amounts than do their counterparts with immigration documents. Collier et al. suggested that this may reflect an insurance strategy; given the uncertainties associated with irregular migration, undocumented workers may save and remit more while they can.

Lastly, an important insight arises from both of the matched-sample studies; migrants, at least in these contexts, commonly remit to more than one family in the country of origin. At a micro level, though not at the macro level, this may help to explain why remittances reportedly sent exceed those received. Yeboah et al. (2006) also noted this practice in their data on Ghana and attributed it to satisfying customary obligations within the extended family (Gyekye, 1996), though other possibilities exist, such as repayment of loans incurred to finance an initial move.

4.3 Remittance inflows: a summing up

The magnitude of remittances to Africa has been, and probably remains, substantially under-reported. Intercontinental remittances apparently dominate as a source and there are indications that African migrants in the OECD are more likely to remit, and to remit more, than counterparts from other developing regions. The use of informal remittance channels in Africa may be amongst the highest in the world. In part, this reflects the fact that the cost of using Money Transfer Organizations in Africa is greater than in any other region, costs to which financial regulations at both ends of remittance corridors contribute. Whether the shallow financial infrastructures of Africa limit transfers or promote them to alleviate credit constraints at home remains contentious. Recent investigations point to African migrants remitting to multiple households; however, the motives underlying this remain to be clarified.

Given the severe limitations on the official remittance data, pursuing analysis of them may be unwise, with the exception of specific countries where the data appear more reliable. The limited African evidence from the latter suggests that transfers have been countercyclical and responded positively to real exchange-rate depreciations, which are potentially valuable insights in stabilization policy design.

In contrast, the analysis of household survey data on internal and international remittances among Africans has been more concerned with discerning correlations with family and migrant characteristics than with specific policy effects. It is not clear that this line of research will prove capable of distinguishing amongst the multiple hypothesized motives for remitting; there is simply too much overlap in predicted outcomes. Indeed, the African literature points to a more eclectic approach in which intertemporal agreements between family and migrant can be multifaceted. Within this, support for the notions of remittances being part of a risk-spreading strategy and for the role of a disinheritance threat to enforce a lifetime agreement emerges from much of the African evidence. Indeed, whereas most of the global contributions to the literature on consumption

smoothing focus upon risk sharing within villages, there are indications of risk sharing through remitting across continents among Africans.

Only a couple of the micro-level studies incorporate specific policy measures and these generate diametrically opposed conclusions on whether public transfers crowd out or crowd in private transfers in South Africa. On the other hand, some of the micro evidence does touch upon the consequences for remittances of the immigration policies of the industrialized nations. Specifically, location of a migrant's family plays a key role in how much is sent (with some indication that larger families tend to split to economize); moreover, an intent to return home appears to encourage more remitting and, given the uncertainties associated with irregular migration, it has been suggested that undocumented African workers may save and remit more while they can (though on this last aspect the evidence is mixed).

Remittances reported to be sent per migrant from the OECD countries are greater to Africa the lower is the home-country income level. However, the extent to which remittances alleviate poverty in the region is a complex issue. A significant part of the difficulty in forming an answer derives from defining poverty when current incomes may well depend upon prior remittance receipts. In view of this, a couple of the aforementioned African studies have attempted to define living standards prior to migration, though with mixed outcomes. Section 5.3 returns to these effects of remittances upon poverty in Africa, as part of the following, much wider consideration of the economic and social consequences of emigration and subsequent remittances.

5. ECONOMIC AND SOCIAL CONSEQUENCES OF THE MIGRATION–REMITTANCE NEXUS

Few aspects of society go untouched by migration and subsequent remittances. This section starts with an examination of some of the long-run effects of this nexus on African aggregate growth in incomes, and the investments in physical and human capital that underlie this growth. Short-run aspects are then addressed, including exchange rate effects of remittances, labor market adjustments and, a topic fairly specific to Africa, the influx of refugees. Following this, the evidence on implications for income distribution within African countries and for poverty alleviation are addressed, before turning to a briefer sketch of some of the more pertinent social impacts of migration.

5.1 Long-run growth in domestic production

A number of empirical studies explored, in reduced form, whether remittance inflows accelerate growth in GDP. In the African context these include: Fayissa and Nsiah (2008), who look at a panel of 37 African countries and found remittances positively correlated with growth where financial systems are less well developed, though not

elsewhere; in contrast, Kagochi et al. (2010) looked at a panel of six SSA counties and found a positive correlation between remittances and growth among the higher income observations but not elsewhere; Adenutsi (2010, 2011) reported a positive correlation between remittance inflows and the human development index in a panel of 15 SSA states and a positive, though small, correlation with growth over time in Ghana.

Each of these thus purports to find a (conditional) positive association between remittance inflows and growth. Yet a number of reservations must be expressed:
- First and foremost, each of these studies deployed the reported time-series data on remittances. As we have already seen, for the African countries (and especially those in SSA) these data are extremely suspect.
- More generally, the direction of causality is not apparent, if remittances are affected by incomes and growth in incomes simultaneously affected by remittances. Identification may prove simpler, though, if remittances indeed behave countercyclically.
- The results of panel analysis of global, cross-country growth data has proved extremely sensitive to the set of control variables included (Levine and Renelt, 1992). In the absence of more sensitivity analysis it remains unclear how robust the positive correlation between remittances and growth will prove for Africa.
- All of the foregoing studies listed for Africa include some measure of both investment and education as controls. This raises the question of the route through which remittances are meant to impact growth, if not through accumulation of physical and human capital (see the discussion in Rapoport and Docquier, 2006).

If remittances are to accelerate long-run growth they must do so either through factor accumulation or by enhancing technical progress. Rather than attempting to tackle the reduced form effect on growth, an alternative is therefore to explore the impacts of the migration–remittance patterns upon these elements. We turn first to the evidence on investment.

5.1.1 Investment in fixed assets
Two types of evidence have been amassed on the connections between migration, remittances, and investment: the first looks again at some of the macroeconomic correlates; the second enquires into spending patterns of households, and enterprise start-ups in particular.

Remittances and aggregate investment
In the African context, a number of studies adopted the official remittance data, despite their limitations, to explore the correlation with aspects of investment. Baldé (2011) used panel data on most of the countries of SSA to look at the influence of both remittances and foreign aid upon gross fixed capital formation and gross savings. A positive association is found, with a larger effect for remittances than aid, both with ordinary least squares

(OLS) and adopting lagged GDP as an instrument for GDP.[97] How much of this association results from measuring each of the relevant variables relative to GDP is unclear.

The main mechanism through which remittances are meant to enhance investments is through relief of credit constraints, particularly for the poorer households. Two studies therefore focused upon the association between remittance inflows and financial development in Africa. Gupta et al. (2009) adopted two measures of financial development: M2 and bank deposits for a cross-country panel on SSA. Both remittances and financial development were measured relative to GDP. The authors used economic conditions in the countries that are projected to host the remitters as instruments for the amounts transferred, allowing home-country fixed effects. A positive association between remittances and financial development at home was reported. Oke et al. (2011) found a similar positive association on time-series data for Nigeria, in this case using a generalized-method-of-moments estimator.[98]

Household investment responses

Discerning the influence of remittance receipts upon household expenditure patterns is complicated by the fungible nature of household resources mollified by the power of individual recipients and senders of these transfers to affect their use.[99] While noting such reservations, Ratha et al. (2011, p.65) reported:

> The household surveys conducted as part of the Africa Migration Project find that a significant portion of international remittances are spent on land purchases, building a house, business, improving a farm, agricultural equipment, and other investments (as a share of total remittances, investment in these items represented 36.4 percent in Burkina Faso, 55.3 percent in Kenya, 57.0 percent in Nigeria, 15.5 percent in Senegal, and 20.2 percent in Uganda . . .). A substantial share of within-Africa remittances was also used for these purposes in Burkina Faso, Kenya, Nigeria, and Uganda. The share of domestic remittances devoted to these purposes was much lower in all of the countries surveyed, with the exception of Nigeria and Kenya.

Establishing causality in such patterns is clearly difficult (see the discussion of methodological issues in Adams, 2011). However, in an interesting exception, Lessault et al. (2011) began by noting that housing conditions in Dakar, Senegal, have improved substantially during a period of economic recession and that households with (more) migrants abroad have better housing than households without migrants. On the other hand, the usual questions about how remittances were spent, posed in a 2008 survey

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[97] Aggregate remittances may also be subject to simultaneous feedback, affected by investment opportunities.

[98] Salisu (2005) regressed the current account balance on remittance inflows for an SSA panel but the link with investment is less apparent.

[99] The African context offers a rich array of evidence on the influence of gender-based income sources upon decision making within the household. See, for instance, Kennedy (1991), Haddad and Hoddinott (1995), Udry (1996), Quisumbing and Maluccio (2000), Duflo (2003), and Duflo and Udry (2004).

of the Dakar region, revealed limited spending on home improvement and virtually none on home purchases (though as the authors note, capital spending is normally small in a short interval). More tellingly, the study compared the incidence of home ownership at the time of entering the current dwelling with that today, finding very little difference across families with and without migrants. The authors noted that they are not able to explore whether remittances are resulting in home ownership outside of Dakar or as investments to rent out. Nonetheless, the study suggested that remittances have not been a major causal factor in housing development in Senegal, but rather that migration is more likely to occur from families that own housing.[100] A related conclusion was reached by Adams et al. (2008b) using the Ghana 2005–06 Living Standards Survey. Adopting ethno-religious groups as IV to address both endoegeneity and sample selection bias, the authors found that remittances have no different effect from other sources of income upon marginal budget shares spent on consumption and investment items.

   The African context has also generated a series of studies exploring the connections between agricultural productivity of households and non-agriculture income, including remittances. For example, Collier and Lal (1984) found a positive association between household crop incomes and non-farm income (primarily from remittances) in Kenya, though their results contrast with the earlier findings of Rempel and Lobdell (1978). Lucas (1987) estimated a simultaneous, multiple equation model using time-series data on Botswana, Lesotho, Malawi, Mozambique, Swaziland, and the South African "homelands". IV estimates suggest that labor withdrawal to the South African mines diminished agricultural production at home. To some extent, this is shown to be offset in the longer run by productivity enhancement in crop production and growth in cattle herds out of accumulated mine earnings. "However, the author is unable to say whether the observed increase in agricultural output stems from a more intensive use of inputs, the purchase of new equipment or the adoption of production techniques with greater risks but also higher yields" (Gubert, 2005, p. 53). Mochebelele and Winter-Nelson (2000) were able to pin this down further; they reported that households in Lesotho perform closer to the agricultural production frontier if they possess migrant laborers away in South Africa.

   Azam and Gubert (2005) addressed a paradoxical pattern emerging from their survey in the Kayes area of Mali. Remittance-receiving households exhibit lower farm yields than non-recipient households, even controlling for differences in soil quality and cropping techniques, and despite the former group possessing more capital and having more labor available. The authors' explanation lies in the lower effort put forth by

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[100] On the other hand, in a personal communication, Fleur Wouterse noted that in the Bakel Department of eastern Senegal, villages with international migrants have added two-storey dwellings. Sarr (2009) made a similar point. See also Karam (2010) on remittances and construction in Morocco.

remittance-receiving family members at home, an element of moral hazard when absent migrants are unable to observe behavior at home.

Enterprise start-ups: returned migrants' savings

In a related but distinct vein, a number of studies in various parts of the world have noted that returned migrants start up new enterprises more often than non-migrants (Dustmann and Kirchkamp, 2002; Woodruff and Zenteno, 2007). In the context of a study of Tunisia, Mesnard (2004) framed a model in which international migration occurs to circumvent a credit market constraint on financing lumpy initial investments in a project; the migrant saves abroad, returning with sufficient savings to start the business. This framework predicts that migrants, who return with larger amounts of savings, having spent more time away, are more likely to initiate an enterprise. An interesting side-effect is that partial improvement of the credit situation at home may shorten the planned duration abroad for any individual, but also stimulate more emigration to round out the partial financing now available; as with any second-best situation the combined effect may or may not diminish total migration.

The African evidence on enterprise development among returned migrants refers almost entirely to North and West Africa.[101] Each of the studies in these regions draws upon surveys of returned migrants, which raises two thorny issues: defining a returned migrant and establishing a sampling frame of returnees. Despite these challenges the studies present a fairly uniform view. All agree that there is a positive association between the likelihood of starting an enterprise and the amounts remitted or saved by the returned migrant, though whether this likelihood also increases with duration of absence is more mixed; while time away appears positive in the studies of Egypt and Tunisia, it does not in Algeria, where many returned migrants from France had departed at a very early stage, nor in Ghana and Côte d'Ivoire. The earliest studies by McCormick and Wahba of Egypt noted a concentration of new enterprises in urban areas, particularly in Cairo, suggesting implications for geographic inequality, but this pattern has not been observed in most other contexts (except Tunisia). For instance, the study of Mali finds that agricultural projects dominate. No doubt variations in definitions of projects and returnees explain some of these country differences, as well as those in the incidence of establishing a project among returnees, which range from over 40% in Ghana, Morocco, and Tunisia to just under 20% in Algeria and Côte d'Ivoire, and barely 10% in the Egyptian study.

Three important questions arise with respect to these start-up enterprises: How much employment do they generate, are they viable economic projects, and do they survive? Not a lot is known about these issues, either in Africa or more generally. Certainly most

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[101] See McCormick and Wahba (2001, 2003), and Wahba and Zenou (2009) on Egypt; Mesnard (2004) on Tunisia; Gubert and Nordman (2011) and Collier et al. (2011) on Algeria, Morocco, and Tunisia; Raunet (2005) on Mali and Senegal; Black and Castaldo (2009) on Ghana and Côte d'Ivoire.

are quite tiny enterprises; for instance, Gubert and Nordman (2011) estimated that about three-quarters of the projects initiated by returned migrants in the Maghreb countries created fewer than 10 jobs, while less than 2% created in excess of 50 jobs. The viability and dynamics of such micro-enterprises remain a matter of some dispute in general in the African context (Mead and Liedholm, 1998; King and McGrath, 1999; Kiggundu, 2002). Where returned migrants lack entrepreneurial talent, or experience, the prognosis for their projects may well be dim. Perhaps reflecting this, there does appear to be some self-selection. Thus, McCormick and Wahba (2001) found that duration of experience overseas increases the likelihood of starting an enterprise upon return to Egypt only among the literate, which the authors suggested may indicate skill acquisition from the better occupations held by the literate while away. Black and Castaldo (2009) found that those who "gained work experience while abroad" are significantly more likely to develop an enterprise upon return to both Ghana and Côte d'Ivoire, though the effect is far smaller in the latter country; similarly, Gubert and Nordman (2011) estimated that the relatively small number of returned migrants in the Maghreb with experience as an employer while overseas are significantly more likely to be employers back at home; while Raunet (2005) described how those who had been shopkeepers in other countries of West Africa are also more likely to be shopkeepers upon return to Mali.

It seems that some forms of overseas experience, and perhaps acquired skills, are cor-related with the likelihood of starting a business project upon return, but do these enter-prises actually succeed and survive? Marchetta (2012) provided a rare insight into this, using longitudinal data from the Egyptian labor force surveys in 1998 and 2006.[102] Employing both a bivariate probit and a two-stage residual inclusion estimator, March-etta examined the joint probabilities of migration and of entrepreneurial survival among a sample of returned migrants and stayers who are entrepreneurs (i.e., an employer or self-employed person in a non-agricultural activity). The study concluded that returned migrants have a significantly greater chance of surviving as an entrepreneur, compared to stayers, over this interval. Surviving in an entrepreneurial occupation is not quite the same as survival of a specific enterprise. Moreover, some care is necessary to interpret these results, which refer only to the set of entrepreneurs; one presumably cannot infer from this what might happen to other returned migrants had they become entrepreneurs. Nonetheless, this work takes a step in an important direction.

Harnessing remittances for investment?

As with capital inflows, there is no necessary reason to expect that additional remittance inflows will be associated with greater domestic investment levels: the funds may well be used for private or public consumption. Perhaps it should not be surprising, therefore, that both the macro and micro evidence on whether remittances stimulate investment

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[102] Among the very few prior studies on this issue, see Kazi (1989) and Azam (1998) on the case of Pakistan.

is mixed. In the end, the macro data on remittance inflows to Africa are simply too poor to examine the issue. That part of the micro evidence that has attempted to discern any causal connection between household income from remittances and spending patterns has generated mixed results on the extent to which families accumulate physical assets and raise productivity. More needs to be known about the nature and survival of enter-prises started up out of savings of returned migrants, particularly in SSA where the issue has been largely ignored.

With the recent massive growth in reported global remittance inflows into the devel-oping regions have arisen calls to harness these remittances to accelerate development. Africa has been no exception to this (de Bruyn and Wets, 2006; Gutpa et al., 2007; Kimani-Lucas, 2007). Most of these calls pay little or no heed to any potential harmful effects of the overall migration–remittance combination, but rather focus exclusively on remittances alone. As Gubert (2005, p. 57) noted, the recommendations "to stimulate migrants' savings and remittances by improving the way savings could be transferred to home countries, and . . . to direct migrants' savings and remittances towards productive projects . . . have given rise to several schemes which can now be said, with hindsight, to have had very mixed results, to say the least."[103] In any case, at least the latter recommen-dation "to direct migrants' savings and remittances towards productive projects" may well be misplaced; although the propensity to invest in an economy may be deemed too low, it is not obvious that remittance recipients should be the ones called upon to undertake these expenditures. In fact, the fraction of GDP invested on average in Africa is not noticeably low and is actually slightly above the norm given income levels. Moreover, remittances transferred are private funds; whether families choose to invest or consume their resources is a personal choice, though it may be important to diminish constraints upon families' abilities to undertake such investments if so desired. A cross-country OLS regression on the percentage of GDP invested (KI), using the Penn World Tables data for 2009, yields:

$$KI = -53.0 + 16.6LY - 0.88LY2 + 4.06AFR$$
$$(1.8) \quad (2.3) \quad (2.1) \quad (1.6)$$

where LY is the log of GDP per capita, $LY2$ is LY squared, and AFR is a dummy for the 53 African countries among the 189 observations. (T-statistics for a zero null hypothesis are shown in parentheses. Standard errors robust to heteroskedasticity.)

5.1.2 Human capital and technology
Traditionally, accumulation of human capital is modeled to impact growth either through Hicks neutral technical progress or in a labor-augmenting, Harrod neutral

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[103] Gubert goes on to refer to ". . . a recent review of the leading schemes . . . by the working party 'Valor-isation de l'épargne desmigrants'" (Developing migrant savings) . . . at: http://www.pseau.org/outils/biblio/ouvrages/cfsi_valarisation_economique_epargne_migrants.pdf.

format. The new economic growth theories emphasize, instead, presumed externalities generated by education. That education, at some level, is positively associated with African growth is reported by a number of authors, though the direction of causality is not always apparent.[104] Artadi and Sala-i-Martin (2003, p. 11) adopted growth equations, estimated across 88 developing and high-income countries worldwide, to project "that if Africa had had [*primary school*] enrollment rates at OECD levels the average growth rate of GDP per capita would have been 1.47% larger every year" (our italics inserted). Here the authors attempted to contain reverse causality by focusing upon initial enrollment levels in 1960, though it is still possible these initial levels are correlated with unobservable country effects. Gyimah-Brempong (2011) tackled African growth more directly, looking at panel data on growth in income per capita among 50 African countries, using several estimation techniques. Controls are included for investment, as well as aid, government consumption and effectiveness, export growth and initial income. The proportions of the adult population with primary, secondary, and tertiary education are each instrumented. Growth is found to increase monotonically at higher levels of education attained, contrasting with the presumption in the Artadi and Sali-i-Martin (2003, p. 11) statement ". . . that the most significant measure of human education is the Primary School Enrollment". Dauda (2010) adopted time-series data on Nigeria, applied to an error-correction-mechanism estimator, accounting for the contributions of growth in the labor force and capital stocks to income growth; the residual, Hicks-neutral technical progress is shown to be positively correlated with the total expenditure on education.

Elements of brain drain and brain gain: the African evidence

Education in Africa seems to be positively correlated with growth; perhaps it is even causal. Certainly, in light of these correlations, a common presumption persists that the high rate of brain drain hurts Africa's economic performance. Recent thinking draws a more nuanced picture, in which much depends upon the context.

The net effect of high-skilled emigration upon those left behind depends on a complex set of interactions. Domestic complementary factors, most probably capital, may be harmed though competitor factors, such as high-skilled stayers, may gain. In the short run, even these effects depend upon how effectively employed the high-skilled would be if they remain at home. In the longer run, adjustments to the composition of sectorial production may obviate any adjustments. If the presence of the highly skilled generates positive externalities, either through agglomeration productivity improvements or through the provision of social goods, departure generates losses. Moreover, even the net fiscal effect of emigration is multifaceted, depending upon the nature of educational

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[104] See, for example, Mekonnen (2011) on Ethiopia and World Bank (2008) on Africa more generally. On whether schooling causes growth or vice versa, see Bils and Klenow (2000).

financing, income tax rates, and the public burden of dependency-care costs relieved in the event of emigration.

More recently, several routes have been delineated through which the home country may actually benefit from emigration of the highly skilled elements of brain gain: further education may be induced amongst those who remain at home, via remittance financing, to replace the departed, or in hopes of emigration that are not realized; bilateral trade may be encouraged through the influences of emigrants; contacts between the highly skilled diaspora and those at home may enhance technology transfers; emigrants transfer remittances and may move capital home also; finally, migrants returning home may bring additional skills with them. What does the African evidence show?

Induced education at home Most of the evidence amassed on the influence of emigration upon education at home refers to the countries of Latin America and to Mexico in particular. The results are mixed. Although there seems some evidence that remittances can play an important part in financing schooling for the young at home, the combined effect of emigration and remittances is less clear.[105] Absent parents may result in less education of children left behind unless surrogates assume responsibility; low returns to education when working abroad may provide negative role models.

Guzmán et al. (2007) extended the empirical literature on the effects of remittances on education expenditures in an interesting direction. Using household survey data from Ghana in 1998–99, they first confirmed a fairly common pattern in which the average share of spending on education is greater among female-headed than among male-headed families, given remittance-receiving status of the household. A fractional logit model was then fitted to these expenditure shares, with controls for total spending per capita and the demographic structure of the household. Dummy variables for receipt of internal and international remittances point to both types of transfer increasing the share of spending on education. These increments are larger among female-headed households, and larger in the case of receipts from abroad than from internal transfers. Overall the gender of the remittance sender is found to have very little effect on spending patterns. On the other hand, if the remitter is a husband then the share of educational spending tends to be greater, whereas the opposite holds if the remitter is the wife. A possible interpretation, suggested by the authors, is that when the husband is left in control at home, educational spending is less. Drawing upon anthropological work in West Africa, Guyer (1997) argued that one reason for the greater educational spending when females have more control may be an attempt by women to smooth lifetime consumption in societies where physical assets are largely controlled by men.

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[105] Francis and Hoddinott (1993) characterized the processes of migration and remittances in differentiating living standards of households in case studies of two sub-locations in Kisumu District, Western Kenya, finding that remittance funding of education is the main differentiating factor.

Besides any influence of remittances upon education at home, emigration of the highly skilled has been hypothesized to induce further education through another route; the enhanced likelihood of emigration among better-educated individuals may encourage continued education among some who fail to emigrate, even expanding the domestic stock of human capital remaining at home (Mountford, 1997). The subsequent supporting evidence in Beine et al. (2008) draws upon cross-country aggregate data. More recently, McKenzie and Rapoport (2011) questioned the generality of this evidence, using Mexican household survey data to show that the presence of migrants to the US, among a household's members, actually diminishes schooling retention. Batista et al. (2012) refined the micro evidence, in the context of the Cape Verde Islands, by examining the effect of each person's own likelihood of subsequent migration upon their decision to complete secondary education.

Specifically, Batista et al. developed a simultaneous model of the decisions to emigrate and to complete secondary school, each decision affecting the other. This model is then explored using a household survey, which is rich in recall data about migration histories, and was conducted in 2005–06. The particular parameter of interest is the effect of own-migration upon the schooling decision, which is estimated in a linear probability model, finding that a 10 percentage point increase in the probability of migrating enhances the likelihood of graduating from secondary school by at least 4 percentage points.[106] The estimated model is then deployed to simulate the consequences of harsher immigration standards, though applied across the board irrespective of education level, by the potential host countries. Taking account of the error structure in the estimates permits differentiating between migrant and non-migrant outcomes in these simulations; education is decreased for both groups, thus lending support to the original brain gain hypothesis. As the authors noted, this may help to understand how Cape Verde, which has perhaps the highest rate of brain drain in Africa, has also managed to accumulate a growing stock of educated persons at home, an accumulation that has enabled Cape Verde to achieve one of the highest growth rates in Africa according to a growth accounting exercise by the authors.

The bilateral migration–trade link Since the appearance of Gould (1994), a plethora of papers has followed, noting the link between bilateral migration and trade, usually in

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[106] To identify this effect, three sets of instrumental variables were considered: the longest spell abroad by a family member prior to the individual reaching age 12 (when the decision to continue to secondary school is taken); a weighted average of the unemployment rates and GDP per capita in the destination countries to which the family has sent migrants during the year prior to the individual reaching age 16 (when secondary school ends); and the fraction of migrants in the household's locality. The authors checked that the first of these instruments, duration abroad, is not correlated with household assets potentially accumulated out of remittances, which might then have had a wealth effect on education. It is also possible that more highly educated individuals stay abroad longer and that education is intergenerationally correlated; parental education is therefore included as a control.

the context of a gravity model. The common arguments are that trade may be encouraged through the ability of emigrants to enforce contracts at home, through awareness of trading opportunities possessed by emigrants, or simply by emigrants' demands for home products. Despite the widespread use of informal contracting and the lack of information typical of many developing countries, very little of this empirical literature addresses the case of developing economies specifically and virtually none focus upon Africa.[107]

An interesting exception is White and Tadesse (2013).[108] This paper used the bilateral migrant stock matrix for 2005 prepared by Ratha and Shaw (2007) to examine the link between emigrants from 43 African nations in 110 host countries and the bilateral trade between these dyads of states. On average, the elasticity of African imports is estimated to be lower, with respect to emigration, than is the elasticity of exports. However, White and Tadesse also reported considerable variation in the trade elasticities, both across host countries and across African countries of origin. Combined with disparities in the ratios of imports and exports per migrant, these differences in elasticities imply substantial variations in the marginal effect of emigration on trade across the 43 African countries included. For most of the African countries, exports are estimated to expand more than imports with a 1% increment to emigration. However, the gaps are not large, suggesting any improvements to the balance of trade are not substantial, though openness to trade is certainly enhanced, especially in Southern and West Africa, though less so in North Africa and least in East Africa.

Returns to returning The other aspect of potential brain gain that has received at least a small amount of empirical attention in the African context is the returns to returning: the productivity gains from experience abroad upon returning home. Analyses of these gains are bedeviled, in any context, by the inherent double selection process: the selection of migrants and the selection of returnees among migrants. Are earnings of returnees different from measurably comparable non-migrants because of the

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[107] See Lucas (forthcoming). Levin and Barnard (2013) presented evidence on another, otherwise neglected topic: the transfer of knowledge through personal contacts (in part with emigrants). From interviews with South African managers, the authors reported that such transfers from overseas contacts prove preferable to locally accessed knowledge, "when new-to-the-industry knowledge is needed, when there is already a strong tie, and when the knowledge does not involve a long discussion" (Levin and Barnard, 2013, abstract).

[108] See also Peri and Requena-Silvente (2010) on African immigrants in Spain and the effect on trade. Although any stimulus to African trade from the diaspora abroad has otherwise been rather neglected, the links between trade, direct investment, and Chinese immigration have not. Rumors of the extent of this interconnectedness abound, data do not. "This growing connectedness has seen a wave of economic migration to Africa by state-influenced construction teams and mining and oil workers, as well as private traders who are arguably among the new shapers of development in Africa" (Mohan and Tan-Mullins, 2009, p. 589). See also Broadman (2007), Brautigam (2009) and "Zuma warns on Africa's trade ties to China", Washington Post, 19 July 2012.

migration experience or a result of the influence of unobserved traits on the propensities to migrate and return? This has been the focus of a growing global literature (Tunali, 1986; Co et al., 2000; de Coulon and Piracha, 2005; Iara, 2010; Lacuesta, 2010). In principle, migrants may command higher earnings from accumulated skills acquired abroad, or lower earnings through deteriorated skills (perhaps through brain waste in low skill activities overseas) or via loss in seniority at home.

Wahba (2007) undertook an examination of wage earnings of returned male migrants in Egypt compared to those of non-migrants, pooling data from two labor force surveys conducted in 1988 and 1998. Noting that virtually all of the migration is to the GCC states where return is compulsory, the author noted that selection on return is largely irrelevant in this context. However, she also noted that focusing exclusively upon wage earners does involve an element of selection. A bivariate probit model was therefore fit to the binary outcomes with respect to migration and to being in wage employment. These are used to generate two hazard rates that are incorporated into the wage equations, which are specified separately for returnees and non-migrants, and the system is then estimated jointly. Using identical control values for returnees and non-migrants, predictions from these estimates result in substantial wage gains from migration at all levels of education. Moreover, the predicted earnings rise monotonically with duration of absence for both uneducated and university-educated returned migrants. Noting that Egyptian men, at this stage, rarely went abroad for education but rather for employment, the gains were interpreted as positive returns to work experience overseas.

De Vreyer et al. (2010) approached the selection issues differently in their study of the returns to returning in seven West African capital cities. On the pooled data, the authors reported that attempting to correct for selectivity on wage earning altered the results very little. Instead, a two-equation model was estimated jointly, with an equation for wages of wage-earning adults, including a dummy variable on whether the person is a return migrant or not, plus a binomial equation with this dummy variable on the left. The IV included in the binomial equation is the proportion of migrants in the locality. Separate pairs of equations are estimated on three treatments: return migration from the OECD; return from another WAEMU country; and return from elsewhere. Controlling for self-selection dramatically increases the estimated wage premium upon return from the OECD, which on average is 98%. This premium is much larger for females than for males.[109] On the other hand, no substantive evidence was found for returns to returning from non-OECD destinations. Return migrants from the OECD are negatively selected according to these results, suggesting "that individuals who have been

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[109] In contrast, Brydon (1992) found that Ghanaian women generally performed low-skilled jobs abroad, resulting in no effective skill acquisition upon return.

abroad may lack some unobserved, locally desirable earnings capabilities. However, by going abroad they acquire other characteristics which the labour market rewards in the form of a wage premium" (de Vreyer et al., 2010, p. 12). The authors also undertook a similar approach to estimate a treatment effect of return migration from the OECD in significantly shifting a Cobb–Douglas production function upwards among micro-enterprise operators.

Health and healthcare professionals To the extent that the presence of educated personnel in an economy generates external benefits to the rest of the population, departure of the highly skilled tends to impose a cost on the source country. Much of the new economic growth theory is founded on a presumption of the importance of such externalities, yet supporting evidence is extremely difficult to garner. Although the presence of highly educated persons is positively correlated with a wide range of social goods, causality in these associations is rarely apparent.

The extent to which an external cost is indeed incurred, with emigration of the highly skilled, may well depend upon the particular context. Docquier and Rapoport (2009) contrasted three situations: they concluded that the exodus of European researchers to the US has clearly had a negative impact at home; the contribution of the Indian diaspora to the information technology sector is deemed positive for India; while the emigration of healthcare workers from Africa is more mixed.

Certainly the health situation in large portions of Africa amounts to a humanitarian crisis as the following comparative indicators attest:

Life expectancy at birth (years):	Africa region	India	SE Asia region	Lower middle income
Males	52	63	64	66
Females	56	66	67	69
Mortality rate per 100,000 population from				
HIV/AIDS	160	14	13	17
Malaria	94	2	3	9
Incidence rate per 100,000 population				
HIV/AIDS	217	11	12	24
Malaria	21,537	1862	1895	5068
Mortality rate by age 5 per 1000 population	119	63	57	69
Maternal mortality per 100,000 live births	480	200	200	260

Source: WHO (2012).

Migration has been blamed for the propagation of some diseases in Africa, notably HIV-AIDS. Docquier et al. (2011b) undertook a systematic evaluation of this proposition, using panel data for 1990 and 2000 on bilateral migration between 44 countries

of SSA.[110] The results indicated that emigration to high HIV-prevalence countries increases the incidence of HIV at origin; immigration from high HIV countries does nothing to increase the incidence in the host state. An interpretation, suggested by the authors, is that hiring of prostitutes by migrants transmits the disease home upon return visits; on the other hand, the incidence is already so high among prostitutes that immigrants do not increase the rate in host countries. The emigration effect is found to be large: for Botswana, Lesotho, Mauritius, Namibia, and Swaziland the incidence would have been projected to be at least 20% greater by 2000 had emigration not declined; for Burkina Faso, Comoros, Equatorial Guinea, and Liberia the rate would have been at least 20% lower had emigration not increased.

Towards dealing with their health crisis, Africa averages only 2.2 physicians and 9.0 nurses per 10,000 inhabitants and the emigration rates of healthcare workers have been high. Bhargava and Docquier (2008) compiled data on the stock of physicians in 16 OECD countries from 53 African countries in each year from 1991 to 2004.[111] The cross-country average emigration rate from Africa (the stock of doctors overseas relative to the total at home and overseas) was slightly over 10% during this period. Any upward trend in this rate is very slight, the stock of overseas physicians growing apace with those at home. The emigration rates are significantly higher from SSA than from North Africa and, as Ratha et al. (2011) noted, according to these data SSA has by far the highest emigration rate of physicians among major regions of the world, with eight countries averaging more than a fifth of their doctors in the OECD.

Emigration rates from top eight African countries (%)

Physicians		Nurses	
Ethiopia	22.1	Zambia	5.2
Somalia	24.2	Swaziland	6.1
Uganda	29.2	South Africa	6.8
South Africa	29.3	Botswana	6.9
Ghana	31.5	Ghana	11.6
Liberia	39.3	Mauritius	15.0
Sao Tome and Principe	46.1	Lesotho	15.1
Cape Verde	51.4	Zimbabwe	25.4

Sources: Physicians from Bhargava and Docquier (2008), nurses from WHO (2006).

[110] The migration data are from World Bank (2011a). The estimation techniques include OLS with fixed effects to control for omitted variables, spatial error and dynamic spatial autoregressive models to allow for proximity promoting propagation through such routes as tourism and commuting, and using twice-lagged incidence of HIV as an instrument to correct for the potential that HIV causes migration rather than the reverse. For further discussions on specific African contexts, see also Anarfi (1993), Decosas et al. (1995), Hope (2001), Ateka (2001), Brummer (2002), and Crush et al. (2005).

[111] The data are available at <http://perso.uclouvain.be/frederic.docquier/oxlight.htm>.

The destinations once again tend to follow common language/colonial link corridors, though almost half of overseas African doctors are in the UK[112] and another fifth fairly evenly divided between the US and Canada. Far less data are available for nurses, the rates tabulated above referring to only seven OECD countries; omission of such countries as France, Spain, Belgium, and Italy no doubt biases the reported pattern and underestimates the overall rates.[113]

The motives for emigration of healthcare workers are little different from those of migrants more generally; thus, better remuneration, a safer environment and living conditions topped the list of self-reported reasons for emigration by health workers from Cameroon, South Africa, Uganda, and Zimbabwe (WHO, 2006, Figure 5.2). Two studies support the importance of better remuneration. Bhargava and Docquier (2008) found that the emigration rate of physicians from SSA to the OECD countries is greater the lower are physicians' wages in the African source country, relative to those in the US.[114] Antwi and Phillips (2012) affirmed the causal nature of this effect of wages on emigration of healthcare workers in an interesting exercise. Healthcare workers have had a high rate of emigration from Ghana, and particularly so among younger professionals between the ages of 20 and 35. Against this background, Antwi and Phillips examined the attrition rates from Ghana's public sector jobs following a sharp increase in pay scales in 2006. The attrition rate from health occupations dropped, and so did the emigration rate, following the pay increments. Attrition rates did not drop in occupations where emigration presents less of an option, nor among middle-aged healthcare workers.

Health outcomes are dire in Africa and the emigration rate of healthcare workers is high. The intersection of these two phenomena has been sufficient for many observers to blame the brain drain of healthcare workers for the poor outcomes. But what does more careful examination reveal?

[112] Nyarko (2010, Table 6) pointed out that the UK 2001 Census reveals that large fractions of the highly skilled Africans in the UK, especially from southern and eastern Africa, are Asians and whites, 97% from South Africa and 89% from Kenya, for example.

[113] The seven countries included are Canada, Denmark, Finland, Ireland, Portugal, UK, and US. The inflow of foreign nurses into the US quadrupled during the last decade while the flow to the UK fell by about the same proportion, though no systematic breakdown on how many of these are African nurses is available (OECD, 2010b).

[114] In this study, the annual panel data on emigration of physicians are averaged over three-year intervals from 1991 to 2004 (with portions of the data interpolated where missing). The HIV prevalence rate at home is included and found to be positively associated with the rate of emigration, though any implied causality is unclear. The secondary school enrollment rate is also found to be positive and attributed to a greater commitment to education in the home country. The lagged rate of emigration is incorporated with an extremely high coefficient of 0.91.

Bhargava and Docquier (2008) deployed their panel data to examine the consequences of physician emigration upon life expectancy and deaths due to AIDS in 39 countries of SSA. Neither the medical brain-drain rate nor the incidence of physicians at home seems to have any significant bearing upon life expectancy. Higher rates of physician emigration are positively associated with greater death rates from AIDS, given the prevalence of HIV. Moreover, this positive association rises with the incidence of HIV. However, it would seem that such emigration ought to work through diminishing the availability of doctors remaining at home, and this availability measure proves irrelevant in looking at the death rate from AIDS in these results.[115] Despite this ambiguity Bhargava and Docquier (2008, p. 345) concluded: "These findings underscore the need to improve economic conditions for physicians in order to retain physicians in sub-Saharan Africa."

Clemens (2007, title page) reached the opposite conclusion: "Africa's generally low staffing levels and poor public health conditions are the result of factors entirely unrelated to international movements of health professionals." Clemens used a bilateral migration matrix of the stocks of doctors and of nurses in nine countries (South Africa plus eight OECD countries) from 53 African countries around the turn of the millennium (Clemens and Pettersson, 2006). Noting the very large differences in measuring physicians abroad on the basis of their country of birth (or citizenship) versus their country of training (OECD, 2007b), Clemens adopted the former. Two main sets of analyses were undertaken on the 53 cross-country observations: the effect of emigration on the stocks of physicians and of nurses left at home; and the effect of these healthcare workers being abroad upon 11 different health and public health outcomes at home.[116] No evidence was found that having more health workers abroad worsens any of the health outcomes; rather the reverse, which may be partly attributable to the fact that countries with more health workers abroad are estimated to have more health workers at home too. Clemens mentioned several possible reasons for his findings. On the positive association between emigrant and domestic health workers, at least three arguments were made: one is the possibility of induced medical training at home; second, countries with larger medical schools may simply produce both more emigrants and stayers; third, some countries may be ill-equipped to absorb larger stocks of doctors at home, resulting in emigration as spillover.

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[115] Chikanda (2007) did, however, argue that the high emigration rates of health workers from Zimbabwe, resulting from the combined economic and political crises in that country, have resulted in increased work pressure and declining morale among public sector health-givers at home. The more experienced medics remaining in Zimbabwe have shifted to the private sector. Lower income families, who cannot afford private healthcare, have resorted to visiting traditional and faith healers.

[116] In both analyses instrumenting the emigration rate is explored, using a dummy for Francophone countries, the size of the country's population, and weighted averages of the destination countries' GDP per capita and physicians' or nurses' wages.

Perhaps the most important argument, however, stems from the ineffective use of healthcare workers who remain at home, which may offer an explanation as to why emigration may not harm health outcomes. The most severe health issues in Africa are concentrated in rural areas. Yet healthcare workers are concentrated in the metropolitan areas (Serneels et al., 2005). If less emigration occurred, only adding to the stock of professionals already available in the cities, this may do little to reduce health risks for the rural populations (Hamada and Bhagwati, 1975).On top of this issue of geographic segmentation is brain waste at home; for example, an OECD (2003) study reported 35,000 registered nurses in South Africa who were either inactive as nurses or unemployed.

The emigration of healthcare workers varies considerably across Africa and perhaps its impact does too. Where such emigration is deemed a substantive problem, what are the policy options? Six main ideas have been proposed:

1. Industrialized countries have been urged to restrain their recruitment of African health workers. In turn, such restraints have led to accusations of discrimination against African nurses.[117]
2. Calls for restitution payments to the developing countries have been made, though any net consequences are difficult to discern.[118]
3. Mozambique, Nigeria, and South Africa all impose compulsory community service in some form, including deployment of graduates from medical schools.[119] Systematic evaluations of these programs are, however, scant globally. Reid (2001) undertook one of the very few, offering a detailed review of the South African program, concluding that: "It must be noted that there are a number of other strategies that have been shown to be more successful than coercion in recruiting and retaining doctors in areas of need. These include the selection of medical students from rural areas,

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[117] See the report in African News, 8 March 2010 at <http://www.africanews.com/site/list_message/37613> (Bundred and Levitt, 2000; Martineau and Willetts, 2006). In 2001, the UK National Health Service promised not to recruit nurses actively from developing countries; in practice, the inflow of foreign-trained nurses remained unaltered at around 16,000 per year until a tightening of immigration controls in 2005, after which the inflow diminished to 4000 by 2008 (OECD, 2010b).

[118] WHO (2004). Mackintosh et al. (2006, p. 763) noted "once proposals for compensation or restitution emerge into the political arena, they tend to disappear into broad recommendations for aid to health systems."

[119] The Nigerian National Youth Service Corps was introduced in 1973 and imposes a one-year service requirement on all Nigerian tertiary graduates <http://www.nysc.gov.ng/index.php>. "These 'Youth Corpers' are given no choice as to where they are allocated, and over 90% end up in needy rural areas" (Reid, 2001, p. 333). The Mozambique experiment has also been declared a success: "Mozambique is able to declare this year for the first time that, due to its national service programme, all 148 districts in the country now have at least one physician" (Frehywot et al., 2010, p. 368). The 1997 South African Health Professions Amendment Act requires all graduates of South African medical schools to commit to one year of compulsory service prior to entering private practice.

meaningful community-based experiences during the undergraduate years, support for postgraduate development through distance educational methods, and attractive conditions of service."[120]

4. A commonly argued alternative is to focus subsidized training on health-worker occupations from which graduates are less likely to emigrate, are more willing to take up rural posts, yet capable of delivering basic life-saving care; medical assistants, clinical officers and nursing auxiliaries, rather than heart surgeons.[121]

5. Another option is to induce third-country nationals to immigrate to replace departing emigrants.[122]

6. Finally, the Latin American experiences with conditional cash transfer programs may offer an important option in improving healthcare among the poor in Africa. Both Malawi and Zambia have initiated such programs (see Nigenda and González-Robledo, 2005).

Towards a synthesis: policy issues

Brain drain or brain gain? It should be clear that the issues are complex. The evidence is far from complete, at least in this Africa context.

Nonetheless, Easterly and Nyarko (2008) concluded that there is a net gain for Africa as a whole (and for Ghana in particular; Nyarko, 2011) from the emigration of the highly

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[120] Reid (2001, p. 333). This study reported that about 55% of graduates had been assigned to regional, tertiary, and specialized hospitals where their presence had little effect and often went unnoticed. On the other hand, about a quarter had been assigned to rural locations, which reported better staffing levels, shorter patient waiting times, and more frequent health-worker visits to outlying clinics. A third of the respondents intended to seek employment outside South Africa after completing the year. See also Reid (2006).

[121] Dovlo (2004). Bourgain et al. (2010) termed this form of substitution direct; in their terminology, indirect substitution is the authorization of less-skilled professions to undertake tasks previously confined to the more highly skilled, nurses undertaking tasks previously performed solely by doctors (apparently quite common, at least in Southern African countries). Bourgain et al. developed a dynamic model of health production with a constant elasticity of substitution between two levels of healthcare labor. The model assumes (rather unrealistically in Africa) profit-maximizing health providers, subject to administered prices, and possessing a Cobb–Douglas production technology. The framework is calibrated on Ghanaian data. Increasing either direct or indirect substitution is represented by increasing the elasticity of substitution between the two forms of labor; emigration of health professionals is assumed to decline with greater substitution. As substitution increases, the authors' simulations result in declining labor productivity in healthcare over a potentially extensive initial period, even if emigration is reduced to zero. Any exploration of how realistic these simulations might prove would require some measure of healthcare output, which the model manages to avoid. Note also that by focusing on aggregate output this study bypasses the critical issue of the distribution of care given.

[122] Thus, van Rensburg and van Rensburg (1999) noted that a quarter of South Africa's public sector doctors are foreign; see the critique in Stern and Szalontai (2006) of South Africa's subsequent immigration policy reform for failing to replace emigrants.

skilled. In support of this assessment, a number of pieces of evidence were brought to bear. First, at least in the context of Ghana, rough calculations indicated that the discounted value of remittances (even based on official inflows) from the highly skilled exceed the direct costs of their tertiary education. Second, cross-country data were examined, for the whole world, on the growth in stock of highly educated persons at home from 1990 to 2000. This is regressed on population growth and growth in the stock of highly educated nationals abroad, over the same interval, finding no effect of the latter (which is instrumented on colonial links and distances to France, UK, and US). Using a simple GDP growth accounting exercise, plus both OLS and IV estimates of global cross-country growth on expansion in the stock of the highly educated abroad (with and without some standard growth controls), no significant correlation with the educated-emigrant stock was found. Easterly and Nyarko suggested that this evidence assembled is sufficient to reach a conclusion that the emigration of the highly skilled is not hurting Africa. Whether these results on induced education and income growth would hold up for the subset of African countries alone, as opposed to all countries worldwide, is however unclear; certainly the official remittance data do not outweigh education costs in most countries of SSA.[123]

The same study goes on to emphasize that emigration is not the reason for the low levels of highly skilled persons in Africa; thus, Easterly and Nyarko estimate that even if all the tertiary-educated persons from SSA were at home they would still only amount to just over 3% of the population. Given income levels in Africa, the region's labor force is indeed well below the norm for the fraction with a tertiary education (see Table 26.16). Moreover, the most recent data on tertiary enrollment rates indicate that SSA is significantly below the norm for its income level, though North Africa is not. This is demonstrated in the second regression in Table 26.16, which adopts, as the left-hand variable, the logit of the number of students abroad plus those enrolled at the tertiary level at home, relative to the population of tertiary study age. The third regression in Table 26.16 shows that the fraction of tertiary-level students who are enrolled abroad rises with income levels across countries of the world, but that SSA has a significantly lower fraction of its tertiary students being educated at home given income levels; North Africa does not. However, the remaining two regressions in Table 26.16 illustrate the depth of the issue in SSA, which is well below the norm at both upper and lower secondary schooling too. The tertiary education system in SSA is not being fed from below with students emerging from secondary schools. It is not clear how the high costs of the prevalent overseas education from SSA figures into the cost–benefit analysis of Easterly and Nyarko; to the extent that these costs are borne by host

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[123] The authors also reminded us, quite appropriately, that the emigrants themselves enjoy substantial gains that ought to be included in any national perspective on the net benefits (Berry and Soligo, 1969).

Table 26.16 Tertiary education rates: a cross-country view

	SSA	North Africa	1/ln (GDP)	Intercept	No. obs.	R^2
Logit fraction labor force tertiary educated	−0.994	−0.435	−34.48	1.691	180	0.671
	(6.44)	(2.54)	(8.47)	(3.83)		
Logit total tertiary enrollment rate	−1.111	−0.114	−30.00	1.926	165	0.662
	(5.91)	(0.63)	(5.90)	(3.40)		
Logit fraction tertiary enrolled abroad	1.653	−0.564	−22.46	−0.731	166	0.156
	(5.03)	(1.06)	(2.93)	(0.87)		
Logit upper secondary enrollment rate	−0.842	−0.187	−33.96	3.683	173	0.547
	(3.95)	(0.93)	(6.02)	(5.83)		
Logit lower secondary enrollment rate	−0.982	−0.424	−17.53	2.651	166	0.363
	(5.06)	(1.46)	(3.65)	(5.09)		

Author's calculations. *T*-statistics for a zero null hypothesis are shown in parentheses. Standard errors are robust to heteroskedasticity.
Sources: Docquier et al. (2009), UNESCO and World Bank (2011b).

countries, the present value of this training should presumably look higher still from an African perspective.[124]

No doubt a part of the lag in training of the labor force in SSA reflects the legacy of educational neglect during the colonial period. After independence, tertiary enrollments initially grew rapidly, slowed again during the structural adjustment of the 1980s, then accelerated thereafter (Devarajan et al., 2011). SSA is thus beginning to address tertiary enrollment in the current generation, though this will probably require expansions at the secondary level too. How many of the emerging highly skilled will remain in Africa and what their contribution will be, either at home or from the diaspora, remains to be seen.

Meanwhile, policy responses to high-skilled migration from Africa are divided between those of the main destination countries and those at home; there is little coordination between the two. Opinions are sharply divided. Kancs and Ciaian (2010) were

[124] "One-quarter of international aid provided to the education sector in sub-Saharan Africa (approximately US$600 million annually average 2002 to 2006 [*sic*]) is allocated to higher education. The bulk of this aid is bilateral and is also highly fragmented owing to the lack of donor coordination. Unfortunately, the impact of this aid on national capacity building is limited because only 26% of this aid is direct and invested locally. The lion's share of bilateral aid consists of scholarships benefiting the universities in the host countries of the African students abroad" (Experton et al., 2010, Executive Summary, p. 9).

critical of the 2009 EU Blue Card policy; specifically they presumed that this will result in diminished human capital in Africa and model a theory of human capital as important to growth and to innovative behavior. Nyarko (2010) took the opposite stance, arguing that brain gain and circulation are critical for Africa, specifically criticizing the anti–brain–drain clauses in the Blue Card legislation that aim to limit immigration of educators and healthcare workers. No doubt Nyarko is correct that the Blue Card will have little impact either way; its scope is simply too limited to be of major relevance (see also Björklund (2011) on the case of Mali). More generally, little restraint should be anticipated in recruiting globally, as the competition to attract the highly skilled intensifies (Chiswick, 2005; Shachar, 2006).

From the source-country perspective, a number of initiatives have been introduced to encourage return migration of the highly skilled, such as the Displaced Expatriate Scholars and Scientists Abroad Program based in Nairobi, the African Brain Gain Inc., and the Center for South African Network of Scientists Abroad. Each has met with very limited success, as has the annual Careers in Africa Summit (Logan, 2009). Finn (2010) reported that of the 23 South Africans who received doctorates in science and engineering from US universities in 2002, 45% were still in the US five years later, as were 46% of the 88 Egyptians and 55% of the 146 from the rest of Africa. In any case, the gap between technologies deployed in the higher income countries and in the Least Developed Nations of Africa is so sheer that knowledge acquired overseas in science and engineering occupations may be of limited direct relevance. Nonetheless, the return of highly talented individuals can prove beneficial in such roles as entrepreneurs and political leaders, though not all experiences have proved positive (Spilimbergo, 2009).

Tuition is typically free at Africa's public universities, though more private institutions have emerged recently. The fiscal costs are high; about 20% of public spending on education is at the tertiary level. Whether the countries can recoup these costs through remittances and elements of brain gain in the event of emigration is only a small part of the concern to reconfigure the financing of higher education throughout the continent (Experton et al., 2010; Devarajan et al., 2011). Rising spending on tertiary education has not kept pace with rising enrollments, limiting the quality of training. Projections on future enrollments point to an unsustainable budgetary cost. Moreover, the present structure embodies a substantial subsidy to the young of the relatively wealthy. Devarajan et al. (2011, pp. 149–150) argued:

> . . . a starting principle should be that the costs of higher education should be borne by the students unless there is a compelling reason for these costs to be subsidized . . . the application of this principle includes the possibility that students from poor families will receive subsidies so that qualified students are not prevented from gaining tertiary education for financial reasons. These ideas will be seen as controversial and are likely to be resisted. They threaten the 'rents' of many of the participants in higher education today.

5.2 Short-run economic effects

Having examined some of the long-run implications for physical and human capital accumulation and hence growth it is time to turn, more briefly, to shorter-run economic effects upon Africa of migration and remittances. The treatment is divided into three: the consequences of remittances for competitiveness through the exchange rate; labor market adjustments to emigration; then the economic impacts of sudden and massive refugee inflows, an aspect of specific relevance to Africa.

5.2.1 Dutch disease and the real exchange rate

As with any foreign exchange inflow, receipt of remittances may result in an appreciation of the real exchange rate, the domestic price of traded relative to non-traded goods. Whether this results in a cut in real wages may depend upon the openness of the economy to trade (Corden and Neary, 1982; Neary and van Wijnbergen, 1986). The impact upon the real exchange rate of aid and capital inflows into Africa has been the subject of extensive study over the last 15 years, using both cross-country panel data and time-series data on individual countries, with somewhat mixed results (see the literature survey in Martins, 2010). The specific role of remittances has been less thoroughly explored.

Mongardini and Rayner (2009) used a panel of official remittance data to 36 countries of SSA from 1980 to 2006, adopting a pooled mean group estimator:

> The results indicate that grants and remittances are not associated, in the long run, with an appreciation of the real effective exchange in SSA and are therefore not likely to give rise to Dutch disease effects. These findings suggest that grants and remittances may be serving to ease supply constraints or boost productivity in the non-tradable sector in the recipient economies.
>
> *(**Mongardini and Rayner, 2009**, p. 1)*

However, the usual caveats about remittance data for SSA must raise some doubts about the generality of these findings. Nonetheless, other country-specific studies support the conclusion that any Dutch disease effect of remittance inflows is negligible in Africa. For instance, Martins (2010) created a quarterly time-series dataset on Ethiopia from 1995 to 2008, a period following the unification of the official and auction exchange rates. After testing for co-integration, Martins adopted an unobserved components estimator, concluding that aid has no effect and remittances only a weak tendency to appreciate the real exchange rate. Bourdet and Falck (2006) reached similar, but more nuanced, conclusions based on a careful examination of the annual remittance data for Cape Verde, from 1977 to 2001. These inflows increased from 24 to 81 million US dollars over this interval. By 2010, remittances had reached US$133 million, which, despite rapid GDP growth, amounted to 10% of GDP for Cape Verde at that stage. Bourdet and Falck nonetheless concluded that these large remittance inflows only had a small Dutch disease effect. Although remittance receipts are estimated to have resulted in significant appreciation of the real exchange rate, export competitiveness has not been much harmed, having been offset by what the authors term a "supply effect" of remittances.

Remittances and aid have to complement each other in order for the supply effect to take place. For example, the productive impact of remittances invested in an economy characterized by a lack of human capital and deficient technical and social infrastructure will be limited. Foreign aid can increase the efficiency of investments out of remittances by removing these bottlenecks, e.g. through improving roads, education, and health. Similarly, remittances can increase the marginal productivity of aid through contributing the private financial capital necessary for reaping the benefit of infrastructural improvements. It is worth adding that remittances themselves can contribute to the development of infrastructure and human capital and eventually to growth.

(Bourdet and Falck, 2006, p. 281)

Not only had aid increasingly focused upon infrastructure investments in Cape Verde during this period, but trade policy had become more favorable to exports, with creation of export processing zones and duty-free rules on materials for exports. In an earlier study of Mozambique, one of the authors had found a similar offsetting role for aid (Falck, 2000).

The bottom line seems clear: there is no evidence that remittances have resulted in significant Dutch disease-type effects in SSA.

5.2.2 Labor market adjustments to emigration

A very extensive literature exists on the effects of immigration on labor markets in the host countries. The effects of emigration upon source countries' labor markets have been fairly uniformly ignored, not just in Africa but globally (see, however, Mishra (2007) on the case of Mexico and Docquier et al. (2011a)). On both sides of the coin the issues are complex. Responses depend, *inter alia*, upon: the composition of migration and the elasticities of substitution in demand for various labor types; labor market entry and training in reaction to departures; price formation and hence openness to trade; and forms of wage setting under collective bargaining, public sector employment, and other institutional forms (for a sketch of the issues, see Lucas, 2005, Section 3.1).

The spatial integration of domestic labor markets also plays an important part. Emigration frequently draws upon concentrated localities, driven by network effects. Whether departure from these localities affects labor markets in low-emigration settings depends upon the extent of induced internal migration and, in the longer run, capital mobility.[125] The extent to which emigration from Africa induces internal migration remains poorly documented. There is, however, evidence of a steep spatial gradient in poverty within countries of Africa, with the incidence of chronic poverty being far greater in more "remote" areas (Bird et al., 2002).[126] Even within manufacturing,

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[125] Mirrored issues arise when immigration is geographically concentrated (Filer, 1992).

[126] "Remoteness and poverty go together especially in Africa. In areas such as Northern Angola, Northern Zambia, Southern Tanzania and Northern Mozambique, all isolated areas with weak market integration, up to 90% of the population are estimated to be chronically poor. Similarly, in the highland maize belts of Kenya and Tanzania, chronic poverty is not strongly linked to farm size but is concentrated among food crop producers in remote areas with poor road access. One study in Tanzania has estimated that households within 100 metres of a gravel road, passable 12 months a year with a bus service, earn about one third more per capita than the average" (IFAD, 2001, p. 164).

nominal wages are shown to be substantially greater for observationally equivalent workers in the capital cities of five African nations relative to those working outside of the capitals, though it is less clear how large is the gap in real consumption wages (te Velde and Morrissey, 2005; see also Mazumdar and Mazaheri, 2000). Prima facie, evidence of substantial, spatial income differentials suggest domestic labor markets that are not well integrated, in which case concentrated emigration patterns may have circumscribed geographic labor market effects. The relatively unskilled migration from Egypt to the GCC states has been spread over both urban and rural origins. The more highly skilled migrations to the OECD countries from SSA have probably not.

Most of the immigration literature focuses upon wage responses. There are reasons to suspect that wages may be somewhat flexible in Africa. With the exception of countries such as South Africa and Mauritius, the influence of trade unions on labor relations is generally weak (Schillinger, 2005). Differences in definitions render comparisons of public sector employment scarce and difficult; nonetheless, Schiavo–Campo et al. (1997) concluded that, following declines during the 1980s, by the early 1990s SSA had the smallest civil service, both as a fraction of population and of employment, of any major region in the world. However, wage employment in Africa, as in other low–income regions, is only a part of the employment scene.

Accordingly, in examining the impact of labor withdrawal to the South African mines during 1946–78, Lucas (1987) looked at both the time-series effects on wages and on own–account crop production. In Botswana, Leostho, Malawi, and South Africa, the greater the fraction of population in employment, either at home or on the mines, the lower is traditional crop production, controlling for rainfall and other factors. Moreover, in Malawi and Mozambique, wages on commercial estates and plantations respectively increased significantly in response to the mine labor-recruiting levels. Prior to independence in 1964, the Nyasaland authorities imposed a quota on such mine recruiting, apparently depending upon the state of the domestic labor market. Following independence as Malawi, Dr. Hastings Banda's government lifted the quota. Estate wages rose and "as estates passed increasingly into Malawian hands, this strategy gathered opponents until recruiting was suspended in 1974" (Lucas, 1987, p. 326).

Maystadt and Verwimp (2009) undertook an interesting study of immigration impacts in Tanzania, which actually provides a bridge to the following subsection. Using the panel data from the Health and Development Survey conducted in the Kagera region of northwest Tanzania, this study looked at the impact of refugee inflows from Burundi and Rwanda upon consumption per adult equivalent among local inhabitants. The survey provided data before and after the main inflow and controls for distance from the camps, weighted by camp size, thus enabling the study to identify the effects of refugee arrivals. On average the effects were not large, but they are significantly differentiated across groups. Agricultural workers fared the worst "from an increase in competition on the labor markets and the surging prices of several goods"

(Maystadt and Verwimp, 2009, abstract; see also Whitaker, 1999). The main winners were skilled workers who enjoyed increased job opportunities, if located close to the camps, and farmers who gained access to cheaper labor. In an extension to this work, Maystadt (2011) argued that the refugee inflows to the Kagera region actually helped with poverty reduction, in part by offering the opportunity for greater income diversification.

In short, both immigration and emigration can indeed have significant impacts upon African labor markets, though who is affected, who gains and who loses, depends very much upon the context as well as the nature of the migration itself.

5.2.3 Economic impact of refugee inflows

The broader issue of the overall effects of sudden and massive refugee inflows has attracted increasing attention, though systematic evidence is scarce. The UNHCR (2004) surmised that the effects are mixed; their report suggested that outcomes depend upon the political and economic situation in the host country, the integration between the urban and rural sectors, and relations between the hosts and refugees. More recently, Gomez et al. (2010) surveyed the case study evidence that has been amassed, bringing out the various elements and leading to mixed results. Demands for local foods lead to price increases, from which surplus farmers benefit but others lose. On the other hand, prices of some aid-supplied foods may decline (see Alix-Garcia and Saah (2009) on the case of Tanzania). Pressures on non-market items, particularly firewood and water, present a problem (Nordic Agency for Development and Ecology, 2010). Similarly, capacity in some services, such as schools and healthcare, becomes strained (Zetter, 1995). Jacobsen (2002) argued that the impacts on host countries stem from a mix of new resources, combined with an increased security threat, the latter often necessitating a hardening of control in border areas.

The evidence from case studies indicates a differentiated effect, with winners and losers in the local environs of the refugee settlements. Sesay (2004) represents perhaps the only attempt to examine the growth effects of Africa's refugee inflows at a national level. In a cross-section of 72 countries, 44 of which are from Africa, the remainder from Asia and Latin America, Sesay actually found no significant association between the stock of refugee population and either GDP growth or capital formation. The issue can be pressed a little further though, using the panel nature of refugee data.

Table 26.17 offers some explorations along these lines. Annual data on 51 African countries are used to regress real GDP per-capita growth, from 1970 to 2007, on a number of fairly standard controls from the empirical growth literature: the share of GDP invested, openness to trade, initial GDP per capita (in thousands of 2005 PPP$) to allow for conditional convergence, and time. The main coefficient of concern here is the stock of African refugees present in the country in each year, relative to

Table 26.17 Refugee stocks, violence, and GDP growth: random effects estimates for Africa

	Percent growth in GDP per capita		
Stock of refugees per thousand inhabitants		−0.036	−0.038
		(2.23)	(2.36)
Stock of refugees per thousand inhabitants • Democracy		0.135	0.137
		(2.28)	(2.32)
Stock of refugees per thousand inhabitants • Initial GDP in 1970		0.008	0.008
		(1.56)	(1.50)
Major episodes of political violence at home		−0.277	−0.287
		(2.32)	(2.43)
Major episodes of political violence in bordering states			0.117
			(0.67)
Investment share of GDP (%)	0.117	0.074	0.075
	(3.49)	(3.08)	(3.09)
Trade as share of GDP (%)	0.035	0.001	0.001
	(1.50)	(0.14)	(0.13)
Initial GDP in 1970	−0.443	−0.296	−0.294
Thousands 2005 $PPP	(1.35)	(2.97)	(3.06)
Year	0.051	0.057	0.055
	(2.48)	(2.43)	(2.27)
Intercept	−103.4	−114.1	−109.5
	(2.55)	(2.44)	(2.29)
Number of observations	1887	1587	1587
Number of countries	51	44	44
Wald chi–squared	21.04	49.79	53.30

Author's calculations. *T*-statistics for a zero null hypothesis are shown in parentheses. Standard errors are robust to heteroskedasticity.
Sources: see Appendix.

population of the country of asylum. To allow for the UNHCR contention, noted above, that outcomes depend upon the political and economic situation in the host country, two interactions with the refugee variable are included: with a dummy for the country of asylum being more democratic (having a polity index greater than five); and with initial income level in 1970 in the host country. The estimates indicate a statistically significant lower growth in incomes the greater is the presence of refugees, though this is not the case in the most democratic host states. Any tendency for the negative impact on growth to diminish at higher initial income levels is statistically weaker; moreover, the point estimate suggests that the negative impact of refugees would fall to zero only at an income level about three times the sample mean. Also included is the same measure of episodes of political violence already introduced in the context of Table 26.9 (see the Appendix). Violence at home has a major effect in retarding income growth. However, the estimates on the presence of refugees prove

almost entirely orthogonal to inclusion of this measure. Violence in neighboring states may also have a direct effect in diminishing growth, leading to bias in the estimated effects of refugee inflows. To explore this possibility, the last specification in Table 26.17 therefore introduces an additional measure: the incidence of major episodes of political violence in contiguous African states, weighted by populations. Not only is no obvious effect on growth of neighbors detected but the coefficients on refugee presence are essentially unaffected.[127] Assuming the refugees would tend to be drawn toward higher growth economies, the negative association between refugee influx and growth does not appear to reflect reverse causality. The estimated effect is substantial; for the vast majority of African states that are not highly democratic, a two-standard-deviation increase in the presence of refugees depresses growth per capita by about 0.8 percentage points at the sample mean initial income level. This would be a loss of some two-thirds of observed mean growth over this period.

5.3 Inequality and poverty

Poverty incidence is a combined result of the aggregate level and distribution of income. In turn, both the level and distribution of incomes may well be affected by the extent and composition of migration, by who receives and disposes of remittances, and by the general equilibrium effects of both. Over the last couple of decades, as more data have become available, a good deal of attention has been directed toward two closely related issues. Is income inequality in the source country intensified or diminished by the processes of migration and ensuing remittances? To what extent do these joint processes contribute toward poverty alleviation?

Approaches to examining these issues vary a good deal, both in Africa and elsewhere, so disentangling the results is complex. Most studies examine either remittances or out-migration, but not both. As a result, the counterfactual is not always apparent. Migration is a precursor to remittance receipts though, as the matched samples discussed in Section 4.2 bring out, some families that receive remittances may not have been the

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[127] The specifications in Table 26.17 omit the dummy for democracy except in the interaction term; inclusion leaves the results almost completely unaffected and democracy is estimated to have no separate effect on growth. The same is true of another popular measure in growth accounting: the rate of population expansion. Another common term is the fraction of adult population with post-secondary education (Barro and Lee, 2000). This proves strongly positive if included; the negative effect of refugee presence then actually increases somewhat but there is less confidence in the estimates. The Barro–Lee data are available only for a few, higher-income African countries and the dramatic reduction in sample size results in lower significance levels. The fraction of adult population with secondary school complete has no discernible, separate correlation with growth, given the fraction with post-secondary complete. Estimating with country fixed effects, rather than random effects as in Table 26.17, and hence omitting the fixed initial income measure, the coefficient on refugee stock remains almost exactly the same though statistically weaker; the interaction term with democracy is substantially smaller—countries do not change polity by much; and, interestingly, the effect of violence is even larger than in Table 26.17.

originating homes of the migrants. The possibility that poverty, either chronic or inci-
dental, and even inequality when relative deprivation matters, induce both remittances
and migration raises the issue of reverse causality. Moreover, unobserved differences both
among individuals in micro evidence and across countries at the macro level can result in
misleading impressions (McKenzie and Sasin, 2007). With these warnings in mind, what
is the evidence with respect to Africa?

At least two studies adopt cross-country panel data. Anyanwu and Erhijakpor (2010)
regressed three measures of poverty (incidence, depth, and depth-squared) upon the offi-
cial inflows of international remittances relative to GDP, real GDP, and a Gini coeffi-
cient. Country fixed effects are applied to the sample, which is of 33 African
countries during 1990–2005, in which 25 countries have more than one time-period
observation. The results (instrumenting remittances on lagged values) suggest that remit-
tance receipts diminish all three poverty measures significantly and by approximately the
same extent. The usual caveat with respect to the official remittance data for Africa must
once again be reiterated. Perhaps more importantly, though, having controlled for both
the level and distribution of income, the routes through which remittances are meant to
diminish poverty are not apparent.

Ebeke and Le Goff (2010) focused on inequality rather than poverty. Gini indices are
regressed on remittance inflows interacted with representations of the composition of
emigration. Their study was not specific to Africa, being a decennial panel of 80 devel-
oping countries from 1970 to 2000. However, the findings were used to postulate that
remittances to SSA must increase inequality, given the broad characteristics of the region.
Naturally the official remittance data are again deployed, interacting their influence on
inequality with three elements: GDP per capita; the cost of emigration (represented by
the cost of obtaining a passport and by distance to the main destination country); and the
rate of brain drain (the stock of highly educated emigrants in six OECD countries relative
to the stock at home). The main conclusions are based on introducing these interaction
terms with remittances one at a time.[128] Remittances are thus found to increase inequal-
ity up to an income level of about $2500 per capita, then to decrease inequality beyond
that. On the other hand, higher remittances are associated with lower inequality when
brain-drain rates are well below the mean, or when distance to the main OECD desti-
nation is less than 3000 kilometers, but to increase inequality at higher rates of brain drain
or at greater distance. It is these findings that lead the authors to deduce that remittances
to SSA must increase inequality (given low income levels, high brain-drain rates, and
remoteness) but to reduce inequality in North Africa. Whether these results would hold
up if the Africa context were examined separately, and if the various interactions were
estimated jointly, remains unclear. Nonetheless, the patterns do seem to make sense: the

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[128] Remittances are instrumented with global remittance inflows minus inflows to the specific country,
remittances lagged, and the income gap between home and the main destination country.

highly educated emigrants from Africa tend to be from wealthier families, so remittances from them probably aid those at home who are better off; distance is more of a deterrent to the poor, who tend to migrate internally or within Africa, so more rewarding, long-distance migration might again direct remittances toward those who are well off.

Micro-level studies help to confirm some of these patterns. Wouterse (2010) used 2003 data from four villages in Burkina Faso to compare the impacts of internal and international remittance receipts on both inequality and poverty.[129] For the former, the study undertook a Gini decomposition; for the latter, three levels of exponent on the Foster–Greer–Thorbecke poverty index were adopted. Households with international migrants have higher mean per-capita incomes than households with no or internal migrants and, not surprisingly, the incidence of poverty is accordingly least amongst households with an international migrant. All three measures of poverty also prove lower among families with an internal migrant than if no migration has occurred; the two groups have roughly similar mean incomes but the income distribution among families with no migrants has a fatter lower tail. In the inequality decomposition, remittances from international migrants are found to increase inequality while transfers from internal migrants have the opposite effect.[130]

As Adams (1989) emphasized in his work on Egypt, the counterfactual in this genre of studies presumes that household incomes are exogenous; living standards are unaltered by the acts of migration and remittance, except by the amount of the remittance. Instead, in this early work, Adams regressed household income, with and without remittances included, on family characteristics plus two dummy variables: one for a migrant who has returned and another if still absent. Predictions from the two estimates, with and without remittances included, permit examination of the net difference that receipt of remittances makes to household income, assuming that recipient households would have behaved similarly to non-recipient, observationally equivalent households in the absence of remittances. The results indicated that international remittances to the Minya governate in Egypt, surveyed in 1986–87, increased the spread of family incomes. In Adams et al. (2008a), who looked at the 2005–06 Ghana Living Standards Survey, the approach to establishing a counterfactual has evolved. In the first step, a multinomial logit equation is estimated on three outcomes: no remittances, remittances from internal migrants, or from international migrants. Using Lee's standard correction from this estimate, an expenditure equation is then estimated. The difference between the two equations is

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[129] See also Lachaud (1999) for a prior microanalysis of the effects of remittances (largely from Côte d'Ivoire) on poverty in Burkina Faso, and Wouterse (2012).

[130] In a related paper, using the same data, Wouterse and Taylor (2008, p. 625) "... find no evidence of either positive or negative effects of continental migration on agricultural or livestock activities, and only a small negative impact on nonfarm activities. However, inter-continental migration, which tends to be long-term and generates significantly larger remittances, stimulates livestock production while being negatively associated with both staple and nonfarm activities."

identified by a set of measures on ethno–religious groups included in the logit specification.

> The paper finds that both internal and international remittances reduce the level, depth and severity of poverty in Ghana ... international remittances have a greater impact on reducing poverty than internal remittances ... both internal and international remittances have a negative impact on income inequality, as measured by the Gini coefficient. International remittances have a more negative impact on income distribution because households receiving international remittances are not poor in the first place, and with the receipt of remittances they tend to improve their expenditure status much more dramatically than households receiving internal remittances.
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> *(Adams et al., 2008a, pp. 23–24)*

Gyimah-Brempong and Asiedu (2011) reached a similar conclusion with respect to remittances and poverty in Ghana, using a generalized-method-of-moments estimator on pseudo-panel data.

Quartey and Blankson (2004) also used a pseudo-panel approach to address a different aspect of poverty in Ghana, namely the ability to smooth consumption during macroeconomic shocks, represented by consumer price index inflation. An interaction term between inflation and remittance receipts proves statistically weak in explaining consumption smoothing from remittances overall. However, among some of the poorest, food-crop farmers, remittances prove quite vital in consumption smoothing. At least three other country studies, each looking at remittances from workers in South Africa, pointed to poverty-reducing effects: Gustafsson and Makonnen (1993) in a simulation of remittance reduction to Lesotho; de Vletter (2007) in a regional comparison of development and poverty in Mozambique; and Maphosa (2007) in a discussion of poverty in Zimbabwe.[131]

By definition, creation of actual panel data on migrants entails tracking them, which is expensive and difficult. An early attempt to trace rural–urban migrants in Botswana found that individuals adopted new, Anglicized names in town, leaving their whereabouts problematical to detect (Stephens et al., 1976; Macliver, 1977). Such difficulties notwithstanding, Beegle et al. (2011) had remarkable success in relocating, in 2004, individuals from a 1991–92 survey in the Kagera region of Tanzania. With this panel, they looked at consumption per capita for each individual at two points in time over the 13-year interval. The focus was on migration rather than remittances; indeed, the authors noted that remittances prove quite small in their data. By taking first differences in consumption levels, the authors were able to adopt a difference-in-differences approach to examining the role of individual migration. By also adopting initial-household fixed effects, unobserved differences between households are eliminated. In addition, the categorical migration variable

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[131] See also Dejene (2005), who looked at panel data on urban households in Ethiopia, finding that female-headed households receive both more domestic and international remittances than do measurably equivalent male-headed households.

and distance moved are instrumented using three groups of instruments: negative rainfall shocks in the original location; an interaction between distance to the regional capital with a dummy for being male, aged 5–15, in the earlier round; and various representations of relationship to the household head. "The identified effects are remarkably large and robust: migrants experienced 36 percentage points higher consumption growth compared with those who stayed behind" (Beegle et al., 2011, p. 1028). Given the approach, these gains are not attributable to migrants being positively selected individuals in the first place, to migrants coming from select households more likely to experience consumption growth, nor to migrants being selected endogenously within the household. Migration indeed seems to enhance incomes of the individual migrants substantially, playing a major role in lifting them out of poverty in this context. The gains are particularly large among those who make a transfer out of agriculture to some other sector upon migrating, but migrants gain within each major sector too. Given the estimated magnitudes of gain from migration, Beegle et al. posed the question: Why do more people not move? Re-estimating the first-stage migration outcome equations without household fixed effects, but including controls for family and community characteristics, indicates little evidence that credit or wealth constraints play a major part in limiting migration. Rather, the authors emphasized the importance of social norms, as reflected in their measures of relationship to the household head, and of the timing of windows of opportunity (such as phasing with respect to the refugee situation in this region).

Overall, the evidence on inequality suggests that international remittances exacerbate inequality in the very few African contexts where this has been examined. From the far more extensive evidence, both macro and micro, there seems agreement that remittances reduce poverty. Indeed, it would be surprising if remittances, per se, increased poverty, though out-migration certainly may. Implicit in several of the above estimates of poverty effects is actually a combined influence of out-migration and remittances. Yet not all migrants remit, some families receive remittances without having sent a migrant, and general equilibrium effects of both remittances and out-migration can impact incomes of non-migrant families who did not receive any remittances. Whether the combined effects of selective out-migration and of ensuing remittance inflows (not to mention such effects as refugee arrivals) have proved to be poverty-alleviating in Africa remains to be more fully resolved.

5.4 Social effects

The foregoing review of African evidence on the effects of migration and remittances upon incomes, growth, and poverty by no means exhausts the influences that population movements may have. Many aspects of family, community, and national lives are touched in various ways by international migration. This is not the context in which to linger over social effects; this is a review of the economics of African migration. Yet at least a couple of aspects have important ramifications for the economy and living standards, warranting at

least brief inclusion. The first aspect addressed is the influence that migration can have on family structure and fertility: the nature of the family is important not only in its own right, but also to household decision making and the incidence of poverty; fertility feeds back on the growth of an economy as well as on future migration pressures themselves. The second aspect touched upon is the transnational sway of the diaspora upon the political situation at home and the broader security concerns from cross-border movements. The roles of political violence and polity as determinants of international migrations have already been outlined, but migration may feed back on both.

5.4.1 Fertility and the family

In their panel analysis of Tanzania, Beegle et al. (2011) argued that family commitments act as a constraint on out-migration and hence poverty alleviation. What of the reverse? How does migration affect family structure in Africa?

Although there has been an upward trend in the fraction of African migrants who are female, both within and out of Africa, male migrants remain in the majority (Adepoju, 2006). There are exceptions. Kifleyesus (2012) described the increasing migration of Eritrean women to the GCC states, where they are employed as domestic workers. In this context, Kifleyesus maintained that the men are left behind and supported by remittances from the women. Perhaps more typically, the initial African migration is by a male who may or may not be followed by his family. Agesa and Kim (2001) examined this last issue in the context of rural–urban migration in Kenya. They noted that larger families are more likely to split geographically, rather than migrating as a family unit, reflecting the lower cost of living in the rural area, traded off against the psychological costs of familial separation.

Some arguments have been raised pointing to male migrations in Africa as detrimental to family life and as a source of poverty among females. The recruitment of labor by the South African mines is one context in which such claims have been made. Mokomane (2006) took a more careful look at this case, noting first that SSA traditionally exhibits:

> ... almost universal marriage for both sexes; early marriage especially for women; a large age difference between spouses; prompt remarriage for widowed and divorced women of reproductive age; and polygyny ... However, from the 1970s a large part of the continent began to experience significant transformations in nuptiality patterns, reflected mainly in the increase in age at first marriage for women, a decrease in the age difference of spouses and a slight increase in the amount of time spent out of marriage during adult years.
>
> **Mokomane (2006, p. 25)[132]**

Mokomane goes on to note that Botswana presents an interesting exception, where the fraction of population that has never married is high and has risen; cohabitation rather

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[132] See also Okoth-ogendo (1989) on the links between migration and the African family as a reproductive, producing, and social unit in pre-colonial, colonial, and post-independence times.

than marriage is the norm.[133] She cited several documents that attribute the absence of marital relationships in Botswana to migration to South Africa and to mine-labor recruiting in particular (see, for example, Meekers and Ahmed, 2000). The arguments raised are that long periods of marital separation ultimately lead to a breakdown in family values, and the absence of men alters the balance in the marriage market. However, Mokomane rightly pointed to three flaws in these arguments: cohabitation has continued to increase despite the declining recruitment of miners from Botswana since the 1980s (see Figure 26.9); most of the prior recruiting was focused on villages close to the South African border yet cohabitation is far more dispersed; if migration were the main contributing factor one might have expected a far larger dispensation with marriage in Lesotho, which did not occur.

A more general argument has been leveled against male migration in Africa as leading to impoverishment of women-headed households (United Nations Development Program, 1995). Systematic data on the incidence of female-headed households appear to be lacking. Nonetheless, the International Fund for Agricultural Development (IFAD, 1999, pages unnumbered) states:

> In many countries in Africa, as elsewhere, there has been a significant increase in the percentage of female-headed households ... in recent years. Among the main causes are male migration, the deaths of males in civil conflicts and wars, unpartnered adolescent fertility and family disruption.

Despite earlier claims, there is actually no clear evidence that women-headed households are poorer than those with a male head, in Africa or elsewhere (Svedberg, 1990; Lipton and Ravallion, 1995; IFAD, 1999). The UN Department of Economic and Social Affairs (2010b, p. 161) noted that "only in four of the 16 countries in Africa with available data—Burundi, Malawi, Sao Tome and Principe and Zambia—were the poverty rates for female-headed households higher compared to male-headed households."[134] Moreover, at least one study of Zimbabwe finds a far higher incidence of poverty among *de jure* female-headed households (widows, divorcees, single mothers) than among *de facto* female-headed households (with a sick, or absent, migrant male spouse), much of the difference being attributable to remittances from the absent male in the latter group (Horrell and Krishnan, 2007).

Almost all of the evidence on the effects of migration upon reproductive rates in Africa is confined to internal migration, focusing upon the distinctions between the effects of disruption (separation of couples), selection (of more or less fertile migrants), and adaptation (changes in migrants' behavior). The findings tend to favor adaptation. For example, there is some evidence that female rural–urban migrants undergo a

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[133] Cohabitation rates within unions are actually reported by Mokomane to be even higher in Central African Republic, Mozambique, and Gabon.

[134] See UN (2010b, Figure 8.2). The UN report goes on to note, however, that this may result from the heterogeneity of family types included within female-headed: women living alone, a lone woman with children, and families with a man present but where the female is considered head.

reduction in total fertility rates upon relocation, contributing to the lower birth rates in urban SSA compared to rural areas (Brockerhoffa and Yang, 1994; Chattopadhyay et al., 2006). Also in a recent study of rural Mozambique, conjugal separation resulting from male migration was found to diminish conception during the period of separation, but this "lower birth rate among migrants' wives ... tends to be partially compensated for by an increased birth rate upon cessation of migration" (Agadjanian et al., 2011, p. 1029). In the end, Agadjanian et al. indicated that wives of the more successful migrants may actually increase childbearing as a result of the improved living standards.

The focus has thus been on the migrants and their families, but does migration also influence fertility among non-migrants? Fargues (2007) raised the possibility that international migrants transmit back home the fertility norms of their host countries and explores the issue in a study of Egypt, Morocco, and Turkey. The dominant migration from Morocco has been to France, which has a lower fertility rate; Egyptian migration has largely been to the higher fertility GCC states. Fargues noted that as remittances to Egypt rose then fell, from 1970 to 2000, birth rates in Egypt moved in sync, yet as remittances entering Morocco increased fairly steadily, from 1980 to 2000, birth rates fell. Moreover, looking across the governorates of Egypt in 1991, the higher the rate of emigration to the Gulf, the less had been the decline in fertility; across the provinces of Morocco in 2000, the reverse pattern is observed.

A number of routes have been hypothesized through which emigration may affect fertility at home. Beine et al. (2009) modeled four such possibilities, suggesting alternative explanatory measures that may affect fertility rate differences, and bring these to data on a global cross-section of countries in 2000:

1. To the extent that likelihood of emigration increases with education level, a greater overall migration rate is presumed to be associated with higher investments in human capital of children and hence, through a "quantity–quality" tradeoff, a lower fertility rate. Both the overall emigration rate and the selectivity of this migration on education are therefore potential explanatory factors.

2. "... migration prospects can stimulate the education of adults. Since educated parents have a higher opportunity cost of time, one expects the fertility rate to decrease in adults' human capital" (Beine et al., 2009, p. 15). Accordingly, the fraction of adults at home with at least a secondary education is also included.

3. Although remittance receipts are also included as an additional explanatory factor, priors on the associated sign are ambiguous. "The income effect predicts that the fertility rate should be increasing in remittances received when adult. However, the old-age security model predicts that fertility should be decreasing in remittances received before retirement since part can be saved for retirement" (Ibid.).

4. "The 'norms-diffusion' model predicts that the fertility rate should be increasing in the average fertility rate at destination" (Ibid.). The latter is measured by a migrant-weighted average of fertility rates (with weights from Parsons et al., 2007). The study also explores whether the intensity of norms-diffusion increases

with the rate of emigration by introducing an interaction between the average fertility rate abroad and the overall emigration rate.

The empirical specification also includes controls for income level at home, degree of urbanization, fractions of population that are Catholic and Muslim, and a set of dummies for major global regions. The emigration rate is instrumented with several geographic characteristics of the home country, including migrant-weighted mean distance to destination. Little support is found for propositions (1) and (3); the overall emigration rate, skill composition of that emigration, and remittances have only weak associations with home fertility rates, especially in the sample of developing countries. As usual, the level of adult education is found to be negatively associated with fertility, though whether emigration is the root cause underlying this is a separate issue. The results are, however, clearly consistent with a transfer of norms: emigrants' exposure to lower (higher) fertility abroad is significantly associated with reductions (increments) to fertility at home. On the other hand, the coefficient on the interaction between emigration rate and fertility abroad proves insignificant. The authors consequently described the diffusion effect as more like a public good that does not increase in intensity with the magnitude of emigration, noting that "a plausible explanation is that larger diasporas socialize and assimilate less abroad, or have less contacts with those left behind".[135]

In the regressions by Beine et al. a dummy variable for SSA garners a large positive coefficient, raising the possibility that African behavior may simply be different. This is addressed in Table 26.18, where specifications similar to those adopted by Beine et al. are estimated on decennial panel data from 1960 to 2000 for 53 African countries. In the results reported there, three variables from the study by Beine et al. are omitted. As previously discussed, the remittance data for Africa are suspect at best. If observations on positive real remittance levels per capita are included, the coefficient on the remittance term proves insignificant (as in Beine et al.) and the sample size is substantially reduced. Most of the emigration from Africa is within the region and no data on the educational composition of these flows are available. If it is assumed that the only emigrants from Africa with at least a secondary education go to the OECD, then including a representation of this selection rate also proves insignificant. Finally, the Barro–Lee data on educational composition of the adult populations in Africa encompass only a biased set of African countries and even omit some years within this set of countries; naturally, including these measures diminishes the sample size, though a negative association with fertility rates in Africa is confirmed, as elsewhere.

Both the fixed effects and instrumental fixed effects[136] estimates in Table 26.18 offer support for the notion that fertility norms are transmitted home from the African

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[135] Beine et al. (2009, p. 19), noting on the same page that Spilimbergo (2009) reached the same conclusion in his paper on democracy.

[136] The emigration rate is instrumented with the migrant-weighted distance measure suggested by Beine et al. Since the weights vary over time this provides a potential instrument despite the inclusion of country fixed effects.

Table 26.18 Fertility rate transmission: fixed effects estimates for Africa

	Log total fertility rate	
	FE	*FE-IV*
Log fertility rate in host countries:	0.314	0.289
Host rate > home	(4.68)	(4.07)
Log fertility rate in host countries:	0.403	0.374
Host rate < home	(5.91)	(5.18)
Log emigration rate	0.016	−0.062
	(0.87)	(1.82)
Log GDP	−0.092	−0.093
	(3.76)	(3.65)
Percent urban	0.000	−0.000
	(0.00)	(0.25)
Percent Christian	0.004	0.002
	(2.54)	(1.06)
Percent Muslim	−0.001	−0.001
	(0.98)	(0.57)
Year	0.691	0.870
	(3.29)	(3.79)
Year squared (×100)	−0.018	−0.022
	(3.31)	(3.81)
Intercept	−677.5	−854.0
	(3.26)	(3.77)
No. observations	249	249
No. of countries	53	53
R-squared	0.43	0.54

Author's calculations. *T*-statistics for a zero null hypothesis are shown in parentheses.
Sources: see Appendix.

diaspora. If a term interacting fertility at destination with the emigration rate is added, it proves statistically insignificant, so the intensity of norm transmission does not increase with the magnitude of emigration. This mixed result is congruent with the global patterns observed in Beine et al.[137] Their public–good interpretation would suggest that, since the present estimates control for country fixed effects, tilting emigration more toward low-fertility countries, over time from each African country, is associated on average with an effect in lowering fertility at home. Whether such a diffusion-effect interpretation is warranted, despite the lack of association with larger volumes of migration, seems worthy of closer scrutiny in future work. Meanwhile, in the estimates in Table 26.18, an additional extension is introduced, compared to the earlier specification from Beine et al.; the

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[137] This is confirmed if the emigration rate variable is weighted by the difference between fertility rate at home and the specific destination country (or its square).

logarithm of the migrant-weighted fertility rate at destination is interacted with two dummies for whether this weighted average is greater than or less than the rate at home. Both measures prove positive. However, the apparent transmission of norms from a diaspora in countries with lower fertility rates than at home is stronger; having emigrants in higher fertility countries is associated with a positive but smaller association with higher rates at home and the difference between the two is strongly significant.[138]

5.4.2 Political consequences and security issues

From a number of African countries, the diaspora in Europe have organized home associations that serve as convivial meeting places. Following an examination of these African associations, Mercer et al. (2008, p. 231) concluded that "It is naïve to imagine that home associations are not engaged in political work . . . Embracing home associations as development providers means tolerating their political work." From case studies of five Ghanaian Home Associations in the Netherlands, matched with information on the respective home towns, Mazzucato and Kabki (2009) were able to describe some of the influences of such associations. Migrant members gain power and prestige by investing in development projects at home; interest in these gains stems partly from intent to return home, at least to be buried (an important tradition in Ghana). Larger towns attract more projects but also possess more powerful leaders, who sometimes gain control of the projects, enhancing their own image. Alternatively, the newly rich migrants, particularly those who are younger, may be seen as a threat to the position of the traditional, elderly elite who may even undermine projects to dispel migrants' influence.

Africa's diaspora has also included a number of individual activists and opposition groups committed to various forms of change in their home country. Yeebo (2008) noted that "these groups became the only viable platforms for campaigning against one party dictatorship and for constitutional reform in some African countries," adding "Some of these exiles who settled in London, the United States and other parts of the world, helped to fund and organise the armed opposition." Perhaps the best known of such opposition activities from abroad was that of the Pan-Africanist Congress, a wing of the African National Congress (ANC), working against the South African apartheid regime during the 1960s and 1970s. ANC cadres then operated from Tanzania and

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[138] A few notes on some of the control variables are in order. The lack of a negative coefficient on urbanization raises questions about much of the literature linking fertility to rural–urban migration; urbanization does have a negative effect in the absence of country fixed effects, suggesting that urbanization within countries does not diminish fertility but rather that countries that are inherently more urban possess lower fertility rates. The quadratic in time suggests a demographic transition, with the IV estimates indicating a turning point around 1980. In the OLS estimate, a higher percentage of Christian population is correlated with a higher fertility rate whereas a higher percentage of Muslims is not and the difference is statistically significant, though not in the IV estimates.

Zambia under the leadership of Oliver Tambo, who was himself based in Muswell Hill, London.

Spilimbergo (2009) used global panel data to show that study abroad promotes democracy at home, but only if that education is acquired in democratic countries. Among the African diaspora a substantial number of individuals have returned home from Europe and the US to play key roles in African politics at various stages. Not all have played serendipitous parts. Charles Taylor returned from receiving his degree at Bentley College in the US to become president of Liberia during 1997–2003; in 2012 Taylor was sent to a UK jail for 50 years, following his trial by the Special Court for Sierra Leone in The Hague, at which the presiding judge stated: "The accused has been found responsible for aiding and abetting as well as planning some of the most heinous and brutal crimes recorded in human history" (CNN, 31 May 2012). Given the lack of educational institutions in Africa during colonial times it is unsurprising that many of Africa's founding fathers in the newly independent states, as well as a number of subsequent leaders, were educated in Europe and the US. Of the 43 initial political leaders on whom information has been compiled for present purposes, 23 had either been educated or lived abroad prior to taking office. The median polity score during the years in office of these initial political leaders returning from abroad is −7 on a scale from −10 (fully autocratic) to +10 (fully democratic); the median for those educated in Africa is identical.[139] The legacy of Africa's first presidents is mixed. Less than half of the first presidents left office voluntarily, or lost an election, or died of natural causes while in office; the remainder was removed in some form of coup d'état, nearly a third losing their lives in the process. In this fate there is little difference between those educated abroad versus at home. For the most part, despite the many violent endings, there was little change in the polity index over the following five years after the departures of the first presidents, no matter whether they were locally or foreign trained.[140] Whether this indicates that the many heads of state who returned from abroad left a strong political legacy or this simply reflects the nature of the specific countries and tenacity of their societies cannot be discerned from this.

In addition to any influence of the diaspora and returned migrants upon politics in their home country, attention has been given to the effects of refugees upon the political

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[139] Those educated abroad ranged from scores at the autocratic end, such as Hastings Banda of Malawi educated in the UK and US, Kwame Nkrumah of Ghana educated in the US, and Habib Bourguiba of Tunisia educated in France, through to those closer to the fully democratic end, including Seretse Khama of Botswana, King Freddie Mutesa of Uganda, and Dawda Jawara of Gambia, all educated in the UK, and Nnamdi Azikwe of Nigeria, who was educated in the US. Among those educated in Africa is Nelson Mandela, during whose presidency South Africa is reported as almost fully democratic on the polity score. See the Appendix for the source of the polity data.

[140] Exceptions include a shift to a much more democratic polity in Malawi and Zambia, after the departures of Banda and Kaunda respectively, the reverse being true in Nigeria and Uganda following the tenures of Azikwe and Mutesa; each had returned from overseas.

situation in their African countries of asylum. Salehyan and Gleditsch (2006) cited, for example, the role of Rwandan refugees in deposing Ugandan president, Milton Obote, in 1985 (see also Salehyan, 2009). Gomez et al. (2010, p. 11) noted that "when refugees are from the same cultural and linguistic group as the local population, there are greater opportunities for peaceful co-existence and interaction among them".[141] In the absence of such overlaps, tensions can certainly arise between refugees and the indigenous populations. Betts (2009), drawing upon examples from Tanzania, Uganda, and Zambia, considered the circumstances under which Targeted Assistance Development can generate a win–win situation, addressing such tensions. Resentment of immigrants is, however, by no means confined to refugees and, for example, the rather blatant xenophobia that has emerged in South Africa has certainly attracted substantial political attention (Neocosmos, 2010).

Over the last couple of decades, but increasingly after 2001, the intersection between migration and security has become a major focal point (Weiner, 1993; IOM, 2010). Contrasting perceptions of the role of Africa in this context persist. Le Sage (2010, p. 1) saw a vicious cycle:

> *Africa's irregular threat dynamics sustain black markets directly linked to state corruption, divert attention from democratization efforts, generate or fuel civil wars, drive state collapse, and create safe havens that allow terrorists and more criminals to operate.*

Piombo (2007, p. 1) painted a more nuanced position:

> *A casual reading of major newspapers would leave one with the impression that terrorists are running rampant across Africa … This is, to state it mildly, a vast oversimplification of both the nature of terrorist recruitment and the terrorist threat in Africa … There have been a number of organizations that area governments label as 'terrorists', yet the United States has been hesitant to recognize the groups as such, for the understandable reason that in many cases, area governments are labeling opposition groups terrorists in order to gain support to combat their opponents.*

Nonetheless, "The United States government has implemented a range of programs to counter violent extremist threats in East Africa in response to Al Qaeda's bombing of the U.S. embassies in Tanzania and Kenya in 1998 and subsequent transnational terrorist activity in the region. These programs include regional and bilateral efforts, both military and civilian" (Ploch, 2010, p. 1; see also Lyman and Morrison, 2004).

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[141] Gomez et al. (2010, p. 11) referred to two such African cases: "For instance, approximately 25,000 refugees from the Central African Republic were in the Democratic Republic of Congo during the 1990s. Like their Congolese hosts, the refugees belonged to the Yakoma ethnic group, so their integration into the host society was smooth and peaceful … The same has been the case with the massive influx of Somali refugees into the Dadaab area in Kenya, which is inhabited by people sharing the same culture and language, and which are often related by clan or tribal ties to the refugee population."

Beyond such intercontinental concerns, certain aspects of the intersection between migration and security within Africa itself have also attracted mixed attention. Gomez et al. (2010, p. 13) argued that: "In most cases, the presence of refugees does not have a significant negative impact on the political and security situation of the host countries." Yet there are exceptions: "For instance, Somali refugees have often worked closely with ethnic Somali separatists in the Ogaden region of Ethiopia" (Ibid., p. 14). More generally, after a review of six cases of cross-border refugee flows in SSA, Jacobsen and Wilkinson (1993, p. 223) concluded: "Refugees pose strategic threats by increasing the likelihood of external attacks . . . and by creating domestic discontent and resentment refugees politically threaten the host government. In addition, because refugee movements negatively affect relations between sending and receiving countries they threaten regional stability." The more recent influx of Darfur refugees from Sudan into Chad, joining those from the Central African Republic and the internally displaced from Chad's own long-standing civil war, touches on at least two of these aspects: in 2004, Sudanese militia, pursuing refugees from Darfur, clashed with Chadian troops; then, in 2006, Chad severed diplomatic ties with Sudan, accusing Sudan of supporting the rebels who had attacked N'Djamena, the capital of Chad.

Some African refugees have certainly acted to destabilize their own country of origin or even third countries. "Refugee camps located close to the boundary of the country of origin can provide sanctuary to rebel organizations, and a base from which to carry out operations and fertile grounds for recruitment" (Gomez et al., 2010, p.13). For example, the Rwandan Patriotic Army, which was formed largely of refugees in Uganda, invaded Rwanda in 1990. "Another example is the recruitment of Liberian refugees by insurgent movements in Sierra Leone that caused destabilization and violent conflicts during the second half of the 1990s" (Gomez et al., 2010, p. 14; see also Hoffman, 2007).

Africa's porous borders infuse several insurgent groups with cross-border influences, drawing combatants across both sides of national boundaries. Al-Shabaab in Somalia is reported to have recruited Kenyan and other foreign members, while Ethiopian and Kenyan troops have fought Al-Shabaab in Somalia and Al-Shabaab fighters have attacked Kenya and its Somali refugees;[142] the rebellion by the traditionally nomadic Tuareg stretches across both Mali and Niger and led to a coup against President Touré of Mali in 2012; and the extensive borders that Cameroon and Niger share with northern Nigeria pose a potential treat from Boko Haram (Salifu, 2012).

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[142] Reuters: "Special report: In Africa, a militant group's growing appeal", 30 May 2012. <http://www.reuters.com/article/2012/05/30/us-shabaab-east-africa-idUSBRE84T0NI20120530>. BBC News: "Who are Somalia's al-Shabab?", 24 September 2013. <http://www.bbc.co.uk/news/world-africa-15336689.>

Conflict is not the only form of violence with which migration intersects. In South Africa:

> The simplistic, and largely unsubstantiated, association of foreignness with criminality, job-stealing and disease is echoed in the rhetoric of state and the media … The data to support or contest the "self-evident" association between migration and criminality is not available, either to those who make the claims or to the authors.
> (SAMP, 2002, p. 1)

The lack of data notwithstanding, Addo (2006) presented a credible documentation of the role of transnational crime syndicates in drug smuggling, small arms trade, human trafficking, and recruitment of child soldiers among the ECOWAS countries, facilitated by the acceptance of free movement of persons within the regional economic community. Moreover, violence against women in the forms of sexual abuse and trafficking is prevalent in the context of Africa's rampant flights from conflict.[143]

Migration is surely not the prime cause of conflict in Africa. Instead, some combination of greed (desire to loot resources, particularly minerals in the African context), grievance (including relative deprivation and ethnicity), viability of rebellion, and the institutional context have been put forth as the main contenders in a largely unresolved literature on the causes of civil war (see, for example, Collier and Hoeffler, 2004; Collier et al., 2009; Murshed and Tadjoeddin, 2009; Querido, 2009). Yet the various forms of international movements of Africans have also, on occasions, enabled and even provoked political change, conflict, and violence in its manifold forms.

6. TOWARDS SUMMING UP: LESSONS FOR FUTURE MIGRATION PROSPECTS

Africa is too diverse, and the evidence to date too sparse, to make grandiose predictions about the future of migration in Africa. Yet perhaps some useful lessons do emerge from the foregoing review (see also Black, 2004; Gubert, 2005, 2007; Sall, 2005).

Despite claims to the contrary, little support for a hypothesized migration hump emerges in the foregoing review. Emigration rates from Africa are thus likely to decline with better living standards at home, and growth rates have indeed stepped up in the last decade, following a lackluster, long-term economic growth performance that has left SSA the poorest major region in the world. The patterns of those emigrations may well shift as economic development proceeds. To date, African migration has been dominated by movements within the continent and, at least over the last half century, there is no indication that distance per se has become less of a deterrent to

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[143] "For example, UN data show that during the first three months of 2010, more than a third of the 1200 sexual assaults against women in the Democratic Republic of Congo took place in the North and South Kivu provinces. This region is not only the epicenter of constant violence between rebel groups and the military, but also hosts a considerable proportion of IDPs and refugees from neighboring countries" (Gomez et al., 2010, p. 12). See also Martin (1992, 2004) and La Mattina (2012).

migrants from Africa. The evidence points to rising domestic incomes being associated with a shift toward longer distance, intercontinental moves. In addition, the number of African migrants is positively associated with larger gaps in incomes between home and host countries; in 2010 the gap in GDP per capita, in PPP prices, between the EU27 and SSA was over 13-fold.[144] Europe is in some economic difficulty at present, but if they manage to extricate themselves and continue per-capita growth at their average rate over the previous 30 years, for SSA to reach half the EU income levels by mid-century would require growth at 7% per capita. For Asia this has not been unthinkable; Africa (with the exception of a couple of nations) has not come close. While not wishing to invoke too much causality into the correlations in Table 26.9, it is interesting to speculate on potential implications of those estimates. If Europe continues to grow at the same average rate as over the last 30 years, even if Africa grows at 3% per year, the stock of non-refugee emigrants in Europe, from the average state in SSA, would be projected to rise by more than 20% by mid-century and the number of North Africans by some 75%, *ceteris paribus*. Raising growth further in SSA is projected to diminish this expansion substantially from SSA but not from North Africa.

Whatever is the shape of future migration, it will also feed back on Africa's economic performance. At least until the late 1980s, openness to trade was frequently depicted as the *sine qua non* for economic development.[145] The little existing evidence suggests that emigration from Africa has been associated with enhanced exports, though with wide variations across African states, the largest effect being in North Africa. Emigration is also associated with greater imports and future emigration from Africa may thus result in greater openness to trade. However, the projected net effect on Africa's balance of trade appears small. Moreover, Africa is actually already quite open to trade and has made progress with some elements of trade liberalization.[146] On balance, Hatton and Williamson

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[144] Maddison (1995) estimated that by 1992 incomes in Africa were about equal to those in Western Europe in 1820 and Hatton and Williamson (2002, p. 563) reported that "...intercontinental wage gaps...are far larger for Africa today than they were for Europe in the nineteenth century".

[145] After estimating a cross-country equation on average growth of 18 African countries from 1965 to 1990, and on a wider set of countries with an African dummy, Bloom and Sachs (1998, p. 262) concluded: "Among the policy variables, much the most important is Africa's lack of openness to international trade." Bruckner and Lederman (2012) used a more extensive panel on Africa, instrumented for openness, and purported to demonstrate a significant causal effect of openness on growth. On the other hand, Rodrik (1999) argued that, although liberalizing Africa's restrictive trade policies of the 1990s might have expanded trade, such reforms were less likely to play a major part in accelerating growth.

[146] Imports plus exports of goods and services amounted to 65% of GDP for SSA by 2010, a level of openness well beyond the global average. However, openness and freer trade are not necessarily synonymous (Winters et al., 2004). On the latter front, 27 of the 48 African countries for which the average (import-weighted) tariff rates on manufactured products are reported have rates below the mean for the group of all low-income countries (World Bank, 2011b). On the other hand, of the 60 countries in the world rated to have the least efficient customs procedures in the World Economic Forum's Executive Opinion Survey for 2010, 20 are African states. See also the discussions in Africa Partnership Forum (2007) and African Union (2010).

(2002) maintained that the effect of any trade reforms and globalization upon emigration from Africa, through trade expansion and hence opportunities at home, would be negligible.

An important lacuna in our understanding of the links between economic progress and African international migration is the role of labor markets at home and of employment in particular. To a significant extent this, no doubt, reflects a lack of cross-country data on labor market conditions. As we have seen, the fraction of African population in the youth age group is positively associated with emigration. Certainly, several multi-lateral agencies and African governments express special concern with the level of unemployment amongst these youths.[147] Whether it is the lack of jobs or simply the footloose attitudes of young people driving their emigration remains to be clarified. Evidence on emigration from Morocco and internal migration in Botswana does, however, affirm that employment levels at origin are indeed associated with less out-migration.

Agriculture remains the dominant source of employment, either directly or indirectly, and agricultural sectors rarely grow rapidly; in SSA, growth per capita in value added from farming was 0.5% per year from 1990 to 2010, displaying no significant acceleration. The informal sector (however defined) has been a far more important source of employment for Africans than formal manufacturing, which has not been a major contributor to date, either to growth or employment, with GDP from manufacturing growing less quickly than from agriculture during 1990–2010 in SSA.[148] The future of manufacturing employment in Africa may well prove a key factor in shaping migration outcomes. Lack of infrastructure, corruption and weak governance, low (though expanding) levels of education and training in the labor force all act as current constraints on competitiveness and hence such prospects.[149] The evidence points to higher rates of emigration where urbanization is greater in Africa. However, the slow structural

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[147] The Special Report on Youth Employment, in African Development Bank et al. (2012), distinguishes between a lack of jobs at all levels of education in the lower income African countries, versus mismatch in job openings and skills of both secondary- and tertiary-educated youths in middle-income African countries. "In Egypt, for example, about 1.5 million young people are unemployed . . . while at the same time private sector firms cannot fill 600,000 vacancies. In South Africa the situation is even more extreme, with 3 million young people in NEET [*Not in Employment, Education or Training*] and 600,000 unemployed university graduates versus 800,000 vacancies" (African Development Bank et al., 2012, p. 142).

[148] Data from World Bank (2011b). Only 10 African countries had manufacturing sectors amounting to more than 15% of GDP on average during the decade to 2010. Nine of these are in North and Southern Africa. Côte d'Ivoire was the sole country in East, West, or Middle Africa in this category; 26 countries in these major regions derive less than 10% of GDP from manufacturing and 10 derive less than 5%.

[149] In 2010, of 36 countries worldwide with a transparency index of 2.5 or below, 23 were African states (World Bank, 2011b). Unit labor costs in China and India are estimated to be barely 25% of those in South Africa (African Development Bank et al., 2011). See African Development Bank et al. (2012), Dinh and Clarke (2012), plus van Biesebroeck (2003), and Easterly and Reshef (2010) on the links with exporting.

transformation out of agriculture means that the UN Population Division (2010a) projects only slow increments to urbanization in Africa, with SSA reaching 57% and North Africa 65% by mid-century.

Emigration can, in turn, affect the labor markets at origin. The returns to returning prove positive in the few contexts in Africa where it has been possible to examine the issue in meaningful fashion. Whether departures and arrivals of workers improve the situation for non-movers is more mixed. Poverty exhibits a steep gradient, increasing from African metropolitan areas to more remote locations. This suggests that emigration from urban centers may have little impact in improving opportunities in distant villages. Moreover, in locations of emigration and of (refugee) arrival, labor market responses are seen to depend upon the categories of migrants involved: their substitutability or complementarity with non-movers.

A category of emigrants that continues to attract particular attention in Africa are the highly skilled. Education in Africa seems to be positively correlated with growth; perhaps it is even causal. Meanwhile, the fraction of tertiary-educated Africans outside of Africa is extraordinarily high. The signs point to future, increasing emigration of highly skilled Africans on two grounds: the immigration policies of the destination states and expanding education of Africans. Although there seems a consensus that the EU Blue Card is too narrow in scope to impact African emigration in any major way, the number of tertiary-educated Africans in OECD Europe had already doubled from 1990 to 2000, with a particular concentration of college-educated North Africans. Despite the lottery scheme, the US continues to issue relatively few visas to Africans compared to their numbers, yet the US hosts the plurality of the tertiary-educated emigrants from SSA. Given the explicit goals of attracting highly educated immigrants to both the US and Canada, future access of Africans to North America will, no doubt, be intimately tied to the progress of education among Africans. The numbers enrolled in domestic tertiary institutions has grown but remains low, especially in the lower income states; in addition, enrollment has expanded more rapidly than financial commitment to higher education, raising concerns about the quality and efficacy of such training. Of even deeper concern, however, is the lag in expansion of secondary education that feeds into the higher education system. To date, much of Africa continues to rely heavily upon study abroad for tertiary education and there is evidence that this strategy in turn may contribute to the high rate of brain drain. Emigration of the highly skilled is thus exceptionally high and likely to increase, but should this be a source of concern? The partial existing evidence does point to a mitigating, induced-education effect among those still at home, resulting from emigration of the tertiary educated. There are also serious questions with respect to how effectively educated migrants would be deployed if they remained at home, and relatively little is known of the experiences of those who return (perhaps because return is rare). As noted in Section 5.1, a case has also been made by some observers that remittance receipts alone from the highly educated diaspora more than pay for the cost of their education.

Remittances from abroad are woefully under-reported in the official African data. Intercontinental remittances dominate as a source and there are indications from micro-data that African migrants in the OECD are actually more likely to remit, and to remit more, than counterparts from other developing regions. The World Bank reports the costs of remitting to SSA through formal channels to be among the highest in the world, in part reflecting bank regulations within Africa. As a result, most remittances pass through informal channels. Improvements in transfer technologies (such as the increased use of cell-phones), ongoing efforts to diminish formal transfer costs, and potential growth in intercontinental migration may all lead to growing remittances down the line. What will be the consequences? Most of the attention has fallen on two themes: effects on inequality and poverty, and effects on investments. With respect to the former, the counterfactual is not always apparent in the evidence, whether one is speaking of increased remittances with or without more migration. Indeed, it would be surprising if remittances, per se, increased poverty, though out-migration certainly may. With this caveat in mind, there appears agreement that remittances do serve to raise living standards and diminish poverty incidence. Africa has also provided much of the evidence that remittances, both from international and internal sources, offer insurance and hence alleviation of more temporary onsets of hardship. However, if intercontinental remittances increase in future, which seems likely, the result may be a sharpening of inequality at home, if only because of the selectivity in underlying migration.

The second theme pervading the effects of remittances to Africa is the effect upon investments. The evidence is mixed, at best, and directions of causality not always apparent. In Africa, as elsewhere, efforts to "harness" remittances to accelerate domestic investment are common, though frequently ineffective. They are also misplaced, for at least three reasons: first, these are private funds and it is not apparent why recipients should be the ones called upon to do additional investing; second, investment levels on average across Africa are not below the norm, given income levels; and third, it is probably infrastructure investments that are the highest priority and private remittances are unlikely to finance these unless taxed, which would no doubt inhibit further remitting.[150] At least in North and West Africa, returned migrants are observed starting up small enterprises, using savings from abroad and money sent home before returning.

[150] A recent World Bank report (Foster and Briceño-Garmendia, 2010) contended that lack of infrastructure is the dominant constraint on economic growth in the region. The report identified electricity generation and transmission as by far the largest challenge, followed by port capacity, while such areas as transport and communications were deemed somewhat less problematic. In the 1960s Africa had infrastructural levels comparable to those in other low-income regions, such as South Asia, but investments elsewhere have outpaced those in Africa. Conflicts have also destroyed or resulted in neglect of prior investments. The projected costs of catching up would be enormous, in part because of Africa's geography. Africa's low population density, wide population dispersal given relatively low urbanization, and fragmentation into smaller states all combine to deny scale economies in infrastructure provision. Regional cooperation in infrastructure projects could prove vital, particularly for the smaller states.

Some of the evidence even points to a dynamic strategy of emigrating to save, in order to start an enterprise, a strategy necessitated by constrained credit access at home. Quite how much employment these start-ups generate remains rather vague, and little is known about their survival rates. As remittances expand in future they can be expected to help with educational expansion; analysis clearly indicates a tendency for families to increase investments in children's schooling when supported by incoming remittances, particularly so when those remittances are controlled by women (and independent migration of African women is now increasing). There should also be some concern that mounting remittances will detract from export performance through exchange rate appreciation; there is no evidence that remittances have resulted in significant Dutch disease-type effects to date.

Annual rainfall is declining and temperatures rising. Climate change and environmental degradation are taking their toll on livelihoods in Africa. The effects can already be discerned of droughts promoting emigration where arable farming is most important. Yet any evidence of a correlation between the numbers of victims of climatic natural disasters and emigration in Africa is not exactly compelling.

Prospects for development will also be markedly shaped by any continuation in the incidence of conflict. Several African nations remain in a state of failure and the number of major episodes of violence shows no significant downward trend from 1980 to 2010.[151] Violence at home is negatively associated with direct investment inflows and with income growth more generally; violence in neighboring countries also spills over into retarded growth through the resultant mass inflows of refugees. See the results in Table 26.17. In addition, a fixed effects regression on annual FDI into 53 African countries from 1980 to 2010 yields:

$$LFDI = -152.5 - 0.099\,GDP - 0.420\,WAR + 0.019\,MIN + 0.077\,YR$$
$$(18.05)\quad(3.78)\quad\;\;(2.43)\quad\;\;(3.96)\quad\;\;\;(18.04)$$

where $LFDI$ = natural logarithm of net FDI inflow relative to GDP, GDP = GDP per capita in thousands of 2005 PPP\$, WAR = 1 if the country was involved in a war in the previous year, MIN = percent of GDP derived from mining and utilities, and YR = year of observation. T-statistics for a zero null hypothesis are shown in parentheses. No. of observations = 1268; R^2 = 0.25.

Besides swaying development, the continuance of conflict will impact intra-regional migration; few African refugees are lucky enough to be resettled in the high-income

[151] The Uppsala Conflict Data Program (2011) identified 395 armed conflicts that took place in Africa during 1980–2010, with some countries involved in more than one simultaneously. Of these, only nine are interstate conflicts, though among the remaining 386 internal conflicts an outside state became involved in 68. The Integrated Network for Societal Conflict Research similarly reported 382 major episodes of political violence and designated 54% of these to be civil violence or warfare (involving the state) as opposed to ethnic episodes.

regions. Despite frequent assertions to the contrary, the flight of African refugees behaves quite differently from departures of their non-refugee migrant counterparts. Violence is associated with higher levels of non-refugee emigration, even given income levels, but the impact on refugee flows is far greater, as one might expect. Not only are refugees far more likely to move over shorter distances and to contiguous states in particular, but refugees are more commonly found in states with even lower incomes than at home. Unless Africa is able to resolve its continuing conflicts, refugee movements within the continent will persist, disabling development efforts in neighboring countries that harbor the asylum seekers. Even as the number of refugees from SSA diminished from its peak in 1994, those from North Africa reached new heights with the onset of the Arab Spring; North Africa even overtook SSA in the rate of refugees originating, relative to home population, for the first time. Europe has been criticized for its reluctance to accept the North African refugees. Quite how the Arab Spring will unfurl from here remains in the balance. Egypt had provided large numbers of migrant workers to the GCC states and this has been a pillar of support in poverty reduction for Egypt. Whether Egyptians will continue to be welcomed may well depend upon the profile that Egypt presents in the coming years.

No matter what happens to economic development, perhaps Africa will in the end prove rather like nineteenth century Europe, where population pressures proved the dominant driving force (Hatton and Williamson, 1998, 2002). The UN Population Division (2010a) medium-fertility-variant population projections show population growth rates for Africa declining monotonically through 2100, yet this growth remains substantially greater than in the rest of the world. As a result, these same projections indicate the population of Africa rising from about 15% of the global total in 2012 to over a third of world population by the end of the century. While North and Southern Africa's populations are projected to grow more in line with global patterns, the numbers of inhabitants of East, Middle, and West Africa are all anticipated to more than triple by 2100. By mid-century, Nigeria would have a population approaching 400 million and overtake that projected for the US three years later; by the close of the century, 10 other African countries would have over 100 million inhabitants.

In turn, migration may influence both fertility and death rates, though the directions of both effects are mixed. Fertility may prove sensitive to the incidence of separation, remittance inflows, and perhaps adaptation and demonstration effects. Whether emigration of healthcare workers is actually raising African death rates remains contentious; there is evidence that the return of African male migrants has propagated the incidence of HIV in their home countries; and again rising remittances may improve nutrition and expenditures on healthcare, especially during times of crisis.

In considering the broader future of migration policy within Africa, Adepoju (2010, pp. 7, 8) noted: "At the moment, most African countries lack both the institutional and

the human resources capacity to formulate synchronized migration policies . . . the AU strategic framework for a policy on migration . . . designed to ensure integration of migration and related issues into national and regional agendas for security, development and cooperation, remains largely unimplemented".[152] Absent the evolution of such capacities, migration policies within the continent will surely remain unaddressed. In any event, checking and controlling cross-border movements in Africa would prove a Herculean task at any level of development, and this porosity of African borders is raising major security concerns both within Africa and more globally.

Outside of Africa, Europe has been the dominant destination. Given the important role of distance in shaping outcomes, this is unlikely to alter. European actions to limit African immigration have ranged from stepping up the activities of Frontex to programs of co-development. It is not clear how effective any of these attempts have been. Irregular migration into the EU has been widespread, despite the physical dangers of the "canoe method" of entry for those unable to obtain visas or to afford the bribes involved in an "embassy method". Apprehensions of Africans, present without documentation, continue on a large scale. But many of those apprehended actually manage to remain in Europe, as do rejected asylum seekers. In the absence of more effective screening and better coordination among the EU member states, future African migration into Europe is likely to be shaped mostly by the supply of migrants, not by controls. Given the troika of rising intercontinental moves as Africa develops though with little chance of significantly closing the income gap with Europe, projected massive population expansion, and no indication of declining conflict, the pressures on Europe of African migration will surely increase substantially. The answer to "Where are all the Africans?" may well look quite different over the coming decades.

ACKNOWLEDGMENTS

APPENDIX A. NOTES ON DATA SOURCES

In the last few years, at least four major efforts have been undertaken to generate bilateral data on migrant stocks by country of origin and destination (for a much earlier estimate for Africa, see Russell et al., 1990; see also Harrison et al., 2003). Three of these datasets provide the estimates on migrants adopted in Sections 3.1 and 3.2. Substantial progress has been made in the evolution of these datasets but some caveats should be noted. Each of these matrices is based on host-country data, drawn from censuses, population registers

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[152] Moreover, migration and remittances receive only cursory treatment in current development strategy thinking, not only in planning at the national level but in multilateral documents, such as the Poverty Reduction Strategy Papers and European Neighborhood Policy Action Plans (see Lucas, 2009).

and labor force surveys where available. For the most part they are confined to persons resident in the host country for at least a year, thus omitting any short-term migrants. Differences in definitions by host countries (particularly whether foreign-born or foreign citizens are recorded), lack of disaggregation in the classification by origin, dissolution and recombination of states over time, not to mention missing and poorly conducted censuses, all present major hurdles in preparing such estimates.

The Database on Immigrants (OECD, 2010a) refers to 2000 and reports on the basis of foreign-born populations (except in Japan). The dataset really divides into two. The data on OECD 2010-member countries as hosts are fairly complete (though Iceland and South Korea are omitted). A major advantage of this dataset is that it reports numbers on the basis of age and gender, duration of stay, labor market status, occupation, sector of activity, fields of study and educational attainment, as well as place of birth. The extension to non-OECD countries as hosts is, however, an ongoing exercise and far from complete (Dumont et al., 2010).

Docquier et al. (2009) provided a related dataset on the migrant stock, aged 25 and over, from 195 source countries (53 of which are African states) residing in 30 OECD countries and in South Africa in 1990 and 2000. The data are reported on a bilateral country basis, by gender, by three education levels. Docquier et al. also converted these disaggregated stocks into emigration rates. The required stock of adults, by gender, by education level, in each source country were adopted from Barro and Lee (2000), supplemented by estimates from Coulombe and Tremblay (2006). For the interpolation technique used for the 70 countries not encompassed by either of these two sources, see the description in Docquier et al. (2009).

The Global Bilateral Migration Database (World Bank, 2011a) is a collaborative effort by the United Nations Population and Statistics Divisions, the World Bank, and the University of Sussex. The data are reported for each decade from 1960 to 2000 by gender for 226 countries; where possible data are based on country of birth, rather than citizenship. The use of such techniques as sub-regional projections to break down country of origin where missing, interpolation of missing data, and partial scaling to match the UN migrant stock totals are well described in Özden et al. (2011a).[153]

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[153] The only portions of these data that are directly comparable are the 2000 data for the OECD 2010 member states from the OECD data and the Global Bilateral Migration Database. The correlation between the total stocks of African migrants in the two sources is very high, yet there are large absolute differences in a number of countries. At one extreme, the GBMD reports more than a quarter million more Africans in Germany than does the OECD matrix; this reflects the use of nationality to define migrants in Germany in the OECD data whereas the GBMD attempted to use the German 2005 micro-census to adjust to a foreign-born status. The OECD definition results in Morocco as the sole source of Africans living in Germany. At the opposite extreme, the OECD data report nearly a million more Africans in France than does the GBMD. The differences for France are less clear since both adopt a foreign-born definition and the OECD notes that their total refers only to Metropolitan France, thus apparently avoiding including French citizens living in Mayotte and Réunion. On the UN estimates of migrant stocks, see UN (2009b).

In addition to these three datasets on bilateral migrant stocks, use is also made of UNHCR annual, bilateral data on refugee stocks. In particular, the analysis in Section 3.1.2 focuses upon the reports of the number of "refugees and people in refugee-like situations" from 1961 to 2010.[154] Some of the country dyads exhibit sharp discontinuities in the data, seemingly resulting from missing information rather than oscillation between significant numbers of refugees and none, necessitating some care in using these data.

Variable definitions and sources

Variable	Definition	Source
Migrant stock	Number of persons born in country A residing in country B in 1960, 1970, 1980, 1990, and 2000.	World Bank (2011a)[a]
Refugee stock	Number of refugees and people in refugee-like situations originating from country A present in country B. Annual data from 1961 to 2010.	UNHCR Online Statistical Database[b]
Migrants net of refugees	Migrant stock minus refugee stock. Given apparent gaps in the refugee data, the refugee stock at the decade point is taken to be the positive level in the year nearest to the decade point within five years on either side. For the few instances in which the difference proves to be negative, the net figure is set to zero.	Author's calculations.
GDP per capita	Chain-indexed measure in 2005 PPP $. The Penn World Table data are supplemented in a few cases for African countries by splicing data from the World Development Indicators.	Heston et al. (2011)[c] World Bank (2011b).[d]

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[154] UNHCR noted that "refugees include individuals recognized under the 1951 Convention relating to the Status of Refugees; its 1967 Protocol; the 1969 OAU Convention Governing the Specific Aspects of Refugee Problems in Africa; those recognized in accordance with the UNHCR Statute; individuals granted complementary forms of protection; or, those enjoying 'temporary protection' ... people in a refugee-like situation ... includes groups of persons who are outside their country or territory of origin and who face protection risks similar to those of refugees, but for whom refugee status has, for practical or other reasons, not been ascertained. <http://www.unhcr.org/45c06c662.html>.

Variable	Definition	Source
Investment percentage share of GDP	Share in PPP GDP	Heston et al. (2011).[c]
Trade percentage share of GDP	Openness at current prices	Heston et al. (2011).[c]
Contiguous states	Dummy variable = 1 if the dyad of countries have a common land border.	Centre d'Etudes Prospectives et d'Informations Internationales (CEPII) Gravity Dataset.[e]
Distance	Geodesic distance, in kilometers, between the two largest cities in the dyad of countries.	CEPII Gravity Dataset.[e]
Common language	Dummy variable = 1 if at least 9% of the populations in both countries speak the same language as their mother tongue or as a second language.	CEPII Gravity Dataset.[e]
Colonial link ever	Dummy variable = 1 if the dyad of countries ever had a colonial link	CEPII Gravity Dataset.[e]
Area	Area of country of origin in square kilometers	CEPII Gravity Dataset.[e]
Landlocked	Dummy variable = 1 if country of origin has no coastline.	CEPII Gravity Dataset.[e]
Population	Annual data in thousands.	UN World Population Prospects 2010 Revision.[f]
Percent of population aged 15–29	Aggregated from quinquennial data on percentage of population by five-year age group and gender.	UN World Population Prospects 2010 Revision.[f]
Urban population	Quinquennial data on percentage of population residing in urban areas.	UN World Urbanization Prospects 2011 Revision.[f]
Major episodes of political violence	Seven types of episode are each scaled on intensity from 1 to 10 (highest) for each year of occurrence: wars of independence, international violence, international warfare, civil violence, civil warfare, ethnic violence, and ethnic warfare. Violence is defined as "the use of instrumental violence without necessarily exclusive goals" as opposed to war, which is "violence between distinct, exclusive groups with the intent to impose a unilateral result to the contention" (INSCR MEPV Codebook, Annex 1). For	Integrated Network for Societal Conflict Research.[g]

Continued

Variable	Definition	Source
	decadal data, these scores are averaged over years in which they occurred within the decade. Total violence is then measured by the sum of these seven in any given year. International and civil violence are defined by the sum of episodes 2–3 and 4–7 respectively.	
Polity index	The Polity2 annual index from −10 (full autocracy) to +10 (full democracy). For decennial data, decade means are adopted.	Integrated Network for Societal Conflict Research.[g]
Coups	Coup d'état success index rescaled to: 0 = none, 1 = alleged, 2 = plotted, 3 = attempted but failed, 4 = successful. For decennial dataset equal to highest level of Coup during prior decade.	Integrated Network for Societal Conflict Research.[g]
Wars and skirmishes	Annual data on intensity of conflict where government of country is a primary actor. Converted to two dummy variables: War = 1 if at least 1,000 battle-related deaths in a given year; Skirmish = 1 if 25–1000 battle-related deaths in a given year. For decennial data: War (skirmish) = 1 if any war (skirmish) during prior decade.	UCDP Database Categorical Variables 1989–2008, Uppsala Conflict Data Program, Uppsala University.[h]
Cumulative intensity of conflicts	Annual data on dummy variable = 1 if cumulative battle-related deaths have reached 1000 in particular conflict. For decennial dataset equal to 1 if cumulative index reaches 1 during prior decade.	UCDP Database Categorical Variables 1989–2008, Uppsala Conflict Data Program, Uppsala University.[h]
Long-term average rainfall and temperature	Mean annual rainfall in meters (temperature) from 1950 to 2000.	Tyndall Center for Climate Change Research, University of East Anglia.[i]
Absolute difference in minimum (maximum) rain (temperature)	Difference between long term mean rainfall (temperature) and minimum (maximum) annual rain (temperature) during prior decade as a fraction of long term average.	Tyndall Center for Climate Change Research, University of East Anglia.[i]

Variable	Definition	Source
Victims of natural disasters	Mean annual number of people killed or affected by natural disasters per thousand population. Quinquennial data 1974–2003 are interpolated to nearest decade point with data missing for 1960 and 1970.	Guha-Sapir et al. (2004, Table 3).[j]
Arable	Arable land as a percentage of total area.	World Bank Database (environment).[k]
Population with at least (post) secondary education	Quinquennial data on percent of population, age 15 and above, with at least (post) secondary school complete. Includes 31 African countries but the period of coverage varies. Annual data are interpolated in Table 20.	Barro and Lee (2000).[l]
Fertility rates	Quinquennial data on total fertility rates (children per woman). For home country the data for 1960–65 are adopted for 1960, 1970–75 for 1970, etc. For the destination countries data for 1955–60 are adopted for 1960 etc. to allow a short lag in transmission. In the latter measure a weighted average is adopted with bilateral migrant stock from World Bank (2011a) as weights.	UN World Population Prospects 2010 Revision.[f]
Religion	Percent of population Christian and Muslim in 1950, 1970, and 2000. Data for 1960, 1980, and 1990 interpolated linearly.	World Religion Database, Boston University.[m]

[a] <http://data.worldbank.org/data-catalog/global-bilateral-migration-database>.
[b] <http://www.unhcr.org/pages/4a013eb06.html>.
[c] <http://pwt.econ.upenn.edu/index.html>.
[d] <http://databank.worldbank.org/ddp/home.do?Step=2&id=4&DisplayAggregation=N&SdmxSupported=Y&CNO=2&SET_BRANDING=YES>.
[e] <http://www.cepii.fr/anglaisgraph/bdd/gravity.htm>.
[f] <http://www.un.org/esa/population/unpop.htm>.
[g] <http://www.systemicpeace.org/inscr/inscr.htm>.
[h] <http://www.ucdp.uu.se>.
[i] <http://www.cru.uea.ac.uk/~timm/cty/obs/TYN_CY_1_1.html>.
[j] <http://www.cred.be/publications?page=1>.
[k] <http://databank.worldbank.org/ddp/home.do?Step=2&id=4&hActiveDimensionId=WDI_Series>.
[l] <http://www.cid.harvard.edu/ciddata/ciddata.html>.
[m] <http://www.worldreligiondatabase.org/wrd_default.asp>.

APPENDIX B. ALTERNATIVE APPROACHES TO ESTIMATING A GRAVITY MODEL FOR AFRICA

Gravity models of bilateral migration or trade are normally specified in terms of the logarithm of the amounts exchanged, consequently predicting positive volumes for each dyad of countries. Yet zero interactions are commonly observed for a substantial set of country pairs, both in trade and migration. The Global Bilateral Migration Database (World Bank, 2011a), adopted in the present analysis, reports the stock of migrants in 226 states or territories worldwide, originating from each of the same territories, for each decade from 1960 to 2000. From the 56 African states and territories included in this matrix, the migrant stocks are reported to be zero in some 53% of cases. Although some of these zeros may well represent under-reporting, the issue is not trivial.

The treatment of observations on zero outcomes in estimating gravity models has received considerably more attention in the context of trade than of migration, perhaps reflecting the greater abundance of bilateral trade data. A number of alternative approaches to the treatment of zero outcomes have emerged in this trade literature. The simplest is sometimes called "scaled" ordinary least squares (OLS), in which one is added to all migration (trade) levels prior to taking logarithms; alternatively, the transformed specification may be estimated adopting Tobit to address truncation of the dependent variable at zero (the natural logarithm of 1) (Wang and Winters, 1992; Eichengreen and Irwin, 1995). Eaton and Tamura (1994) introduced an alternative in which a parameter (α) is added to the amount of trade or migration instead of assuming this to be 1. This parameter is then estimated, along with other parameters, applying maximum likelihood to the non-linear, exponential form of the gravity equation. Santos Silva and Tenreyro (2006) advocated, instead, the use of a Poisson regression to estimate gravity models by pseudo-maximum likelihood, though there has been some debate as to the consistency of these estimates in the presence of a large portion of zeros (Martin and Pham, 2008; Santos Silva and Tenreyro, 2011). A fourth option, the Heckman, two-equation approach, requires an identifying variable that affects selection into zero versus positive migration but does not influence the volume of migration, given that some occurs; justifying any such exclusion can be tenuous. Moreover, the Heckman estimator is particularly sensitive to misspecification. As an alternative to this sample selection estimator, Manning et al. (1987) considered a two-part model, with separate estimation of volume and either a Probit or Logit for the selection into zero versus positive outcomes; these authors presented Monte Carlo evidence that this two-part approach may prove superior to the sample selection estimator.

In the text, this two-part estimator is adopted. Table 26.B1 includes estimates for a Tobit applied to the log of migrant stock plus 1 (the scaled approach), an Eaton–Tamura (ET), and a Poisson estimator, each applied to a specification identical to the first estimates in Table 26.9 in the text. The qualitative nature of the results is broadly similar across all

Table 26.B1 Estimates for a Tobit applied to the log of migrant stock plus one (the scaled approach), an Eaton–Tamura (ET), and a Poisson estimator

	SSA				North Africa			
	Tobit	*ET*	*Poisson*	*FE*	*Tobit*	*ET*	*Poisson*	*FE*
Ln GDP gap positive	0.696	0.648	0.139	0.455	1.382	1.165	1.229	1.078
	(27.99)	(31.78)	(2.57)	(26.98)	(22.00)	(21.23)	(11.90)	(20.62)
Ln GDP gap negative	0.137	0.185	0.391	0.154	0.286	0.332	0.748	0.285
	(1.74)	(2.64)	(2.50)	(2.74)	(3.43)	(4.62)	(2.75)	(4.28)
Ln GDP origin	−1.615	−2.431	−0.342	−2.337	−2.065	−0.754	0.896	−0.504
	(2.12)	(3.97)	(0.70)	(6.65)	(2.36)	(1.02)	(0.44)	(0.68)
Ln distance • ln GDP origin	0.256	0.339	0.056	0.308	0.386	0.250	0.020	0.178
	(2.97)	(4.85)	(0.94)	(7.84)	(4.14)	(3.18)	(0.08)	(2.40)
Ln distance	−4.729	−4.946	−0.921	−4.002	−4.578	−3.470	−1.599	−2.728
	(7.81)	(10.10)	(2.19)	(14.75)	(6.10)	(5.42)	(0.82)	(4.53)
Contiguous states	1.926	1.998	2.999	2.571	1.873	2.692	−0.292	2.226
	(10.53)	(17.83)	(13.16)	(24.21)	(4.94)	(10.34)	(0.52)	(8.41)
Landlocked country	−0.749	−0.602	0.119					
	(10.90)	(10.20)	(0.67)					
Major episodes of violence	−0.010	0.070	−0.081	0.013	−0.086	−0.024	0.081	0.004
	(0.53)	(4.75)	(1.48)	(0.53)	(1.68)	(0.56)	(0.89)	(0.09)
Polity index at origin	0.016	0.012	−0.015	−0.005	0.053	0.029	−0.094	0.003
	(2.84)	(2.42)	(0.88)	(0.87)	(1.58)	(0.96)	(1.37)	(0.10)
Common language	1.643	1.403	0.920	1.163	2.150	1.513	2.226	1.298
	(26.52)	(27.92)	(6.71)	(24.21)	(17.33)	(14.30)	(7.29)	(12.30)
Colonial link ever	3.559	2.387	1.785	2.615	1.310	0.822	1.088	1.514
	(15.55)	(14.15)	(8.81)	(15.73)	(2.97)	(2.15)	(3.14)	(3.89)
Ln population at origin	0.717	0.573	0.281	−0.069	1.303	1.400	−0.061	0.071
	(28.69)	(27.05)	(6.05)	(0.25)	(4.69)	(5.81)	(0.11)	(0.05)
Ln population at destination	0.925	0.858	0.499	0.548	0.985	0.853	0.675	0.648
	(68.12)	(74.35)	(20.55)	(48.71)	(35.75)	(33.15)	(8.70)	(25.38)
Ln population/area	0.248	0.316	0.170		−0.436	−0.188	−0.210	
	(4.30)	(6.30)	(1.48)		(2.69)	(1.39)	(0.62)	

Continued

Table 26.B1 Estimates for a Tobit applied to the log of migrant stock plus one (the scaled approach), an Eaton–Tamura (ET), and a Poisson estimator—cont'd

	SSA				North Africa			
	Tobit	*ET*	*Poisson*	*FE*	*Tobit*	*ET*	*Poisson*	*FE*
Ln percent population urban	0.324	0.298	0.117	−0.088	0.978	1.113	−2.657	0.244
	(4.54)	(4.84)	(0.80)	(0.69)	(1.73)	(2.23)	(1.83)	(0.32)
Percent pop. aged 15–29	0.060	0.055	0.043	0.022	0.015	0.022	−0.076	0.011
	(2.86)	(2.96)	(0.95)	(1.22)	(0.40)	(0.68)	(0.86)	(0.33)
Ln percent area arable	−0.198	−0.331	0.082		0.975	0.607	2.122	
	(2.87)	(5.51)	(0.61)		(2.87)	(2.07)	(2.95)	
Long term average rainfall	−0.575	−0.496	−0.839		−3.218	1.633	−11.525	
	(8.74)	(8.97)	(5.16)		(1.19)	(0.72)	(1.85)	
Abs. diff. min. rain/average	−0.835	−1.271	−1.401	−0.770	0.041	1.751	4.202	1.934
	(2.31)	(4.02)	(1.43)	(1.76)	(0.02)	(0.97)	(0.86)	(0.93)
Ln % arable • diff. min. rain	0.145	0.363	−0.024	0.187	−0.264	−0.898	−1.443	−0.809
	(1.04)	(2.91)	(0.08)	(1.06)	(0.30)	(1.21)	(0.81)	(0.99)
Year	−0.027	−0.025	−0.005	0.009	−0.043	−0.056	0.043	−0.012
	(8.06)	(8.64)	(0.67)	(1.03)	(1.83)	(2.77)	(0.95)	(0.34)
Intercept	73.948	76.963	16.098	14.192	87.443	104.602	−72.848	34.973
	(8.96)	(11.08)	(0.97)	(1.03)	(2.16)	(2.98)	(0.92)	(0.62)
Alpha		1.589				0.904		
		(39.29)				(14.57)		
Number observations	28,209	28,209	28,209	12,388	4038	4038	4038	2581
(Pseudo) R^2	0.144		0.602	0.477	0.155		0.770	0.515

Author's calculations. *T*-statistics for a zero null hypothesis are shown in parentheses. Standard errors are robust to heteroskedasticity.
Sources: see Appendix A.

four approaches to estimation. Indeed, the point estimates from the Eaton–Tamura model exhibit relatively small average absolute differences from the intensive margin estimates in Table 26.9, though the Poisson point estimates differ somewhat more substantially.

Table 26.B1 also includes fixed-effects (FE) estimates of the intensive margin equations, inserting dummies for each African country of origin and omitting resulting collinear terms. Again the point estimates differ relatively little from those in Table 26.9.

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