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# Part 1

## Assessing African Competitiveness



## Exports, FDI, and Competitiveness in Africa

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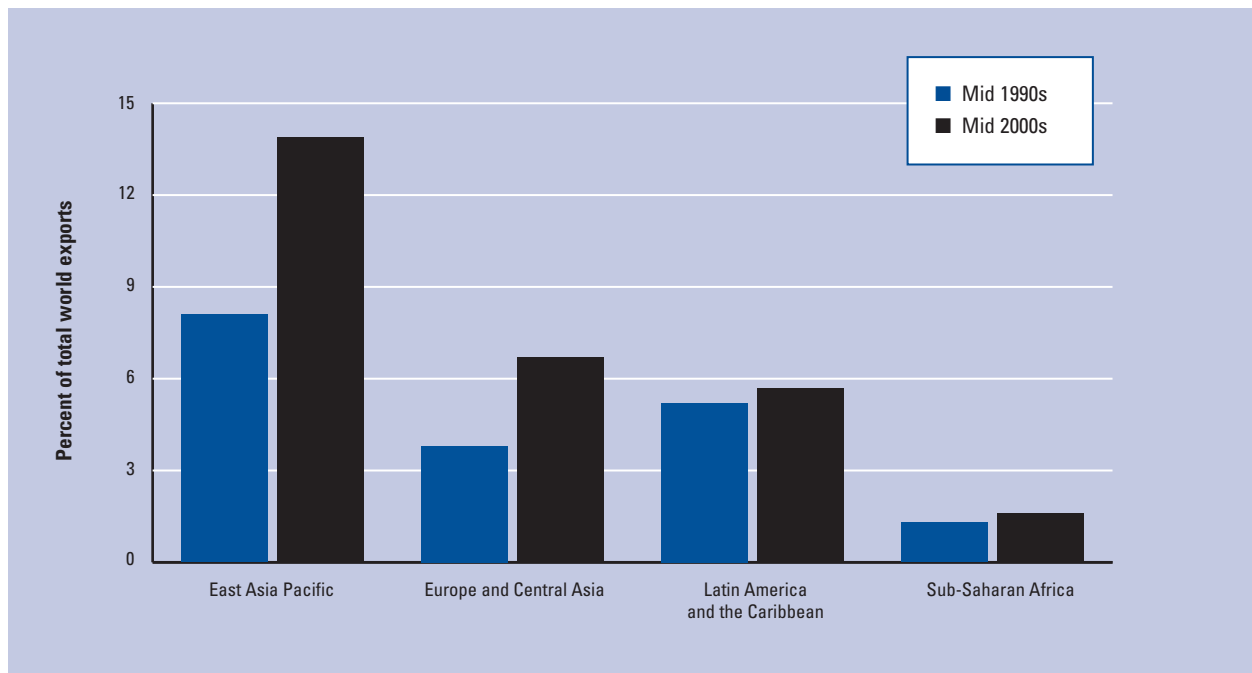
The aim of this *Report* is to highlight the prospects for strong, sustained, and shared growth in Africa and, more importantly, the obstacles to the continent's competitiveness and economic development. Such an assessment of Africa's economies comes at an important time. A consensus among policymakers and researchers has emerged that African countries have weathered the global economic crisis well. Yet questions remain as to how sustainable this growth will be over the longer term.

The recent economic downturn underscores the importance of developing a competitiveness-supporting economic environment that is based on productivity enhancements in order to better enable national economies to weather unexpected shocks and to ensure solid, long-term economic performance. This chapter assesses the competitiveness landscape in Africa through a variety of lenses. We look at the factors driving productivity in general, as well as the export performance and ability of African countries to attract growth-enhancing foreign direct investment (FDI).

Being for the most part small, open economies, African countries are well aware that a strong export performance is typically a prerequisite for reaching robust, sustained, and shared growth. In Africa, strong export performance does not mean only high export growth, but also increased diversification from low-value-added activities (such as the export of unprocessed commodities) to higher-value-added ones.<sup>1</sup> Such diversification lowers the volatility of growth through a reduced vulnerability of exports to external shocks. Exports of services can play an important role in this regard. According to Newfarmer et al., exports of services raises export growth, competitiveness, and diversification through lowering transaction costs in other export sectors, expanding existing activities, and creating new ones.<sup>2</sup> For example, tourism (discussed in Chapter 2.3) can have a positive impact on exports in the host country by creating foreign demand, enabling deeper understanding of foreign preferences and spillovers that raise quality standards, and thus making the existing export activities more competitive. Mauritius provides an example of a successful experience with tourism helping to diversify exports.<sup>3</sup>

African policymakers have recognized that FDI can also play a positive role in promoting growth, productivity, and development in their economies. FDI can be particularly beneficial for export sectors, as foreign companies help integrate developing countries into the global economy by easing access to foreign markets and including local enterprises in global production chains. Experiences from other world regions also suggest that FDI can help facilitate export diversification.<sup>4</sup>

Recently, the literature on FDI has found it to be beneficial for the host countries' growth when an enabling business environment—one that includes trade and investment openness—is in place. Especially when

**Figure 1: World export shares, by region**

Source: UN Comtrade database, authors' calculations.

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FDI is accompanied by increased and diversified trade, host countries tend to accelerate their growth rates.<sup>5</sup> Since the impact of FDI on growth and productivity is typically higher in manufacturing and services than in mining, FDI flows into the service sectors (e.g., telecommunications, banking) can support countries in their efforts to diversify production and exports. By slashing transaction costs, they also raise export competitiveness.

In this context, this chapter examines recent trends and the main impediments for integrating African economies into global export markets, attracting growth-enhancing FDI, and raising overall competitiveness.

#### Trade and FDI in Africa: Recent trends

Over the last two decades, world trade (measured in current US dollars) has tripled. Many factors have contributed to this extraordinary advance. Among them are the liberalization of trade, the falling costs of communications and transportation, the slicing up of global production chains, an increased need for natural resources in fast-growing developing countries, and an increased appetite for diversity as incomes rose across the globe. International trade in services has particularly taken off because of the reduction in communication costs and the digitization of services.

However, not all developing regions benefited from this trend. East Asia's share of world exports grew spectacularly from 3.3 percent in 1980 to 8 percent in

1995, and then to 14 percent in 2008. Europe and Central Asia, as well as Latin America and the Caribbean, lagged behind, going from 1.2 and 6.5 percent in 1980 to 7 and 6 percent of world exports, respectively, in 2008. Meanwhile, sub-Saharan Africa's share of world exports showed little advance over this same period, and varied within a range of 1.3 and 1.6 percent. By 2008, sub-Saharan Africa captured the smallest share of world exports of any region, exporting just US\$200 billion worth of goods for international markets, or US\$100 per capita (Figure 1).

Although the growth of African economies as a whole accelerated in the past decade, their export growth rates continued to lag behind that of other developing regions, thus further widening the gap between Africa and the rest. Moreover, growth in exports in Africa has been mostly driven by mining, which represented 73 percent of export growth between 1995 and 2008, the highest of all regions. The lack of production and export diversification—in terms of both goods and partners—made many African countries vulnerable to external shocks. Indeed, more diversified countries and regions such as East Africa weathered the crisis better (as discussed in Box 3).<sup>6</sup> Reversing Africa's marginalization in global trade, diversifying its exports, and moving them up on the technology ladder are, therefore, key policy priorities.

Because of the dual linkages between FDI and trade, FDI inflows have exhibited similar trends as trade, rising rapidly during 2000s. While developed countries

continued to receive the majority of FDI inflows until 2009, the long-term geographical pattern has been gradually changing, with more inflows going to developing countries, especially in Asia. Africa was no exception to the general rise in FDI—in fact, FDI inflows to the continent more than tripled between 2001 and 2009.<sup>7</sup>

Looking ahead, a large body of literature has underscored how important it is for African countries to be integrated in the world economy and have a strong, sophisticated, and well-diversified export sector in order to maintain and achieve sustained growth. Moreover, the importance of creating enabling environment to attract FDI into high-growth potential sectors, beyond mining, cannot be overstated. Achieving these objectives will help Africa to improve competitiveness of its economies and raise productivity in order to achieve robust, sustained, and shared growth.<sup>8</sup>

### Examining Africa's competitiveness

In order to identify the priority areas requiring urgent and sustained policy attention to improve competitiveness in Africa, in this section we provide a bird's eye view of the competitive landscape in Africa and an overview of where the continent stands vis-à-vis international benchmarks. We base this analysis on the World Economic Forum's Global Competitiveness Index (GCI).<sup>9</sup>

Within the GCI, *competitiveness* is defined as *the set of institutions, policies, and factors that determine the level of productivity of a country*.<sup>10</sup> The current and future levels of productivity, in turn, set the sustainable levels of prosperity that can be earned by an economy. In other words, more competitive economies tend to be able to produce higher levels of income for their citizens. The measurement of competitiveness is a complex undertaking. To this end, the GCI captures the idea that many different elements matter for competitiveness by looking at 12 distinct pillars:<sup>11</sup> institutions (public and private), infrastructure, the macroeconomic environment, health and primary education, higher education and training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication, and innovation.

Another important characteristic of the GCI is that it explicitly takes into account the fact that countries around the world are at different stages of economic development. Accordingly, the GCI distinguishes three stages of development. In its first stage, economies are *factor-driven* and countries compete based on their factor endowments—primarily unskilled labor and natural resources. As wages rise with advancing development, countries move into the *efficiency-driven* stage of development (the second stage), when they must begin to develop more efficient production processes and increase product quality in order to continue to be competitive. Finally, as countries move into the *innovation-driven*

**Table 1: Global Competitiveness Index 2010–2011 and 2009–2010 comparisons**

Country/Region	GCI 2010–2011		GCI 2009–2010
	Rank*	Score	Rank†
China	27	4.8	29
Tunisia	32	4.7	40
<i>Southeast Asian average</i>		4.3	
India	51	4.3	49
South Africa	54	4.3	45
Mauritius	55	4.3	57
Brazil	58	4.3	56
Russian Federation	63	4.2	63
Namibia	74	4.1	74
<i>North African average</i>		4.1	
Morocco	75	4.1	73
Botswana	76	4.1	66
<i>Latin American &amp; Caribbean average</i>		4.0	
Rwanda	80	4.0	n/a
Egypt	81	4.0	70
Algeria	86	4.0	83
Gambia, The	90	3.9	81
Libya	100	3.7	88
Benin	103	3.7	103
Senegal	104	3.7	92
Kenya	106	3.6	98
Cameroon	111	3.6	111
Tanzania	113	3.6	100
Ghana	114	3.6	114
Zambia	115	3.5	112
<i>Sub-Saharan African average</i>		3.5	
Cape Verde	117	3.5	n/a
Uganda	118	3.5	108
Ethiopia	119	3.5	118
Madagascar	124	3.5	121
Malawi	125	3.4	119
Swaziland	126	3.4	n/a
Nigeria	127	3.4	99
Lesotho	128	3.4	107
Côte d'Ivoire	129	3.3	116
Mozambique	131	3.3	129
Mali	132	3.3	130
Burkina Faso	134	3.2	128
Mauritania	135	3.1	127
Zimbabwe	136	3.0	132
Burundi	137	3.0	133
Angola	138	2.9	n/a
Chad	139	2.7	131

Source: World Economic Forum, 2009, 2010.

\* Out of 139 economies.

† Out of 133 economies.

stage, they are able to sustain higher wages and the associated standard of living only if their businesses are able to compete with new and unique products. At this third stage, companies must compete by producing new and different goods and services using the most sophisticated production processes.<sup>12</sup> The full description of the GCI is shown in Appendix A.

This next section will assess the overall competitiveness of North Africa and sub-Saharan Africa as well as the performance of individual countries compared with international standards. To put the analysis into a global context, we also include a number of comparator economies and regions (Latin America and the

### Box 1: Political unrest and competitiveness in North Africa

As discussed in the main text of this chapter, North Africa on average outperforms most sub-Saharan African countries, and Tunisia in particular receives a very strong assessment. The political unrest that the region has witnessed in recent months might make this assessment seem counterintuitive. However, it is very important to note that the GCI aims to gauge the extent to which countries have put in place the factors ensuring sustainable growth through productivity enhancements. It is not a measure of political risk. Nevertheless, it needs to be acknowledged that the recent political changes are likely to have a negative impact on the economy in the near term. The ongoing political transition will need to be accompanied by structural changes that could accelerate employment-intensive growth.

The recent events do not detract from the fact that Tunisia has been successful over recent decades. Its solid growth rates, averaging more than 4.7 percent between 1990 and 2010, have been widely attributed to the country's ability to put in place many factors favoring productivity, including better education, a more favorable environment for doing business, and the adoption of new technologies for productivity enhancements. Still, growth was not broad-based. Higher growth rates—according to Abed and Iradian, in the range of 6–8 percent a year<sup>1</sup>—and also more job-rich growth are needed in order for the benefits to spread to the middle and lower classes (see Box 1, Chapter 2.1).

The recent political change can be attributed in part to Tunisia's success across some areas and its less stellar performance in others: the country now has a more highly educated and well-informed population, which is demanding better job opportunities for the future than currently exist. It would benefit from enhancing the sophistication and knowledge intensity of its production processes, thus moving the economy from low-cost, low-value-added to a higher-value-added that would bring about job opportunities for the educated unemployed. At the same, adjustments to the educational system—including higher education—will be needed to reduce the mismatch between the existing skills and demand arising from these new job opportunities (see Chapter 2.1 on education).

In sum, we remain cautiously optimistic for Tunisia and the region as a whole, as long as the countries continue to put into place the reforms necessary for ensuring strong competitiveness and resilient economies.

**Source:** Abed and Iradian, 2011.

#### Note

1 Abed and Iradian 2011.

Caribbean,<sup>13</sup> Southeast Asia,<sup>14</sup> and the BRIC countries—Brazil, Russia, India, and China).

### Africa's competitiveness in an international context

On average, both North Africa and sub-Saharan Africa are outperformed by Southeast Asia and by all of the BRIC economies. North Africa is ahead of Latin America, however, and also scores significantly higher than sub-Saharan Africa. Recent events in North Africa are discussed in Box 1. Only three countries from the African continent figure in the top half of the overall rankings: Tunisia (32nd), South Africa (54th), and Mauritius (55th) (Table 2). Tunisia is outperformed by China, the most competitive of the BRIC countries, but is more competitive than all other comparators in the table. South Africa and Mauritius are also behind China, as well as behind Southeast Asia and India, but ahead of Brazil, Russia, and the other regional averages.

Table 1 shows that there is a second group of countries that cluster together at approximately the same competitiveness level as the North African average, namely Namibia, Morocco, and Botswana, ranked 74th, 75th, and 76th, respectively. All countries that rank below these three perform worse than the Latin American and the Caribbean average, with Algeria and Libya outperformed by a number of sub-Saharan African countries. The remaining sub-Saharan African countries that do better than the regional average are Rwanda, Gambia, Benin, Senegal, Kenya, Cameroon, Tanzania, Ghana, and Zambia (Table 4).

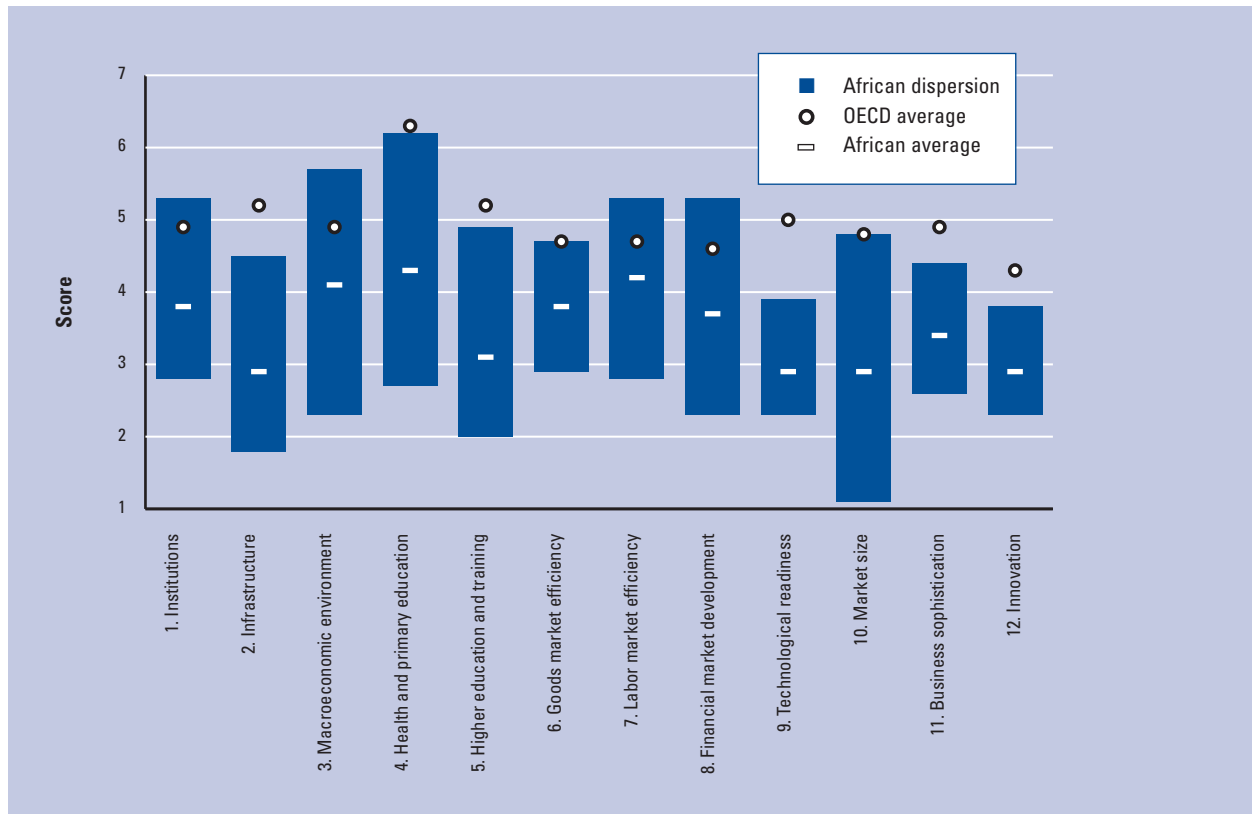
On average, as we have seen in past years, performances vary greatly between the countries in the north and the south of the continent (Table 2). North Africa outperforms sub-Saharan Africa in 10 of the 12 pillars, namely institutions, infrastructure, macroeconomic stability, health and primary education (by a large margin), higher education and training, goods market efficiency, technological readiness, market size, business sophistication, and innovation. Sub-Saharan Africa outperforms North Africa on average in only two pillars: labor market efficiency and financial market sophistication. Nevertheless, vast differences in the sophistication of financial sectors exist even within sub-Saharan Africa, with financial sectors in low-income countries in that region being among the world's least developed. In contrast, financial sectors in several sub-Saharan African middle-income countries/emerging markets (e.g., Mauritius and South Africa) and a few frontier markets (e.g., Kenya) show much greater sophistication than the rest of the continent. Sub-Saharan Africa's middle-income countries also fare well relative to those in other regions of the world.

A comparison with other regions and countries highlights Africa's relative strengths and weaknesses. In particular, North Africa's performance is very close to the Southeast Asian average in the quality of institutions, infrastructure, and health and primary education

Table 2: The Global Competitiveness Index 2010–2011: Africa and comparators

Economy/Region	SUBINDEXES							
	OVERALL INDEX		Basic requirements		Efficiency enhancers		Innovation and sophistication factors	
	Overall rank	Score	Rank	Score	Rank	Score	Rank	Score
<b>NORTH AFRICA</b>								
Algeria	86	4.0	80	4.3	107	3.5	108	3.0
Egypt	81	4.0	89	4.2	82	3.8	68	3.5
Libya	100	3.7	88	4.2	127	3.2	135	2.6
Morocco	75	4.1	64	4.6	88	3.8	79	3.4
Tunisia	32	4.7	31	5.3	50	4.3	34	4.1
<b>North African average</b>		4.1		4.5		3.7		3.3
<b>SUB-SAHARAN AFRICA</b>								
Angola	138	2.9	138	2.8	130	3.2	139	2.5
Benin	103	3.7	104	3.9	120	3.4	81	3.3
Botswana	76	4.1	76	4.4	85	3.8	93	3.2
Burkina Faso	134	3.2	134	3.3	133	3.1	127	2.9
Burundi	137	3.0	135	3.2	139	2.5	138	2.6
Cameroon	111	3.6	111	3.8	121	3.3	105	3.1
Cape Verde	117	3.5	96	4.1	129	3.2	128	2.8
Chad	139	2.7	139	2.7	137	2.8	130	2.8
Côte d'Ivoire	129	3.3	133	3.4	116	3.4	110	3.0
Ethiopia	119	3.5	119	3.6	118	3.4	117	3.0
Gambia, The	90	3.9	90	4.2	105	3.5	64	3.5
Ghana	114	3.6	122	3.5	96	3.6	100	3.2
Kenya	106	3.6	126	3.5	79	3.9	58	3.6
Lesotho	128	3.4	124	3.5	132	3.1	116	3.0
Madagascar	124	3.5	118	3.6	124	3.2	113	3.0
Malawi	125	3.4	129	3.5	110	3.4	84	3.3
Mali	132	3.3	128	3.5	135	3.0	112	3.0
Mauritania	135	3.1	131	3.4	138	2.8	134	2.6
Mauritius	55	4.3	47	4.8	66	4.1	59	3.6
Mozambique	131	3.3	130	3.4	128	3.2	101	3.1
Namibia	74	4.1	54	4.7	91	3.8	92	3.2
Nigeria	127	3.4	136	3.1	84	3.8	83	3.3
Rwanda	80	4.0	84	4.3	98	3.6	87	3.3
Senegal	104	3.7	108	3.8	108	3.5	67	3.5
South Africa	54	4.3	79	4.4	42	4.4	43	3.9
Swaziland	126	3.4	110	3.8	126	3.2	131	2.8
Tanzania	113	3.6	116	3.7	114	3.4	94	3.2
Uganda	118	3.5	123	3.5	102	3.6	111	3.0
Zambia	115	3.5	121	3.6	101	3.6	90	3.3
Zimbabwe	136	3.0	137	3.0	134	3.0	122	2.9
<b>Sub-Saharan African average</b>		3.5		3.7		3.4		3.1
<b>BRICs</b>								
Brazil	58	4.3	86	4.3	44	4.4	38	4.0
China	27	4.8	30	5.3	29	4.6	31	4.1
India	51	4.3	81	4.3	38	4.4	42	4.0
Russian Federation	63	4.2	65	4.5	53	4.2	80	3.4
<b>BRICs average</b>		4.4		4.6		4.4		3.9
<b>Latin American &amp; Caribbean average</b>		4.0		4.3		3.9		3.4
<b>Southeast Asian average</b>		4.3		4.6		4.2		3.7

Source: World Economic Forum, 2010; authors' calculations.

**Figure 2: GCI score dispersion among African countries and OECD comparison**

Source: World Economic Forum, 2010; authors' calculations.

pillars. Yet it is weaker than the Latin America and Caribbean average in half of the pillars, namely health and primary education, higher education and training, labor market efficiency, financial market development, technological readiness, and business sophistication. Sub-Saharan Africa's institutions are better assessed than those of the Latin America and Caribbean region, Russia, and Brazil. Further, sub-Saharan Africa's labor markets are on average more efficient than those of Latin America and the Caribbean on average, as well as those of both India and Brazil.

Yet these averages mask significant differences among individual countries across the continent. Tunisia and South Africa have overall scores (out of 7) of 4.7 and 4.3, respectively, compared with Chad's score of 2.7. Figure 2 provides a visual representation of the dispersion in scores of the 35 African counties, with the regional averages shown by the line in the middle of each bar. In addition, we show the average performance of the group of Organisation for Economic Co-operation and Development (OECD) member countries, to provide a stringent international benchmark in each issue area (the OECD score is shown in the figure by a dot).

The figure demonstrates that the areas with the largest dispersions among African countries are in the macroeconomic environment, health and primary

education, and market size pillars. The smallest gaps are in goods and labor market efficiency, technological readiness, business sophistication, and innovation. The best-performing countries from the continent actually outperform the OECD average in four areas: institutions, the macroeconomic environment, labor market efficiency, and financial market development. The biggest gaps in relation to the OECD, even compared with the best-performing countries in the region, relate to the quality of infrastructure and the level of technological readiness.

More generally, this analysis demonstrates the significant diversity among individual country performances within the continent in the various pillars. Table 3 shows the rankings of African countries in the 12 pillars of the Index, highlighting the three best performers in each case. As the table shows, Tunisia is one of the three highest-ranked countries in 9 of the 12 pillars, while Mauritius and South Africa are both among the top three in 6 pillars. Namibia, Morocco, and Rwanda are among the top three in 2 pillars.

Botswana, Rwanda, and Tunisia have notably strong institutional environments, ranked 32nd, 19th, and 23rd, respectively, on a par with such countries as Japan and France. Eleven other countries from Africa are in the top half of the institutional rankings: Gambia, Namibia, Mauritius, South Africa, Malawi, Cape Verde, Egypt, Ethiopia, Zambia, Morocco,

Table 3: Top three African performers in each pillar of the GCI

Country	1. Institutions	2. Infra-structure	3. Macro-economic environment	4. Health and primary education	5. Higher education and training	6. Goods market efficiency	7. Labor market efficiency	8. Financial market development	9. Technological readiness	10. Market size	11. Business sophistication	12. Innovation
	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank	Rank
Algeria	98	87	57	<b>77</b>	98	126	123	135	106	50	108	107
Angola	119	136	122	139	138	133	87	134	130	64	139	133
Benin	87	113	82	108	112	100	85	95	122	124	99	60
Botswana	<b>32</b>	84	74	114	94	58	61	47	99	102	104	74
Burkina Faso	90	134	98	135	135	120	91	128	124	119	137	90
Burundi	138	132	121	120	139	137	81	139	137	137	138	134
Cameroon	107	126	53	116	117	119	99	123	118	91	116	95
Cape Verde	56	109	102	88	109	111	122	104	79	139	131	117
Chad	135	137	134	138	136	138	95	137	138	120	133	115
Côte d'Ivoire	133	99	94	136	116	118	105	112	102	94	112	109
Egypt	57	64	129	91	97	90	133	82	87	<b>26</b>	63	83
Ethiopia	59	115	127	119	129	92	72	121	133	79	123	105
Gambia, The	37	69	117	124	103	66	<b>16</b>	76	97	138	65	62
Ghana	67	106	136	122	108	75	93	60	117	83	97	99
Kenya	123	102	128	121	96	88	46	<b>27</b>	101	74	62	56
Lesotho	100	120	77	131	124	84	86	114	129	135	114	113
Libya	111	95	<b>7</b>	115	95	134	139	130	114	69	136	131
Madagascar	129	130	112	103	128	107	67	131	123	110	124	102
Malawi	52	131	135	125	120	85	50	64	121	127	89	72
Mali	109	121	65	134	132	124	121	133	128	117	128	91
Mauritania	116	122	118	127	137	131	114	138	132	130	134	132
Mauritius	43	<b>58</b>	62	<b>59</b>	<b>70</b>	<b>31</b>	59	29	<b>61</b>	112	<b>47</b>	82
Morocco	66	71	<b>31</b>	94	102	77	130	74	<b>75</b>	57	78	81
Mozambique	99	119	104	133	134	112	116	116	113	113	110	84
Namibia	38	<b>54</b>	40	112	111	56	55	<b>24</b>	88	114	88	96
Nigeria	121	135	97	137	118	87	74	84	104	<b>30</b>	76	98
Rwanda	<b>19</b>	101	106	111	121	70	<b>9</b>	69	100	128	94	71
Senegal	76	112	89	118	110	79	109	107	93	105	84	<b>55</b>
South Africa	47	63	43	129	<b>75</b>	<b>40</b>	97	<b>9</b>	76	<b>25</b>	<b>38</b>	<b>44</b>
Swaziland	70	94	92	130	125	106	90	80	136	132	121	135
Tanzania	83	128	115	113	133	108	77	90	131	81	98	86
Tunisia	<b>23</b>	<b>46</b>	<b>38</b>	<b>31</b>	<b>30</b>	<b>33</b>	79	58	<b>55</b>	67	<b>42</b>	<b>31</b>
Uganda	104	127	114	117	127	117	<b>27</b>	72	112	92	120	104
Zambia	65	118	120	128	114	65	107	49	110	111	90	80
Zimbabwe	105	129	139	126	115	130	129	105	135	134	119	122
<b>Global leader</b>	<b>SGP</b>	<b>HKG</b>	<b>BRN</b>	<b>BEL</b>	<b>FIN</b>	<b>SGP</b>	<b>SGP</b>	<b>HKG</b>	<b>SWE</b>	<b>USA</b>	<b>JPN</b>	<b>USA</b>

Source: World Economic Forum, 2010.

Notes: Ranks of the best three performers are highlighted in blue. *BEL* = Belgium, *BRN* = Brunei Darussalam, *FIN* = Finland, *HKG* = Hong Kong SAR, *JPN* = Japan, *SGP* = Singapore, *SWE* = Sweden, and *USA* = the United States.

and Ghana. Having built up strong institutional environments by international standards, these countries provide examples to follow for other countries in Africa. The large number of African countries at the bottom of the rankings in this area demonstrates the extent to which positive examples are critical for the region.

Mauritius, Namibia, and Tunisia are the top-ranked African countries for infrastructure, placing at 58th, 54th, and 46th, respectively. These countries have built good transportation infrastructures by regional standards, particularly their roads and ports. They are joined in the top half of the rankings by South Africa (63rd), Egypt (64th), and Gambia (69th). Yet even the ranks of these best regional performers remain middling, and the sheer underdevelopment of infrastructure in most of the continent is reflected by the much lower ranks of most African countries in this pillar.

The top three performers in the macroeconomic environment pillar include one oil-exporting country, Libya (ranked 7th), as well as two other North African countries, Morocco and Tunisia (ranked 31st and 38th, respectively). Six other countries are in the top half of the rankings (Namibia, South Africa, Cameroon, Algeria, Mauritius, and Mali). However, Table 3 shows that most African countries receive a poor assessment, which is often related to the management of the government finances. Although this is clearly a problem that is not specific to Africa, even better fiscal and monetary management are needed in most countries, the improvements achieved in the run-up to the global financial crisis notwithstanding.

Health and primary education remains among the greatest concerns for Africa, given that among the top three regional performers—Algeria, Mauritius, and Tunisia—only two of them, Tunisia and Mauritius, are ranked in the top half of countries in this pillar. In fact, all but five countries are in the bottom third of the rankings, with many rounding out the very bottom group (indeed, all but one of the bottom-10 ranked countries hail from Africa). Poor health indicators related in large part to high rates of communicable diseases, low primary education enrollment, and poor assessments of most national primary educational systems explain this poor result. This is arguably the area requiring the most urgent attention for improving Africa's competitiveness in the aggregate.

In terms of higher education and training, although the spread between the most and least successful countries in this area is smaller than it is for some of the other pillars, the overall performances are relatively weak. The top three ranked countries are Mauritius, South Africa, and Tunisia. However, of these three, only Tunisia places in the top half of all countries, illustrating the quite low rankings for countries from the region overall in this pillar. It is perhaps not surprising that secondary education and university enrollment rates and the assess-

ment of the quality of higher education remain weak in the region, given that the primary educational base on which to build has not yet been put into place in most countries. This will be a critical area for attention as countries move up the value chain toward more complex production.

The situation is somewhat more positive when turning to the functioning of markets in Africa. The top three countries in the goods market efficiency pillar—Mauritius, South Africa, and Tunisia—have goods markets that are similar to those of countries such as Chile and Korea in their efficiency, although all remain below the average of OECD countries shown in Figure 2. South Africa, in particular, is characterized by strong competition in the market, a taxation system that is not distortive to business decisions, and an agricultural sector that is not very costly to the economy (unlike in many industrialized countries). Yet it is clear that most countries in Africa remain hobbled by regulations and other obstacles that diminish the efficiency with which goods and services are traded in their economies. Only four other countries are in the top half of the rankings in this pillar: Namibia, Botswana, Zambia, and Gambia. Eighteen African countries are in the bottom third of the rankings. Much can be done in the region to inject more competition into markets and make starting a business in the region less difficult.

Labor markets constitute another area where a few countries stand out for their comparatively good performance while most lag behind, and where we see some strong differences between North African and sub-Saharan African countries. Rwanda, Gambia, and Uganda receive the highest assessments, ranked 9th, 16th, and 27th, respectively, in this pillar. They are joined at the top half of the rankings by six other African countries: Kenya, Malawi, Namibia, Mauritius, Botswana, and Madagascar. These countries, to varying degrees, can count on flexible hiring and firing practices and relatively low non-wage labor costs. However, despite these relatively good performers, the table also shows that the labor markets in most African countries are among the least flexible and least efficient in the world, as also evidenced by high levels of unemployment in middle-income countries such as South Africa, Tunisia, and Botswana, as well as very high "working poverty" levels in many of the poorest countries in the region. Such labor market inefficiencies have been among the key factors setting off the political unrest throughout North Africa in recent months. Much must be done on the continent to free Africa's labor markets and unleash the potential of the region's workforce.

Financial markets provide a somewhat more positive picture, although significant disparities in terms of financial development remain. South Africa, ranked 1st in the region and an impressive 9th overall, has highly developed financial markets on a par with Switzerland and Canada, with relatively easy access to capital from

various sources, sound banks, and a well-regulated securities market. Although their financial markets are less developed than that of South Africa, Namibia, Kenya, and Mauritius also are ranked in the top third in this pillar, well ahead of most other countries in the region. Six other countries have financial markets that are placed in the top half of the rankings: Botswana, Zambia, Tunisia, Ghana, Malawi, and Rwanda. Yet, particularly given the turbulence seen in recent years in global financial markets, efforts to further develop and deepen Africa's financial markets, including additional strengthening of regulatory and supervisory frameworks, are necessary to ensure that financial resources in these countries are both available and allocated to their best use. It is notable that eight of the bottom-ten ranked countries in this pillar are from Africa, including countries from both North Africa and sub-Saharan Africa.

As Figure 2 shows, technological readiness is an area where African countries do overall quite poorly as a group and where they are well behind the OECD average. As shown in Table 3, the highest-ranked country in this area is Tunisia, at a relatively low 55th, and it is joined in the top half of the rankings only by Mauritius (61st). In fact, 28 of the 35 African countries are in the bottom third, and occupy eight of the bottom ten places overall. This is a reflection of the very low penetration rates of most ICT tools on the continent, related in part to the low prioritization given by many governments to encouraging information communication technologies (ICT) and other new technology adoption, as well as to low educational attainment. Other bottlenecks, such as the vast gap in energy supply and hence its relatively high cost, impede more widespread use of the Internet. Nevertheless, there are areas where Africa can be proud of its achievements—such as the innovative applications of m-banking (Kenya); m-agriculture (Niger, Senegal); and, in general, the rapid adoption of the mobile technology. In fact, several African frontier markets (e.g., Ghana, Kenya, and Senegal) are ahead of major emerging market economies such as India in the usage of mobile phones, demonstrating that in an enabling environment Africa can rapidly adopt modern technology.<sup>15</sup> Moreover, in recent years Africa has been the fastest-growing market for mobile phones in the world,<sup>16</sup> albeit from a low base. Despite the recent significant uptake of some technologies, however, ICT overall is an area where, in many cases, countries in other regions are simply moving faster. Given the significant potential of new technologies for information exchange and productivity enhancement, this is another clear area requiring urgent and sustained attention.

The size of markets also varies greatly among African countries. Table 3 highlights the three largest markets: those of South Africa, Egypt, and Nigeria. These three countries benefit from economies of scale afforded by significant domestic and foreign (trade) markets. While many African countries clearly cannot

simply enlarge their domestic market size, they could do more to open their markets to trade and thus benefit from an enlarged foreign market size. There are many overlapping regional trade arrangements currently in place on the continent, most of which have met with mixed success at best. Trade barriers remain endemic in the region despite the great benefits that could be reaped by greater regional integration. Africa's export performance will be discussed in a later part of this chapter.

Turning to the most complex areas measured by the GCI, business sophistication is not yet an area of critical concern for most African countries, since they can still greatly enhance their productivity and competitiveness by improving on the more basic areas discussed above. However, for the few African countries that are nearing the transition to the most advanced stage of development, this area will become increasingly important. As luck would have it, the top three countries in this pillar—Mauritius, South Africa, and Tunisia—are classified in the efficiency-driven stage and therefore are nearing the stage when these more complex factors will become very important.

Finally, Kenya, Senegal, South Africa, and Tunisia are the top regional performers with respect to innovation, on a par with such innovative countries as India and Italy. These countries have high-quality scientific research institutions, invest strongly in research and development, and are characterized by a significant level of collaboration between business and universities in research. The low rankings of the other countries from the region should not be of significant concern at this stage, given the importance of focusing on the more basic areas for improvement first.

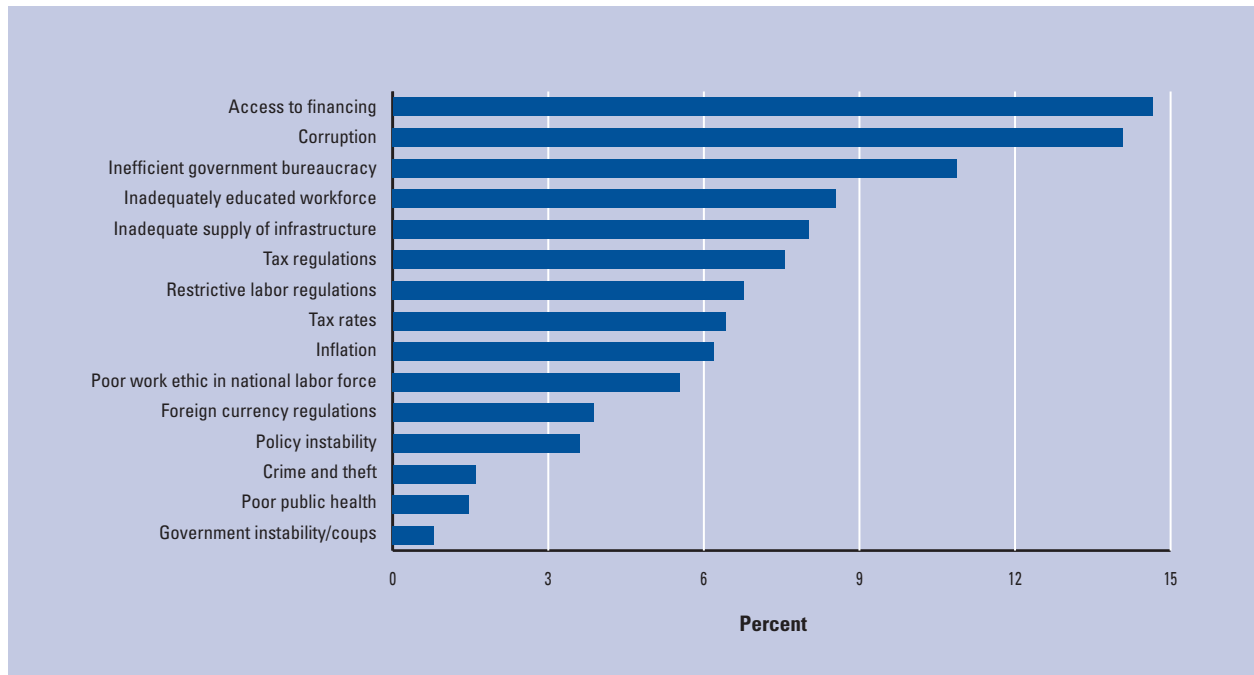
The overall picture is that strong area-specific performances are concentrated among a relatively small group of African countries, although pockets of excellence exist in a number of others. This demonstrates that Africa is home to a number of countries that provide strong best practice examples in various areas for the other African countries struggling to improve their competitiveness.

### The most problematic factors for doing business in Africa

The results of the GCI thus provide a good sense of the many factors that are holding back Africa's competitiveness. To complement this analysis, each year the World Economic Forum collects the perspective of CEOs and top executives from around the world on the main bottlenecks to doing business in their countries. Specifically, they are asked to rank the most problematic factors that they face in doing business in their country out of 15 possible factors. Figures 3 and 4 show the aggregated results of these responses for North Africa and sub-Saharan Africa on average, respectively.

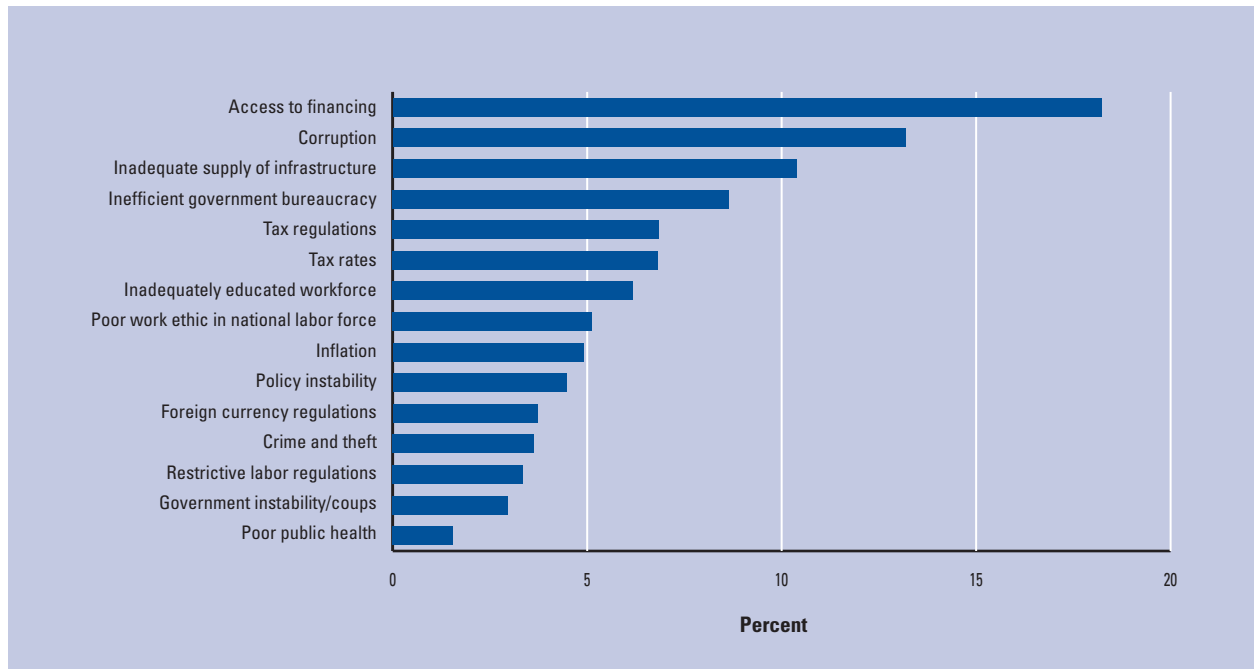
Figures 3 and 4 show that the top two factors for both regions are the same, and in the same order: insufficient access to financing and corruption. Although

**Figure 3: Most problematic factors for doing business in North Africa (percent of respondents)**



Source: World Economic Forum Executive Opinion Survey, 2010.

**Figure 4: Most problematic factors for doing business in sub-Saharan Africa (percent of respondents)**



Source: World Economic Forum Executive Opinion Survey, 2010.

**Table 4: The evolution of key sectors and sub-Saharan Africa's performance: World market shares, by industry and region (1995–97 and 2006–08)**

	Light manufacturing		Heavy manufacturing		Agricultural commodities		Agribusiness		Mining	
	1995–97	2006–08	1995–97	2006–08	1995–97	2006–08	1995–97	2006–08	1995–97	2006–08
East Asia and Pacific	14.9	25.1	5.3	13.8	10.2	9.6	10.0	12.2	6.1	7.6
Europe and Central Asia	3.3	5.6	1.5	3.3	11.9	12.0	3.5	5.3	9.8	13.0
Latin and Central America	3.6	3.4	3.4	4.0	12.9	10.8	10.9	12.6	8.1	8.2
Middle East and North Africa	0.7	0.9	0.2	0.3	3.0	6.7	1.3	1.8	4.2	5.1
NON-OECD	12.3	7.3	10.8	11.3	1.7	9.9	5.6	3.5	15.4	19.1
OECD	61.6	53.2	78.1	66.3	52.4	45.6	65.5	60.8	52.1	41.3
South Asia	2.7	3.6	0.3	0.6	2.5	2.7	1.7	2.2	1.0	1.9
Sub-Saharan Africa	0.9	0.9	0.3	0.4	5.4	2.7	1.5	1.7	3.4	3.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: UN Comtrade database, World Bank calculations.

these receive a relatively even weight in North Africa, in sub-Saharan Africa the lack of financing is the measurably more onerous impediment. Both regions also highlight inefficient government bureaucracy as well as an inadequate supply of infrastructure as major challenges.

It is interesting to note that, while business leaders in both regions also point to an inadequately educated workforce as a serious obstacle to doing business, poor public health is placed far down the list in both cases. This is curious given the major health challenges in many African countries, particularly in sub-Saharan Africa, and seems to indicate that business leaders in African countries do not consider that it significantly affects their ability to do business, at least not in comparison with other possible impediments. Once again, vast differences exist across countries. For example, according to the 2007 UNDP's *Swaziland Human Development Report: HIV and AIDS and Culture*, the widespread prevalence of HIV/AIDS in Swaziland—which, at about 26 percent of the 15–49 age group is the highest in the world—threatens not only competitiveness, but the very existence of the nation.<sup>17</sup>

However, despite this mystery about the health issues, the results of the Survey support the general findings discussed in the section above, reinforcing what has been known for some time. African countries must continue to develop their public institutions and financial markets, build up their infrastructure, and upgrade their educational systems. Indeed, given its importance, Chapter 2.1 of this *Report*, contributed by the African Development Bank, explores how to improve the higher educational system in Africa.

### Africa's export composition and challenges

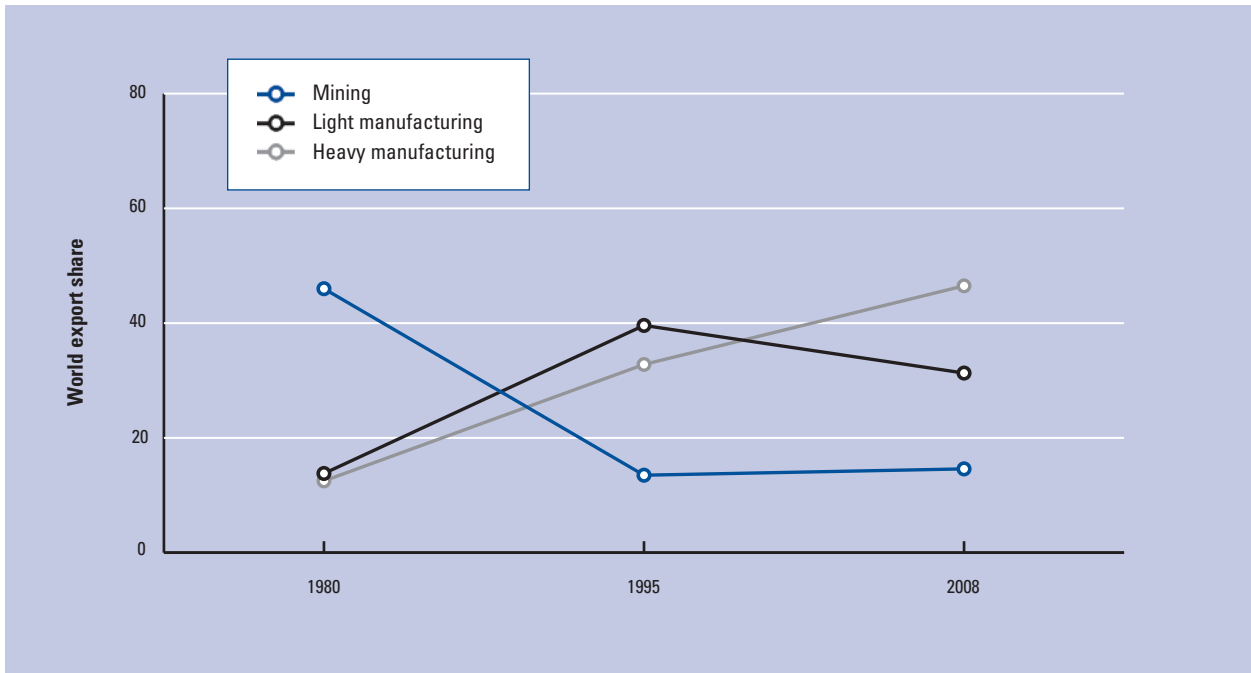
The major cross-cutting policy areas that constrain Africa's export competitiveness discussed above include those that increase indirect costs—trade logistics and infrastructure—and those that relate to a poor business environment, such as the availability of skills and the ability to absorb technology. These are also the areas in which sub-Saharan Africa in particular scores relatively poorly in comparison with other regions according to the Global Competitiveness Index. To achieve industrialization, export competitiveness, and subsequently sustained and more broad-based growth, the subcontinent needs to put special emphasis on making progress in these areas. Factors viewed as necessary for diversifying production and exports through export of services are similar: (1) human capital; (2) infrastructure, especially pertaining to telecommunications; and (3) adequate institutions, in particular in the area of regulations and contract enforcement.<sup>18</sup>

Given the daunting list of constraints that depress African productivity and export growth, African governments will need to (1) prioritize and sequence reforms and investments in the business environment and infrastructure in order to unleash the potential for growth in their industries, and (2) bring together policies to promote competitiveness within a coherent strategy rather than as a series of ad hoc interventions. Experience shows that, in isolation, these interventions tend to be ineffective.

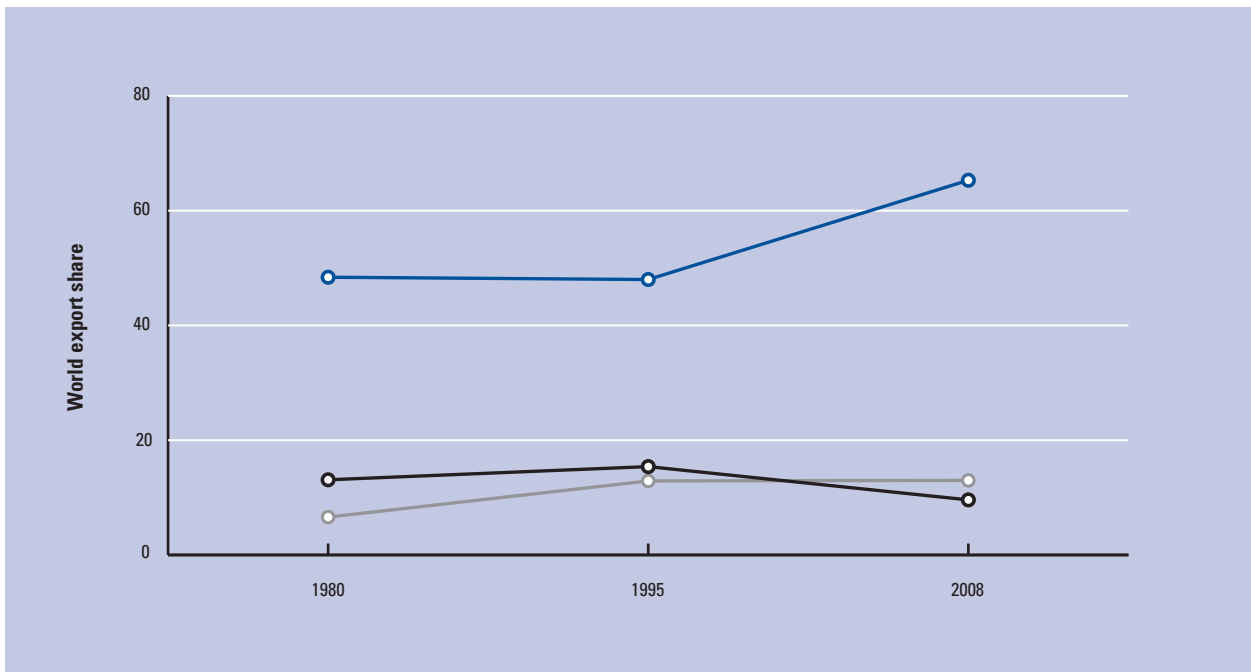
There is new hope for Africa, grounded in improved macroeconomic frameworks and policies, the rise of an African middle class, and the opportunity presented by tighter links with fast-growing emerging markets. In the long term, as wages rise in these countries, Africa's comparative advantage could shift toward manufactures

**Figure 5: Composition of world export of light manufacturing, heavy manufacturing, and mining, 1980–2008**

5a: East Asia Pacific



5b: Sub-Saharan Africa



Source: UN Comtrade database, World Bank calculations.

and new export growth opportunities may open up. This new opportunity is important given how little progress has been made to date: sub-Saharan Africa's international competitiveness in individual industries, especially in manufacturing and agro-processing, has seen little improvement over the last two decades. Its exports remained undiversified and their growth was overwhelmingly accounted for by natural resources. Sub-Saharan Africa's world market share in processing industries is not only low but has remained virtually unchanged. The region exports just 0.9 and 0.3 percent of world light and heavy manufacturing exports, respectively, while developing countries in the aggregate saw their share of world exports increase dramatically, from 19 percent in 1995 to 33 percent in 2008 (Table 4).<sup>19</sup>

Of the US\$140 billion growth in sub-Saharan African exports between 1995 and 2008, 73 percent were mining-related commodities. By comparison, the export growth that spurred the Asian economies has increasingly relied on an expanding list of manufactures. By the 2000s, East Asia Pacific was already going through its second wave of export diversification, moving from relying mainly on light manufacturing into higher-value-added heavy manufactures. In 2006–08, about 80 percent of East Asian exports came from manufacturing industries (Figure 5).<sup>20</sup>

### The evolution of key industries and Africa's performance

Constraints that depress countries' productivity and ability to compete in the global markets tend to have varying degrees of relevance for different industries. Hence prioritizing reforms depends on the specific industries in which countries compete. Manufactures and agribusiness represent about 70 percent of world export in goods and provide many opportunities for learning, absorbing technology, and job creation. Therefore we focus our analysis on these industries—light manufacturing, agricultural commodities, agribusiness, and heavy manufacturing—in the next sections. Exports of mining products are discussed in Box 2. The recent experience in trade diversification in East Africa is discussed in Box 3.

#### Light manufacturing

In value terms, exports of light manufacturing from sub-Saharan Africa grew at a fair pace between 1995–97 and 2006–08, slightly more than doubling to US\$19.8 billion. However, sub-Saharan Africa's overall share of light manufacturing world exports has remained low, even declining from 1.2 percent in 1980 to less than 0.9 percent in 2008. Top exporters in sub-Saharan Africa are South Africa, Botswana, Namibia, Mauritius, and Kenya, which together accounted for close to 75 percent of exports of light manufactures in 2008. These were followed by emerging manufacturers such as

### Box 2: Mining in sub-Saharan Africa

The mining sector is where sub-Saharan Africa captures the highest share of world exports. Its exports of mining commodities, primarily oil and metals, grew from US\$9 billion in 1995–97 to about US\$130 billion in 2006–08, rising from 3.4 percent of world exports to 3.8 percent. This increase is in part attributable to rising prices of major commodities such as crude petroleum and copper, where volumes doubled and prices have increased more than five- and threefold, respectively, since early 1999. While oil and metals comprised equal shares of African exports in 1995, fuel exports made up three-quarters of all mining exports from the region by 2008.

Studies reveal both the benefits and problems associated with resource extraction. Alexeev and Conrad find that, in the long run, resource-rich countries have significantly higher levels of income than others.<sup>1</sup> However, Collier and Goderis show that, while commodity exports initially increase output, they cannot sustain growth.<sup>2</sup> They suggest that, after two decades, output for the typical African commodity exporter may be around 25 percent lower than it would have been without the resource boom.

Although these findings have important policy implications in terms of the potential effects of the "Dutch Disease," geology does not have to be destiny. Countries such as Chile and Botswana—which have been among the fastest-growing economies of the world in the past two decades—have relied almost entirely on mining exports to spur their growth. Others, such as Malaysia and Indonesia, were able to derive a significant share of their export revenues from mining, while at the same time growing competitive manufacturing industries. Sub-Saharan African countries rich in mining and commodities could offset the effects of the "resource curse" by using the revenues for investment instead of consumption, thus moderating the increase in demand for consumer goods and services that could otherwise fuel a Dutch Disease. With strategic investments, such as those in trade infrastructure along main trade corridors, mining revenues could help improve the overall competitiveness of these economies and support growth and job creation.

#### Notes

- 1 Alexeev and Conrad 2009.
- 2 Collier and Goderis 2007, 2008.

### Box 3: Trade diversification in East Africa during the global recession

#### Background: East Africa's resilience during the crisis

At an annual growth rate of about 7 percent, the East African Community (EAC)—consisting of Burundi, Kenya, Rwanda, Tanzania, and Uganda—was among the fastest-growing groups worldwide during 2005–08. In 2009, its median growth rate of 4.7 percent continued to place the EAC among the fastest-growing subregions. This box highlights the factors behind this resilience, with a focus on trade and especially export diversification. Besides building resilience to shocks such as the global economic crisis, export diversification is a key for the long-term development of African countries because it reflects and reinforces the shift in production from low- to higher-value-added goods. Moreover, recent research found that, in Africa, policies that enhance export diversification accelerate countries' growth by raising total factor productivity.<sup>1</sup>

Because of its limited integration into global financial markets, East Africa was mostly shielded from the direct impact of the crisis through the financial channel. The trade transmission channel was not particularly harmful because of the region's weaker trade ties with Europe and its greater regional ties. Similarly, FDI inflows into EAC countries increased marginally in 2009, while they declined substantially in many other developing regions.

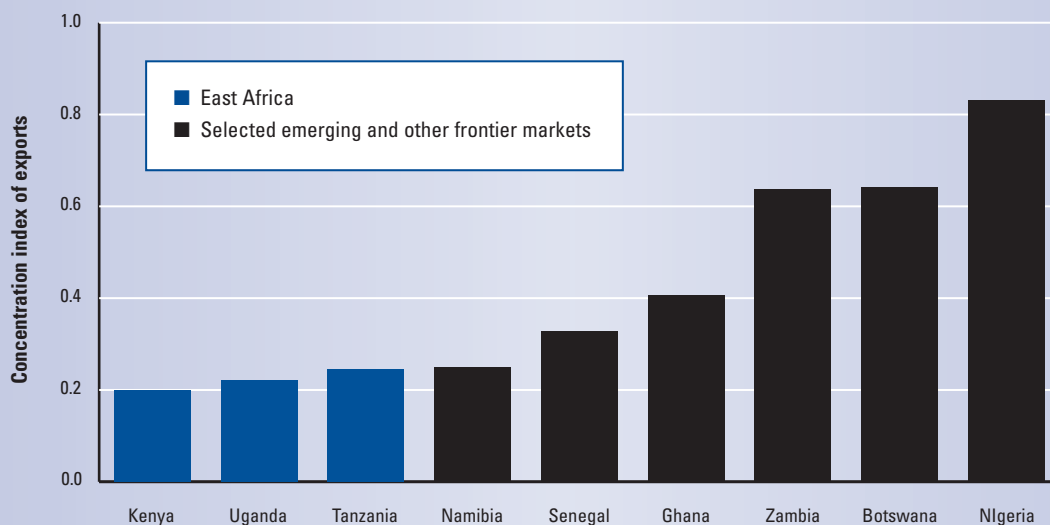
Several other factors have contributed to the EAC's strong performance, including the accumulation of policy buffers prior to the crisis, effective countercyclical responses during the crisis, and timely financial assistance from multilateral organizations. A greater export diversification in the EAC than in other African subregions, both in terms of products and trading

partners, helped East Africa weather the severe external shock that the crisis presented. More broadly, export diversification boosts countries' export competitiveness by reducing their political and economic risks. This was shown also by the performance of many developing countries, including in North Africa, which saw marked drops in exports and outputs during the crisis as a result of their dependence on a few commodities and/or on markets in advanced economies.

#### The role of trade diversification

In terms of the *product diversification* of exports from Kenya, Uganda, and Tanzania, in 2009 the top three products accounted for less than 40 percent of total exports. Such shares are well below levels observed in resource-rich countries such as Nigeria and Botswana (where they account for 80 and 90 percent, respectively) or other frontier markets (e.g., countries that have recently accessed or are just about to access international capital markets) such as Ghana (where they account for about 70 percent). These differences in product market concentration are reflected in Figure 1. Necessities, especially basic food, accounted for the majority of the region's exports—both total exports and exports to the rest of Africa, making the region less vulnerable to the global slump because of its lower income elasticity of demand. Most of the manufacturing goods, which were more vulnerable to declining demand during the crisis than foodstuffs, are exported to the rest of East Africa. While currently a large share of the regional trade is in agricultural products, over the medium term, regional strategies need to develop complementarity in more sophisticated and

Figure 1: Concentration index, 2008



Source: Authors' calculations, based on the UNCTADstat *Foreign Merchandise* database, <http://unctadstat.unctad.org/TableViewer/tableView.aspx?ReportId=120>.

Note: Herfindahl-Hirschmann Index, ranging from 0 to 1 (maximum concentration).

### Box 3: Trade diversification in East Africa during the global recession

higher-value-added products to raise East African countries' capacity to trade.

East Africa is also characterized by greater regional integration and reliance on intra-regional and intra-African trade than other regional economic blocs. Vast differences exist even among the five EAC countries, with the highest share of intra-regional trade recorded by Kenya (above 20 percent) and the lowest by Rwanda (about 2 percent) during 2005–08. Nevertheless, in the run-up to the crisis, about 20 percent of East African exports were within EAC countries, a share notably above those in other regions. The continued healthy growth rates in the subregion protected the individual countries from the major drop in demand that proved so damaging to developed and emerging economies elsewhere. The crisis has only reinforced the East African countries' drive to integrate; the common market introduced in 2010 is also likely to boost trade further.

A key characteristic of East Africa is its large share of informal trade. For example, in 2009, Uganda's informal exports to the EAC and to Sudan and the Democratic Republic of Congo combined exceeded its total formal exports (Table 1). The large informal trade suggests that formal trade can expand further, provided that barriers are reduced. Increasing the stock and quality of regional infrastructure would also encourage intra-regional trade.

Incentives to formalize are crucial for fostering growth through innovation and technology adoption—key elements of knowledge-based economies—as firms operating in the informal sector find it more difficult to innovate and adopt

new technology. This is partly the result of their limited access to capital. The free mobility of skilled workers is a pre-requisite for open trade. Easing and modernizing migration policies to facilitate the flow of labor and to address persistent skills shortages in specific fields would also help foster regional trade and raise competitiveness.

#### South-South linkages

Intensified trade flows between East Africa and China and the other BRICs, as well as the Gulf countries, have also contributed to the subregion's solid growth during the crisis. Again, the intensity of these trade relations varied across individual East African countries, with Tanzania exporting about 25 percent of its exports to BRICs in 2009.

Rising ties with Asia and the Gulf countries are not unique to East Africa; they played a positive role during the crisis in other Africa's subregions as well. In particular, frontier markets (e.g., Tanzania) and transition low-income countries (e.g., Ethiopia) with closer ties to the BRICs recorded milder declines in trade and growth than other low-income countries. In fact, export revenues of frontier markets and transition low-income countries rose in 2009.

Source: Brixiova and Ndikumana, 2011.

#### Note

1 Hammouda et al., 2010.

Table 1: Uganda: Formal and informal trade, 2005–09

	2005	2006	2007	2008	2009
<b>TOTAL EXPORTS</b>	<b>1,013</b>	<b>1,194</b>	<b>2,113</b>	<b>3,073</b>	<b>3,125</b>
Formal	813	962	1,337	1,724	1,567
Informal	200	232	777	1,349	1,558
<b>FORMAL EXPORTS TO:</b>					
East African Community (%)	18	16	21	22	22
Sudan (%)	6	10	12	14	12
Congo, Dem. Rep. (%)	7	5	7	7	10
<b>INFORMAL EXPORTS TO:</b>					
East African Community (%)	57	62	21	16	13
Sudan (%)	5	3	59	69	78
Congo, Dem. Rep. (%)	38	35	20	15	9

Sources: Authors' calculations based on Uganda Bureau of Statistics, 2010; Bank of Uganda, 2007, 2009.

Note: Exports in US\$ (millions).

Nigeria, Madagascar, and Lesotho, whose increased exports of leather and apparel lead their success in this sector.<sup>21</sup>

The most significant boost to sub-Saharan Africa light manufacturing was perhaps the preferential treatments that were granted by the United States and the European Union under the Africa Growth and Opportunities Act (AGOA), the Everything but Arms (EBA) initiative, the Cotonou Agreement, and the Lome Convention. These initiatives granted virtually duty- and quota-free access to nearly all countries in Africa. For example, trade preferences under AGOA provided sub-Saharan African countries with a price advantage of 10 to 20 percent relative to exporters in countries for which tariffs were levied. It is partially thanks to AGOA that sub-Saharan Africa's exports of clothing grew threefold since 1995 to US\$2.5 billion, on average, between 2006 and 2008, making up more than 12 percent of all light manufacturing exports from the region. By 2008, for example, apparel made up the largest share of Madagascar's exports, outgrowing its exports from rich mining resources and employing 107,530 people. The recent decimation of Madagascar's apparel production with the removal of AGOA eligibility underlines the importance that such preferences have had on the competitiveness of African garment producers that were able to break into the export markets. The apparel industry across the subcontinent was, for the most part, dominated by foreign investors originating in Asia and occasionally in Europe and the United States, who aimed to exploit the advantages conveyed by a combination of trade preferences and cheap labor.

While these preferential trade arrangements supported light manufacturing in select cases, on the whole, sub-Saharan African exporters were unable to match the drop in prices by East Asian competitors, especially after the elimination of quotas in 2004. The unit value of Chinese apparel exports was 28 percent lower in 2008 than in 2004, for example. By 2008, Vietnam alone exported more light manufacturing products than all sub-Saharan African countries combined.

Today, East Asia Pacific is the biggest exporter of light manufactures in the developing world, producing more than 25 percent of world exports in these industries. It has been the leader in this sector since 1995, and its share of world exports grew from 15 percent in 1995–97 to 25 percent in 2006–08.

East Asia Pacific's success is driven not only by the high productivity of its workers and firms, but also by the enabling business environment that supports seamless transport networks and reliable supplies of inputs and energy. A number of studies on sub-Saharan Africa's business environments, including the previous edition of this *Report*, emphasized the importance of high indirect costs in depressing the productivity of

African firms relative to other countries.<sup>22</sup> Indeed, while factory-floor productivity is relatively low in many African countries, it is not so low—relative to wages—as to explain the continent's weak manufacturing competitiveness.

Assessments on global manufacturing competitiveness show that basic requirements of an enabling investment climate—namely, the cost of labor and materials; energy cost; trade, finance, and tax systems; and the quality of physical infrastructure—are critical in determining a country's competitiveness in the global export markets for simple manufacturers. A forthcoming study on sub-Saharan African light manufacturing competitiveness suggests that many of the root causes of the productivity and cost issues in African light manufacturing can be traced to policy problems relating to poor trade logistics and infrastructure, as well as to a lack of competition and input industries.

Recent studies have showed that high indirect costs (infrastructure, logistics, and transport), combined with business environment-related losses depress productivity in sub-Saharan Africa.<sup>23</sup> Trade infrastructure and logistics become especially relevant for light manufacturing industries because of the low margins and seasonality that characterize this industry. It is therefore telling that the countries that rank the highest in terms of infrastructure in the GCI are also the top exporters of light manufactures in sub-Saharan Africa. On the whole, Southeast Asian countries, whose market share of light manufacturing exports are exponentially higher than those in sub-Saharan Africa, score 24 percent higher in terms of the competitiveness of their economy in basic requirement as measured by the GCI.

### Agricultural commodities

Sub-Saharan Africa has been losing market share in global agriculture exports in terms of unprocessed commodities. Its share of world exports in agricultural commodities was slashed in half, from 5.4 percent in 1995–97 to 2.7 percent in 2006–08. The decline was mainly the result of lagging agricultural productivity in the region. Its number one export product, cocoa, accounted for more than 30 percent of the continent's exports; cocoa was followed by coffee, tea, and tobacco. Top exporters of agricultural commodities were Côte d'Ivoire, Ghana, Kenya, South Africa, Ethiopia, and Nigeria, all of which (except Nigeria) lost market share despite increasing their exports in absolute terms.

Given its endowments of land, climate, and labor, sub-Saharan Africa should have a strong comparative advantage in agriculture. On the face of it, the subcontinent has the resources to both feed its growing population and meet the world's burgeoning demand for food and other agricultural products. In sub-Saharan Africa, demand for food is expected to reach US\$100 billion by 2015, double the levels in 2000. There are encouraging success stories, such as the production of

cassava chips in Ghana, organic coffee in Tanzania, cut flowers in Kenya, and aquaculture in Malawi. However, these remain few and far between, and they have not been sufficient to improve the subcontinent's overall export performance in terms of both agribusiness and agricultural commodities. Although Africa has the highest rate of people living in rural areas in the world, the continent still imports 45 percent of its rice and 85 percent of its wheat.

### Agribusiness

Agribusiness accounts for a large and rising share of gross domestic product (GDP) in developing countries. Though the share of agriculture typically decreases as per capita income increases, the share of agribusiness tends to increase, reaching 30 percent of GDP in some instances.

There is immense potential to scale-up agribusiness in sub-Saharan Africa, as demonstrated by emerging successes in Kenya, Tanzania, and Ghana. However, this potential remains largely untapped. Sub-Saharan Africa's share of world exports in agribusiness is the lowest of all developing regions, followed closely by the Middle East and North Africa. Its share, however, has seen a modest rise—from 1.5 to 1.7 percent between 1995–97 and 2006–08. The region's exports grew at a fair rate, more than doubling since 1995–97, which is slightly above world averages.

The top sub-Saharan African exporters of agribusiness include South Africa, Kenya, Côte d'Ivoire, Namibia, Zimbabwe, Nigeria, Mauritius, Tanzania, and Senegal. Among these, the fastest growth was experienced by Nigeria and Senegal, which increased their exports exponentially twenty- and sevenfold, respectively, although from a very low base. Fruits and vegetables are the major agribusiness exports of the subcontinent, closely followed by fish and fish preparations, together accounting for about 50 percent of sub-Saharan Africa's agribusiness exports.

Africa's poor performance in export markets for agribusiness is in part explained by its slow productivity growth. Value-chain studies focusing on sub-Saharan Africa show that, while agricultural productivity improved in parts of the region, it lagged behind vis-à-vis other regions. Although farm-level unit production costs in Africa are comparable with those found in Brazil and Thailand, these farms suffer from low levels of productivity, which in turn make agriculture economically impoverishing and technically unsustainable. The international and domestic logistics costs that provide natural protection for local producers pose a significant barrier to their competitiveness when it comes to exporting. For example, Mozambican cassava producers that are competitive in domestic markets would need to cut their logistics and production costs by more than 80 percent to become competitive in European markets. Overall, the studies identified a lack of political com-

mitment, prejudice against small-holder agriculture, high transaction costs that are driven by weak physical infrastructure, widespread information asymmetries, low levels of marketed surplus, and high export taxes as the main constraints to agricultural productivity in sub-Saharan Africa.

The agricultural commercialization experiences from these regions offer some interesting lessons for the future of agriculture in Africa. For example, studies from Brazil and Thailand show that competitiveness in these originally "backward" areas was reached in two stages, first in lower-value commodities and later in higher-value and processed agricultural goods. Other factors contributing to their success included improved agricultural technology developed by government supported agencies such as Empresa Brasileira de Pesquisa Agropecuária (Brazilian Agricultural Research Corporation, or EMBRAPA), permissive land policies, improved public infrastructure and business development services, a supportive policy environment, and liberalized markets that allowed international signals to transmit. As a result of these policies, Brazil and Thailand became the leading global suppliers of soybeans and cassava, among other agricultural exports.

### Heavy manufacturing

At an aggregate level, the trends in exports of heavy manufactures in sub-Saharan Africa are similar to those of light manufacturing. Africa's exports are tiny and captured only 0.4 percent of world markets, a slight increase from 1995–97, when it produced 0.3 percent of world exports. Unlike light manufacturing, however, sources of origin for heavy manufacturing are less diversified. The overwhelming majority of exports, more than 75 percent, come from South Africa. Nigeria, Côte D'Ivoire, Swaziland, and Kenya are other major exporters of heavy manufactures.<sup>24</sup>

Despite beginning from a low base, heavy manufacturing performed better in terms of export growth rates than both agribusiness and light manufacturing industries in sub-Saharan Africa. Most of the growth came from South Africa, Nigeria, Côte d'Ivoire, and Kenya. In 2008, Nigeria primarily exported transport equipment, Côte d'Ivoire cleansing products, and Kenya chemical elements and compounds. These were the top exports for these countries also in 1995, except for Kenya, which primarily exported iron and steel during this time.

Unlike light manufacturing, heavy manufacturing exports of developing regions are dominated by a handful of emerging economies from each region such as China, Mexico, Malaysia, Brazil, Turkey, and South Africa. According to the *2010 Global Manufacturing Competitiveness Index*,<sup>25</sup> the availability of skilled labor and capacity for innovation, the cost of labor and materials, and energy cost and policies are the three main drivers of manufacturing competitiveness reported by

the 500 senior leaders of manufacturing industries from around the world. Presumably in the case of heavy manufacturing, it is more pertinent for a country to be able to offer its investors a sound basis for advanced engineering and capacity for technology adoption and innovation than it is for the country to be able to go beyond the economic competitiveness at the level of the traditional factor costs, which remain critical for the competitiveness of light manufacturing industries.

In most low- and lower-middle-income countries, financial and physical infrastructures, as well as the required advanced skills, are simply absent or inadequate for heavy manufacturing to flourish. The *2010 Global Manufacturing Competitiveness Index* ranks talent-driven innovation—which emanates from improved higher education—as the leading driver of manufacturing competitiveness. Correspondingly, as we have seen earlier, the GCI indicates that sub-Saharan Africa ranks especially poorly in terms of its systems of higher education and its ability to adopt technology. Those sub-Saharan African countries—such as South Africa and Kenya—that achieved improvements in these areas, as well as progress in what is defined by the GCI as the basic requirements of an economy (institutions, infrastructure, macroeconomic environment, and health and basic education), are among those whose exports of heavy manufactures grew the fastest since 1995–97.

### FDI, growth, and productivity in Africa

As seen earlier, African countries rank particularly low on innovation and technology adoption. Because of their generally low savings rates (especially among sub-Saharan African oil importers), underdeveloped domestic financial sectors, and often inadequate access to borrowing on international capital markets, their investment is constrained by available resources or their ability to attract FDI. In this concluding section we (1) discuss trends in FDI inflows to Africa, including during the crisis years of 2009 and 2010; (2) examine the impact of FDI on growth, through both investment in physical capital (factor accumulation) and total factor productivity (TFP) channels;<sup>26</sup> and (3) look ahead and discuss how, in the future, African countries can attract growth-enhancing FDI, especially FDI that raises innovation and hence TFP.

In addition to providing capital, FDI can stimulate growth by helping improve the TFP of African countries by advancing their technological capacities. Besides the transfer of managerial skills, technological spillovers from FDI can occur through the transfer of more advanced technologies and the demonstration of their applications, as well as through technical assistance to domestic suppliers and customers. In turn, the central role of FDI has been recognized by African policy-makers: without transfer of technological capabilities and resulting home-grown innovation, the productivity

gap between African countries and more advanced economies will not be reduced and could even widen further.

### FDI trends in Africa

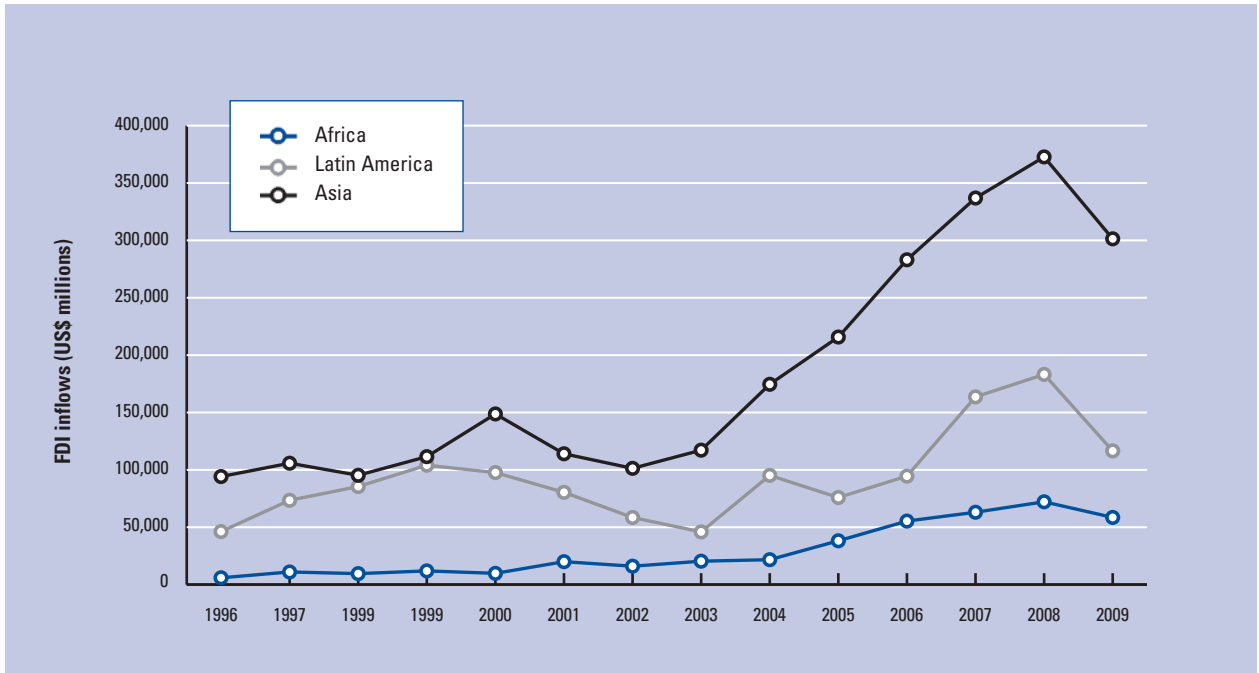
One of the key differences between advanced economies on one hand and developing and emerging market economies on the other lies in the amount of physical (and human) capital these groups of countries possess and the level of technology they utilize. With relatively low savings rates, volatile export revenues, and substantial investment requirements, most African countries need to rely on capital inflows, in particular FDI, to finance their development needs and reduce these gaps. Accordingly, over the years many African countries deregulated and (at least partially) liberalized their capital accounts, with a view to attracting FDI.<sup>27</sup>

During 2001–09, developed economies continued to account for most of the world FDI flows: they were the main source of outward FDI and received about 60 percent of total inflows during this period. Nevertheless, the long-term geographical pattern of the FDI flows has been changing, with more FDI going to developing countries, including countries in Africa (Figure 6). In fact, in 2009, developing and transition countries received almost half of the world's FDI. Preliminary estimates indicate that in 2010—for the first time—developing and transition countries received more than 50 percent of world FDI inflows.<sup>28</sup>

Although the reasons for the increase in private capital flows to low-income countries varied, on the “domestic economic fundamentals/pull side” they included privatization and deregulation; improvements in general investment environment, including trade liberalization and cutting costs of doing business; and broader considerations such as political and macroeconomic stability. On the “external/push side,” private capital flows to low-income countries were closely related to the business cycle upswing and the heightened risk appetite of foreign investors.<sup>29</sup>

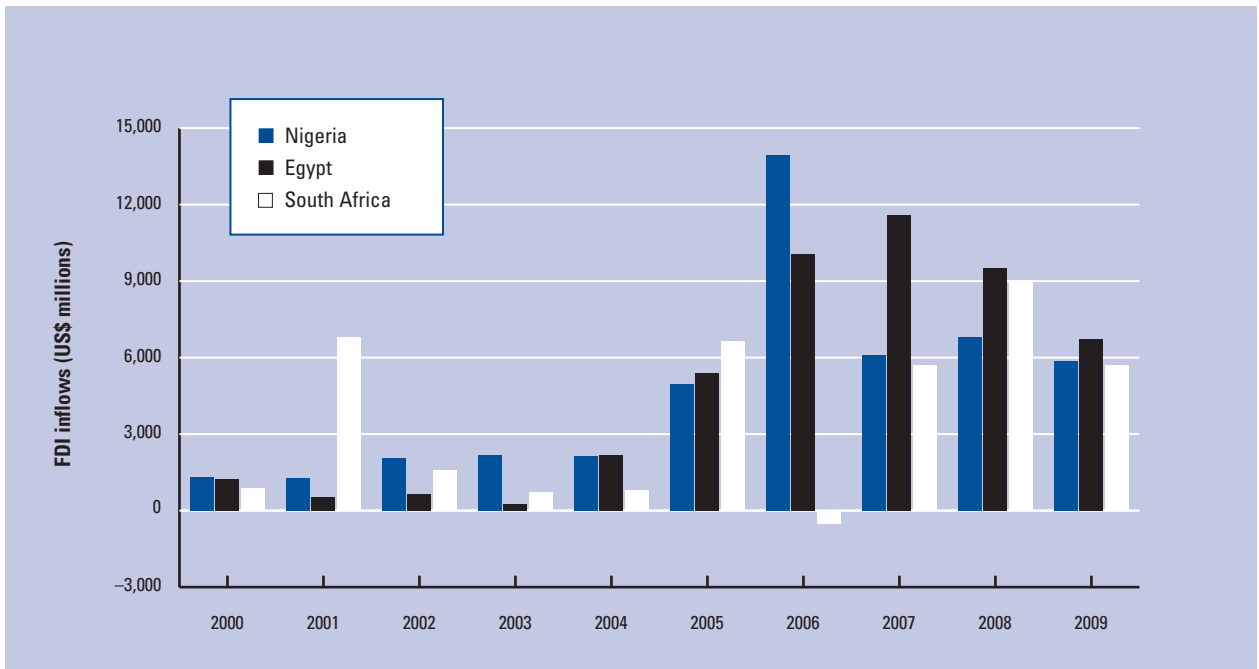
African countries also experienced a surge in capital flows; they received about 8 percent of total capital flows and 10 percent of FDI going to developing countries during 2001–09.<sup>30</sup> Indeed, after years of relatively slow growth, net capital inflows to Africa accelerated in the 2000s and surged between 2004 and 2007. Peaking at almost US\$76 billion in 2007, the net capital inflows amounted to about 5 percent of Africa's GDP at that time. This share was close to those of both the Middle East and Latin America (about 6 percent of GDP), but notably below capital flows received by Central and Eastern Europe and the Commonwealth of Independent States countries (15–16 percent of GDP). At the same time, since FDI accounted for the majority of their private capital inflows, African countries were mostly shielded from the sudden halt in capital flows

Figure 6: FDI inflows into Africa, Asia, and Latin America, 1996–2009 (US\$, millions)



Source: UNCTAD *FDI Statistics* database.

Figure 7: FDI to Nigeria, Egypt, and South Africa, 2000–09 (US\$, millions)



Source: UNCTAD *FDI Statistics* database.

**Table 5: Output, exchange rates, and FDI flows during financial crises**

	GDP growth (average, %)		US\$ exchange rate (change, %)*		FDI flows (change, %)	
	1997	2008	1997	2008	1997	2008
	-98	-09	-98	-09	-98	-09
Africa total (median)	4.4	4.0	3.0	5.4	-17.2	-20.7
Emerging markets	5.3	1.8	13.9	4.9	-64.3	-38.3
Frontier markets	4.5	5.2	8.6	11.1	13.9	16.0
Transition countries	3.6	6.3	6.2	3.1	-8.9	-25.3
Pre-transition countries	3.9	3.3	1.1	5.4	-44.1	-66.0
Oil exporters	7.9	4.0	1.1	5.4	50.1	-17.2
Fragile states	8.9	3.2	1.1	4.6	-9.6	-19.9

Source: Authors' calculations, based on the African Economic Outlook and UNCTAD databases.

Notes: The two crises considered here are (1) the Asian crisis and (2) the Great Recession.

\* A positive number reflects depreciation of local currency relative to US dollars.

that affected other regions during the recent global economic crisis.

FDI has been distributed unevenly even within Africa, with the top five recipient countries receiving the bulk of FDI inflows to Africa prior to the crisis, between 2001 and 2008. Still, results vary according to perspective. In absolute terms, three largest countries—Egypt, Nigeria, and South Africa—received similar, large amounts of FDI, but in per capita terms Nigeria was notably below Egypt and South Africa and close to the African average prior to the crisis (Figure 7). Resource-rich countries and the minerals sectors attracted a large share of these flows, but more recently investors have discovered countries other than Nigeria and South Africa, their long-standing investment destinations. Since the mid 2000s, “frontier market” low-income countries, such as Ghana, Uganda, and Zambia, have gained increased attention of foreign investors.<sup>31</sup> Beyond mining, the services sector—especially telecommunications and banking—has been receiving a disproportionate share of FDI in Africa, contributing to diversification of production and stimulating the export of services and other sectors.

Among various subregions, Southern Africa received the largest share of total FDI (36 percent) going to Africa in 2009.<sup>32</sup> Countries in North and West Africa also fared well and received about 30 and 20 percent of Africa's FDI inflows in 2009, respectively.<sup>33</sup> In West Africa, oil exporters (e.g., Nigeria and Guinea) and emerging and frontier markets (e.g., Cape Verde, Côte d'Ivoire, Ghana, and Senegal) attracted the lion's share of this subregion's FDI, with Nigeria predominating. Given that West Africa (and particularly some of the above-mentioned countries) experienced the highest real GDP growth among Africa's subregions during 2001–08, the impact of FDI on growth and productivity in these countries is examined below.

### FDI resilience during the global financial crisis

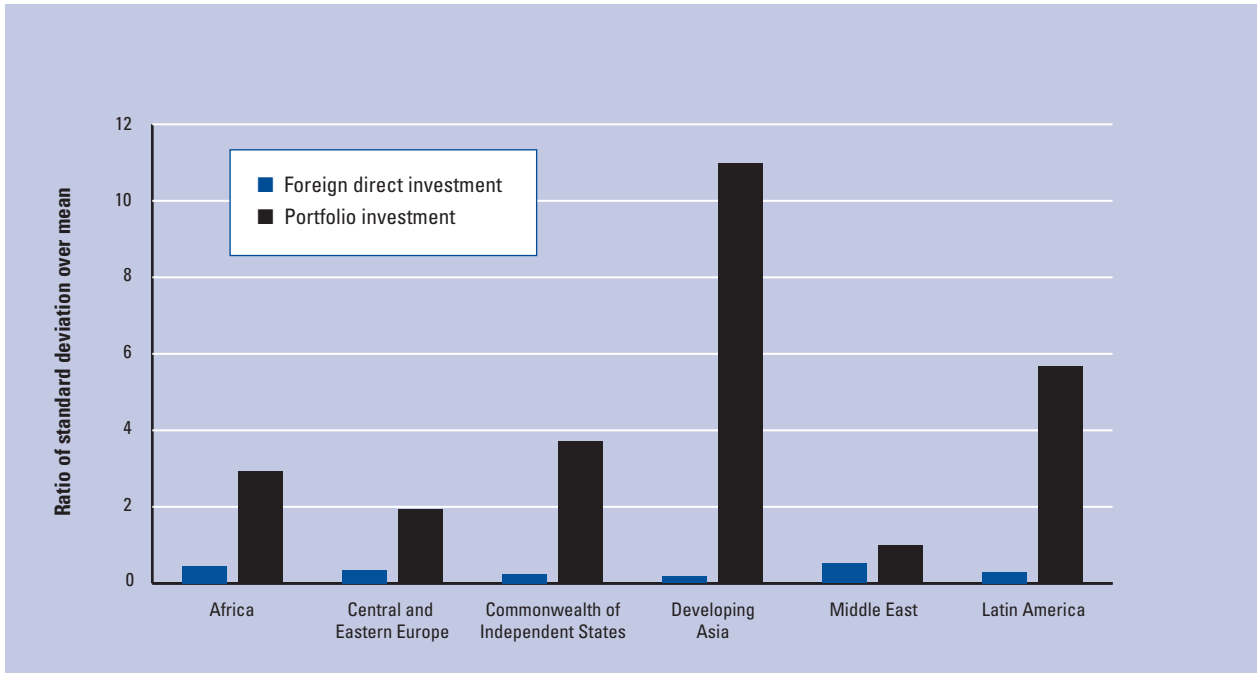
Before the crisis, FDI flows to Africa and other developing regions were less volatile than portfolio flows (Figure 8), since FDI decisions are mostly based on longer-term factors and less affected by short-term shocks. While the motivating factors of FDI are complex and vary across sectors and firms, the driving forces typically include political stability, prudent macroeconomic policies, trade openness, liberal investment policies, high-quality institutions (including the financial sector), the stock of human and physical capital, and natural resources.

Overall FDI to Africa remained resilient during the global financial crisis in 2009, both relative to other financial flows to Africa and relative to FDI flows to other world regions (Figure 9). Despite the decline of about 20 percent, in 2009 FDI flows to Africa were less volatile than other financial flows that year. Moreover, Africa's share of global FDI inflows rose from 3 percent in 2007 to 5.1 percent in 2009.<sup>34</sup> This relative resilience is partly the result of policies that African countries introduced in the 1990s and 2000s. In addition to liberalizing investment regimes, a number of countries shifted from targeting FDI for specific sectors to establishing a broad enabling investment climate. Besides incentives to foreign investors, the increased interest in attracting FDI has been evidenced by the formation of the New Partnership for Africa's Development (NEPAD) in 2001.

Throughout the world, the primary sectors (e.g., agriculture, mining) and services such as telecommunications, transport, and consumer services (e.g., health services) were less sensitive to the business cycle and thus less affected by the crisis than manufacturing. The low share of FDI in manufacturing has made Africa more immune to a decline in overall FDI flows than other world regions, where manufacturing plays a prominent role (e.g., emerging Europe). Accordingly, a number of oil exporters such as Egypt, Nigeria, Angola, and Sudan received the highest absolute FDI inflows (above US\$3 billion) in 2009, while Ghana's FDI increased markedly since 2007, reflecting developments of the emerging oil sector. Cross-border mergers and acquisitions in Africa reflected these sector trends, with M&A sales rising in mining and transport in 2009, but markedly declining in manufacturing.<sup>35</sup>

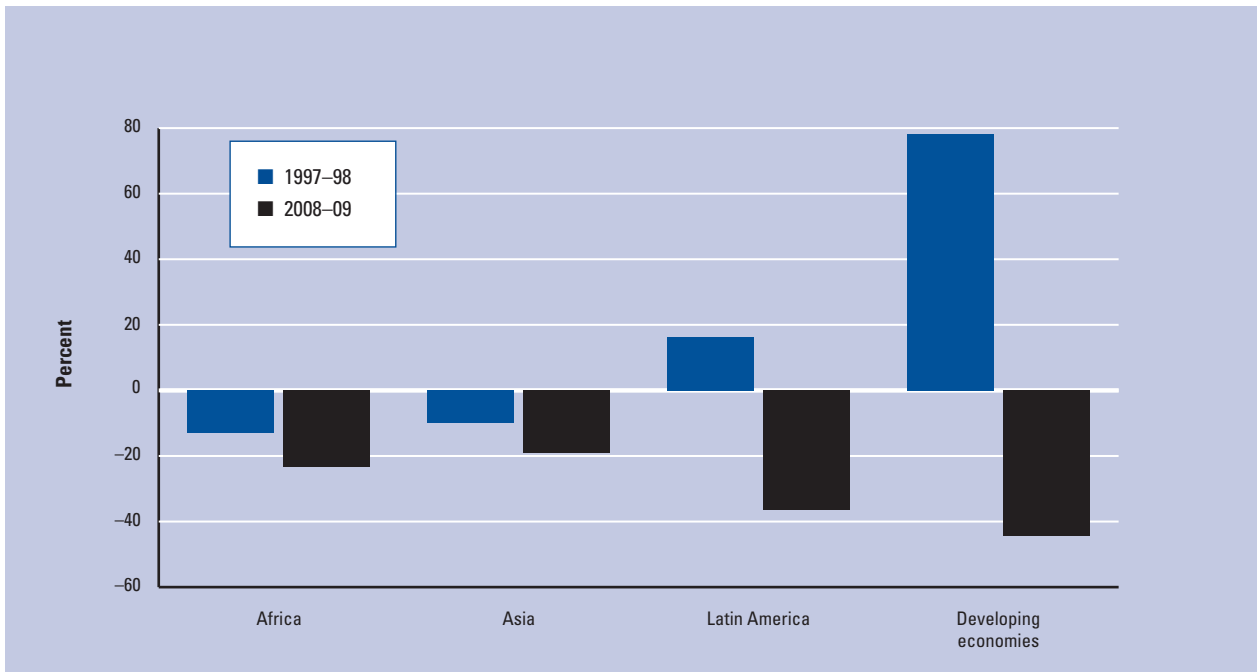
Moreover, vast differences emerged among Africa's subgroups. When dividing the continent into analytical subgroups such as emerging markets, frontier markets, and so on, two observations stand out. First, FDI to frontier markets actually increased between 2008 and 2009, driven by continued high growth and strong growth prospects as well as depreciating exchange rates that made some of the factors of production (e.g., labor) cheaper (Table 5). Second, FDI to pre-transition countries that are yet to develop robust institutions and financial sectors markedly declined, underscoring the

**Figure 8: Volatility of capital flows, 1996–2008 (relative coefficient of variation)**



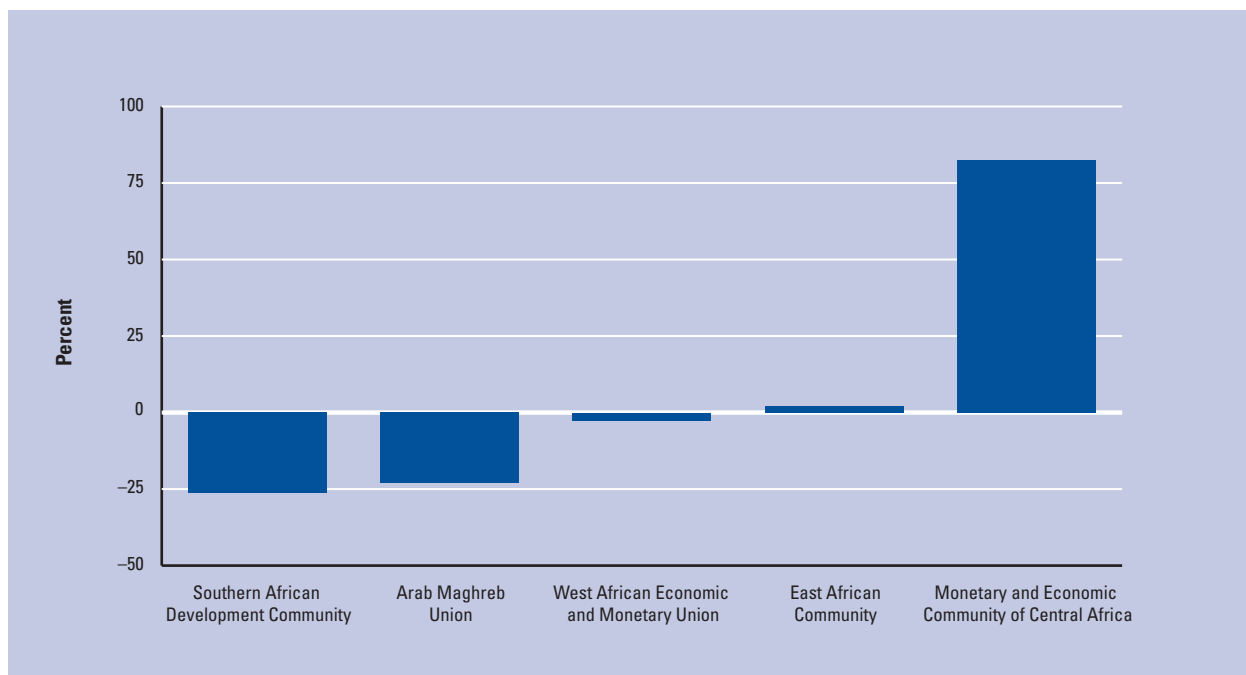
Source: Authors' calculations, based on the IMF's *World Economic Outlook* database online.

**Figure 9: Change in FDI inflows during financial crises, percent (1997–98 and 2008–09)**



Source: Authors' calculations based, on UNCTAD's *FDI Statistics* database.

Note: 1997–98 denotes changes in FDI inflows between 1997 and 1998 (the Asian financial crisis) and 2008–09 denotes change in FDI inflows between 2008 and 2009 (the global financial and economic crisis).

**Figure 10: Change in FDI inflows between 2008 and 2009, by Africa's regional trade arrangements (percent)**

Source: Authors' calculations, based on UNCTAD's *FDI Statistics* database.

role of economic fundamentals in offsetting short-term shocks.

When analyzing changes in FDI flows according to regional trading blocs, the performance of the Monetary and Economic Community of Central Africa (CEMAC) improved from 2008, as the regional trade arrangement benefited from substantial flows to Equatorial Guinea (about US\$2.5 billion more than in 2008).<sup>36</sup> FDI continued to flow to the East African Community (EAC) at an unchanged rate because of the substantial resilience this subregion exhibited during the crisis (Figure 10).<sup>37</sup>

#### Beyond the crisis: The impact of FDI on longer-term growth

This section takes a rearview look at the impact of FDI on growth and productivity prior to the crisis, with a view to drawing policy conclusions for the post-crisis setting. While the impact of FDI inflows has created substantial controversy in the development debate, African policymakers have increasingly viewed FDI as a potential source of growth and development for their economies. FDI can stimulate growth not only through increasing capital stock, but also through its positive spillovers on technology and management, thus raising TFP and competitiveness.<sup>38</sup>

At the same time, policymakers have recognized that the benefits of FDI are markedly reduced when such investments use outdated technology; lack connection with local communities; avoid paying taxes; and,

last but not least, create a culture of dependency. Other concerns relate to unequal distribution of the benefits of FDI and/or taking advantage of market concentration. Some policymakers fear the loss of political independence as a possible negative effect of FDI.

#### Evidence on the FDI-growth nexus from West African emerging and frontier markets

The section below re-examines the FDI-productivity nexus in selected West African countries, using the growth accounting framework. In this framework, FDI raises growth and productivity through its positive effect on (1) capital accumulation and (2) TFP, which would result from technology transfer and knowledge diffusion, the increased efficiency in management, competition, and better production techniques. While substantial literature on FDI, growth, and productivity exists, the issue of identifying the channels through which FDI impacts growth has received less attention.<sup>39</sup> In this context, the growth accounting approach is helpful for understanding which channels—productivity or capital accumulation or both—are affected by FDI.<sup>40</sup>

To provide country-level evidence of the impact of FDI on growth and development, this section uses annual data for emerging and frontier markets in West Africa (Cape Verde, Ghana, Nigeria, and Senegal) and a fragile West African country (Sierra Leone) from 1987 to 2008. It compares the results with those for Egypt, which was particularly successful in attracting FDI following structural reforms undertaken in mid 2000s,

until 2010. As discussed above, West African countries have been receiving increased amounts of FDI in recent years, including from South Africa. Sierra Leone's case is relevant because of the rapid growth the country has achieved after the war ended and the special tax incentives it has provided for FDI.<sup>41</sup>

Table B1 in Appendix B presents several useful insights about the impact of FDI on growth and channels of transmission in West African countries and Egypt.<sup>42</sup> First, in Senegal and Ghana, positive impact on FDI occurs through the increased marginal product of capital rather than TFP, and hence is driven more by factor accumulation than by productivity increases.<sup>43</sup> This is consistent with the GCI methodology: both these countries belong to the group of factor-driven economies, where technological adoption and innovation are less important and countries compete more on the basis of factor accumulation, in this case capital. Regarding the impact of FDI on growth through positive spillovers and TFP, among the five West African countries studied (Cape Verde, Ghana, Senegal, Nigeria, and Sierra Leone), the marginal product of TFP with respect to FDI is positive (and statistically significant) only for Cape Verde. In concrete terms, this implies that a 1 percent increase in FDI investment increases Cape Verde's growth rate by about 0.31 percent, through increasing TFP. Again, this result is consistent with the GCI methodology: since Cape Verde is in the efficiency-driven stage of development, technology adoption and innovation are becoming more important. In Nigeria, FDI does not seem to have any significant impact on growth at the aggregate level.

These observations are also consistent with the literature on the need to establish necessary threshold conditions for FDI to have a positive impact on growth.<sup>44</sup> A related strand of literature has focused on linking FDI with trade openness.<sup>45</sup> A sufficiently open (and competitive) environment needs to be in place in the host country for foreign investors to contribute to raising the efficiency of existing activities and for the host country to adopt technology, thus generating positive spillovers for the rest of the society and increasing productivity. Accordingly, the government of Cape Verde has pursued market-oriented economic reforms since the early 1990s, including a widespread privatization program and an opening up of the economy to FDI. The main recipient sectors included tourism, light manufacturing, and transport and communication services.

The impact of FDI on TFP is positive but not significant in Senegal, and it is even negative (albeit not significantly so) in Ghana and Nigeria. While Senegal and Ghana are ranked above the sub-Saharan African average on the GCI described above, they are still in the factor-driven stage. Their investment climates have demonstrable weaknesses, especially in infrastructure. More specifically, while Senegal has a

relatively flexible labor and product markets, it is set back by a small market size and an overall weak infrastructure, especially in the power sector.<sup>46</sup> In Ghana, the lack of spillovers so far can be in part explained by the low share of FDI going to the manufacturing sector, where positive technology spillovers are likely to occur. The performance of Ghana's FDI is also constrained by the limited access to land, difficulties with registering property, the rigid labor market regulations, and the lack of skilled workers.<sup>47</sup> On the positive side, the impact of FDI on growth through capital accumulation is positive (and significant) for Ghana and Senegal, suggesting that FDI helps overcome shortages of capital, which are caused, in part, by the limited access to finance.<sup>48</sup>

Among the countries studied, Nigeria was the only one where FDI does not seem to have a positive impact through either of the two channels—the increased TFP or higher marginal product of capital.<sup>49</sup> This indicates that Nigeria's advantage stemming from a sizeable market and relatively sophisticated financial sector has been eroded by the country's weak and deteriorating institutions and its low degree of ICT penetration, among other impediments. Moreover, FDI has been disproportionately concentrated in the extractive industries, even though their share in total FDI has been declining. Ayanwale argues that when broken into subsectors, some components of FDI already exhibit positive impact on growth. Specifically, FDI in the telecommunications sector has the most positive effect on the economy, while FDI in the manufacturing sector affects the economy negatively because of the overall poor business environment and the low level of human capital.<sup>50</sup> The evidence of the positive growth impact of FDI in Nigeria's telecommunications sector is consistent with the export performance section above that posits that FDI inflows into services can enhance production and export diversification as well as growth.<sup>51</sup>

In Egypt, FDI has a positive and significant impact on TFP. According to the GCI methodology, Egypt is already in transition to the efficiency-driven stage. Moreover, in 2004, Egypt implemented structural reforms—such as revamping the banking sector and liberalizing labor markets—aiming to raise the role of the private sector in the economy and diversify its production base. On the FDI side, the reforms included establishing one-stop shops, opening up manufacturing to FDI, and abolishing limits on foreign equity participation in services, including telecommunications and financial services. The reforms were successful in encouraging FDI inflows and paid off, especially during the global financial crisis, when the country continued to generate over 4 percent of its GDP through FDI, even during the most severe part of the crisis (June 2008–09). In 2009, Egypt was the second largest recipient of FDI inflows in Africa (after Angola) and, according to UNCTAD, was poised to lead the post-crisis

FDI recovery.<sup>52</sup> Clearly the recent events in Egypt and the surrounding political instability will negatively impact FDI. However, the data discussed here cover the 1987–2008 period, so these recent events have not been taken into account in the reported results.

### Policy implications for attracting growth-enhancing FDI after the crisis

As discussed in the above section, FDI can be a catalyst for growth in African emerging and frontier markets through two main channels: (1) increased TFP and (2) increased capital stock. The analysis shows that, even though FDI's contribution to growth through investment has been positive in most West African frontier markets studied, the positive spillovers of FDI on TFP have so far taken place only in Cape Verde and the benchmark case, Egypt—the only two countries that have moved beyond the factor-driven stage of development. This, together with the low domestic investment rates, suggests that further removal of barriers to competition and trade (along the lines of reforms seen in Egypt in the mid 2000s) is paramount. Adequate human capital stock and technological and physical infrastructure, as well as removing barriers to the access to credit, could also go a long way in this regard.

For example, as the case of Sierra Leone and also those of Ghana and Senegal illustrate, the empirical analysis undertaken seems consistent with the GCI methodology as well as with the empirical literature. This suggests that some minimal threshold of development (e.g., in the financial sector, human capital, and infrastructure) is needed for the host countries to benefit from FDI through technology transfer and increased productivity.<sup>53</sup> In other words, if the institutional, technological, and human capital gap with the investor's country is too wide, the host country would find it difficult to absorb the technological and know-how transfer. Thus efforts to raise human capital and technological capacity, as well as to develop infrastructure and financial sectors, are crucial for attracting development-friendly FDI and reaping its maximum benefits.

Since some minimal level of domestic resources is needed to co-finance FDI projects, strengthening domestic financial systems and capital markets to facilitate savings and credit in the host countries would help attract FDI. Given that exports and FDI reinforce each other and some FDI is even contingent on exports, further trade liberalization could be FDI-enhancing. In turn, FDI inflows into services (e.g., telecommunications, banking) cuts transaction costs and can promote diversification and growth. The African countries aiming to encourage intra-African FDI and maximize its benefits may want to adopt measures encouraging regional integration and trade. A positive side effect of such steps could be attracting additional market-seeking FDI from developed economies.

## Conclusions

This chapter has analyzed the competitiveness of African countries, based on the results of the Global Competitiveness Index (GCI), the region's trade performance, and its related ability to attract growth-enhancing FDI. The results show that there is a significant variety in the quality of performances across the continent. Some countries have been quite successful in putting into place many of the factors for sustained economic success, yet many obstacles to competitiveness remain across the majority of African countries.

Overall, the major cross-cutting policy areas that constrain Africa's competitiveness across all main industry groups include those that increase indirect costs—trade logistics and infrastructure; and those that relate to poor business environments—access to land, the availability of skills, and the ability to absorb technology. The GCI shows that many of these are areas in which sub-Saharan Africa scores relatively poorly in comparison with other regions. To achieve industrialization, export competitiveness, and strong, sustained, and shared growth, Africa needs to put special emphasis on making progress in these areas. Given the dual linkages between trade and FDI, structural reforms—especially those that would remove barriers to competition and encourage trade as well as attract FDI—have a particular potential to ensure sustained growth. In turn, FDI flows to high-skill service sectors such as telecommunications or banking can help African countries diversify their production and exports and accelerate export growth.

Given the daunting list of obstacles that constrain African productivity, export growth, and the ability to attract growth-enhancing FDI, sub-Saharan African governments will need to prioritize and sequence reforms and investments in their business environments and infrastructures in order to unleash the potential for growth in their industries. In doing so, it is important that the policies to promote competitiveness are brought together within a coherent strategy rather than being implemented as a series of ad hoc interventions. Experience shows that measures adopted in isolation tend to be much less effective.

## Notes

- 1 Clearly, causality runs also from growth to diversification, especially at lower levels of income. Newfarmer et al. (2009) discuss these issues in detail and posit that diversification has an inverted U relationship with income.
- 2 Newfarmer et al. 2009.
- 3 A number of developing countries have tried to use tourism for diversifying their exports, with mixed results.
- 4 Based on research on FDI in India, Banga (2006) found that FDI may help export diversification in the host country if it raises the export intensity of industries that have a low share in world exports. Indirectly, FDI may encourage export diversification by increasing the export intensity of domestic firms. Buckley et al. (2002) examined the impact of FDI in the Chinese manufacturing and found that FDI helped develop high-tech and new products.
- 5 Moran et al. 2005.

- 6 *Trade diversification* here refers to the broader sense and encompasses not only new products but also higher-quality existing products and expansion into new markets.
- 7 FDI inflows to Africa peaked in 2008 at US\$72.2 billion, before falling to US\$58.6 billion and further to US\$51.1 billion during the crisis years—that is, in 2009 and 2010. In 2010, for the first time developing countries accounted for more than half of the world's FDI (UNCTAD 2010, 2011).
- 8 See, for example, Commission on Growth and Development 2008; Hausmann et al. 2006, 2007; Johnson et al. 2006, 2007; Berg et al. 2008.
- 9 The Global Competitiveness Index was developed for the World Economic Forum by Xavier Sala-i-Martin and Elsa V. Artadi, in collaboration with the World Economic Forum's Competitiveness team, and was first introduced in *The Global Competitiveness Report 2004–2005*.
- 10 Clearly, these institutions, policies, and factors also influence the future level of productivity that the country is likely to achieve.
- 11 The 12 pillars are measured using both quantitative data from public sources (such as inflation, Internet penetration, life expectancy, and school enrollment rates) as well as data from the World Economic Forum's Executive Opinion Survey (the Survey), conducted annually among top executives in all of the countries assessed. The Survey provides crucial data on a number of qualitative issues (e.g., corruption, confidence in the public sector, and the quality of schools) for which no quantitative data exist.
- 12 The concept of stages of development is integrated into the Index by attributing higher relative weights to those pillars that are more relevant for a country given its particular stage of development. Countries are allocated to stages of development based on two criteria: (1) the level of GDP per capita at market exchange rates, and (2) the extent to which countries are factor driven. See Appendix A for more details on the GCI methodology.
- 13 The Latin American and Caribbean average includes data for the following countries: Argentina, Barbados, Bolivia, Brazil, Chile, Colombia, Costa Rica, the Dominican Republic, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Jamaica, Mexico, Nicaragua, Panama, Paraguay, Peru, Puerto Rico, Suriname, Trinidad and Tobago, Uruguay, and Venezuela.
- 14 The Southeast Asian average includes Brunei Darussalam, Cambodia, Indonesia, Malaysia, the Philippines, Singapore, Thailand, Timor-Leste, and Vietnam.
- 15 Africa was the first continent in the world to implement free roaming, allowing any user in a foreign country to receive and send calls and messages at local rates (AfDB and OECD 2009).
- 16 AfDB and OECD 2010.
- 17 UNDP 2007.
- 18 Mattoo 2009.
- 19 UN Comtrade, World Bank calculations.
- 20 UN Comtrade, World Bank calculations.
- 21 UN Comtrade, World Bank calculations.
- 22 Gelb 2005.
- 23 Eifert et al. 2008; World Economic Forum, International Bank for Reconstruction and Development/World Bank, and African Development Bank 2009.
- 24 UN Comtrade, World Bank calculations.
- 25 Deloitte and the US Council on Competitiveness 2010.
- 26 Total factor productivity measures the efficiency with which inputs such as labor and capital are utilized.
- 27 *FDI* is defined as investment made to acquire a lasting management interest (usually at least 10 percent of the voting stock) in an enterprise operating in a country other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.
- 28 Preliminary estimates indicate that the overall FDI to developing countries increased by 10 percent in 2010. However, the overall increase to developing countries occurred in the context of declining FDI to Africa (UNCTAD 2011).
- 29 Dorsey et al. 2008.
- 30 According to the UNCTAD data, FDI to Africa accounted for 9.6 percent of FDI to developing countries in 2001 and 12.2 percent in 2009.
- 31 In this section, African countries are grouped into (1) emerging markets, (2) frontier markets, (3) transition countries, and (4) pre-transition countries. The classification depends on how far the countries are from emerging market status. Oil exporters and fragile states form separate groups. Frontier markets and transition (taking-off) economies exhibited at least several of the following criteria prior to the crisis: (1) growth acceleration; (2) macroeconomic stability, increasing role of the private sector in the economy; (3) export diversification; and (4) development of financial markets and increased interest of international institutional investors. Emerging market economies already reached middle-income status and, in some cases, had markedly more developed financial markets (e.g., South Africa, Kenya). In contrast, pre-transition economies are yet to adopt policies and institutions to facilitate growth take-off, a sufficient presence of the private sector, and the interest of investors. See Brixiova et al. 2011.
- 32 Among these FDI flows, intra-African investment was an important source of funds in several Southern African countries, especially in Mauritius, Mozambique, Malawi, with South Africa being the main investor.
- 33 UNCTAD 2010.
- 34 UNCTAD 2010, 2011. Preliminary estimates indicate that FDI fell by 14 percent in 2010, with flows to South Africa and Nigeria taking a heavy hit. FDI to Africa accounted for 12.2 percent of FDI to developing countries in 2009 and 9.6 percent in 2010.
- 35 UNCTAD 2010.
- 36 Members of the Monetary and Economic Community of Central Africa (CEMAC) are Cameroon, the Central African Republic, Chad, the Republic of the Congo, Equatorial Guinea, and Gabon.
- 37 The East African Community (EAC) is the regional intergovernmental organization of Burundi, Kenya, Rwanda, Tanzania, and Uganda.
- 38 TFP is defined as that part of output not explained by inputs.
- 39 Moreover, because of limited data, fewer studies have examined the impact of FDI on growth in Africa, especially sub-Saharan Africa, than in other regions (e.g., Latin America, Asia, and the Middle East).
- 40 The framework is detailed in Appendix B.
- 41 The data for FDI, GDP (in 2000 constant prices), and investment (in 2000 constant prices) in these five countries were obtained from the African Development Bank database. The employment data are taken from the International Labour Organization (ILO) database. The ordinary least squares (OLS) method is used to estimate the relationship between FDI and economic growth in these countries (Table 3). Minitab (version 16) and Stata (version 10) were used to regress the growth of GDP over a constant term, share of investment to GDP, growth rate of labor force, and share of FDI in GDP.
- 42 The growth accounting equation has a particularly limited explanatory power for variations of growth rates in Nigeria and Cape Verde. In Nigeria, the economic performance is largely driven by fluctuations in oil prices, while Cape Verde is heavily dependent on remittances, which accounted for about 20 percent of GDP in the 2000s. These effects outweigh the impact of changes in FDI, domestic capital, and labor on growth rates.
- 43 As in other African countries, Ghana has numerous incentives in place to attract foreign investment, based on its Investment Promotion Act of 1994. These include customs duty import exemptions, tax holidays, rebates (based on regional locations), and capital allowances. However, as the low inflows in the 1990s indicated, incentives without an enabling environment are unlikely to attract significant FDI; flows increased in the 2000s after the environment was improved.

- 44 See Borensztein et al. 1998; Alfaro et al. 2004, and others. Borensztein et al. 1998 showed that FDI positively impacts growth only when the host country reaches a threshold level of human capital, measured by years of schooling. Alfaro et al. 2004 found that FDI raises growth when the host country has a developed financial system. Applying the growth accounting framework to 69 countries in 1970–89, Wang and Wong 2009 clarified the channels through which the threshold conditions operate: FDI raises productivity growth when the host country reaches a threshold level of human capital; it promotes capital growth when a well-functioning financial system is in place.
- 45 Kandiero and Chitiga 2003; Moran et al. 2005.
- 46 Senegal has been developing a special economic zone (SEZ) in the Diamniadio-Bargny region with a view to attracting FDI as well as domestic investors. The area will comprise an industrial and commercial free zone with extensive, up-to-date infrastructure to accommodate about 400 companies (Oxford Business Group 2010).
- 47 Aryeetey et al. 2010.
- 48 Ndikumana and Verick 2008 investigated the bilateral relationship between domestic investment and FDI and found (1) that domestic private investment with strong performance also crowds in FDI and (2), in turn, that one way in which FDI can have a positive impact on growth is through enhancing domestic capital accumulation.
- 49 In 2006, Nigeria undertook reforms to encourage FDI. A “one-stop-shop” investment center was created, cutting steps necessary to obtain a business permit. In addition to free export processing zones where firms are free from paying taxes, including income and VAT taxes, the country offers fiscal incentives to foreign investors. Nevertheless, unclear land property rights remain a key hindrance to attracting FDI, alongside relatively weak governance.
- 50 Ayanwale 2007. These findings are consistent with Alfaro’s 2003 empirical analysis. Using cross-country data for 1981–99, she showed that the effect of FDI on growth depends on the sector involved. FDI in the primary sector tends to have a negative effect, while investment in manufacturing a positive one.
- 51 For all five West African countries studied, taken together, FDI had a positive impact on growth through factor accumulation (at a 5 percent significance level) but not through technology spillovers. For every 1 percent increase in investment, growth would be higher by 0.55 percentage points. This is consistent with the observation that, according to the GCI methodology, all countries but Cape Verde are in the factor-driven stage of their development.
- 52 UNCTAD 2010.
- 53 Hermes and Lensink 2003 showed that a more developed financial system positively influences technological diffusion (and growth) associated with FDI. Similarly, Borensztein et al. 1998 found that FDI positively impacts productivity when a country has sufficient human capital stock.

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This appendix presents the structure of the Global Competitiveness Index 2010–2011 (GCI). The numbering of the variables matches the numbering of the data tables that appear in *The Global Competitiveness Report 2010–2011*. The number preceding the period indicates to which pillar the variable belongs (e.g., variable 1.01 belongs to the 1st pillar, and variable 12.04 belongs to the 12th pillar).

The computation of the GCI is based on successive aggregations of scores from the indicator level (i.e., the most disaggregated level) all the way up to the overall GCI score. Unless mentioned otherwise, we use an arithmetic mean to aggregate individual variables within a category.<sup>a</sup> For the higher aggregation levels, we use the percentage shown next to each category. This percentage represents the category's weight within its immediate parent category. Reported percentages are rounded to the nearest integer, but exact figures are used in the calculation of the GCI. For example, the score a country achieves in the 9th pillar accounts for 17 percent of this country's score in the *efficiency enhancers* subindex, irrespective of the country's stage of development. Similarly, the score achieved on the sub-pillar *transport infrastructure* accounts for 50 percent of the score of the infrastructure pillar.

Unlike the case for the lower levels of aggregation, the weight placed on each of the three subindexes (*basic requirements*, *efficiency enhancers*, and *innovation and sophistication factors*) is not fixed. Instead, it depends on each country's stage of development.<sup>b</sup> For instance, in the case of Benin—a country in the first stage of development—the score in the *basic requirements* subindex accounts for 60 percent of its overall GCI score, while it represents just 20 percent of the overall GCI score of Australia, a country in the third stage of development.

Variables that are not derived from the Executive Opinion Survey (Survey) are identified by an asterisk (\*) in the following pages. All of the variables are described in more detail in the "How to Read the Competitiveness Profiles" section of this *Report*. To make the aggregation possible, these variables are transformed onto a 1-to-7 scale in order to align them with the Survey results. We apply a min-max transformation, which preserves the order of, and the relative distance between, country scores.<sup>c</sup>

Variables that are followed by the designation "1/2" enter the GCI in two different pillars. In order to avoid double counting, we assign a half-weight to each instance.<sup>d</sup>

Weight (%) within  
immediate parent category

### BASIC REQUIREMENTS

#### 1st pillar: Institutions.....25%

##### A. Public institutions.....75%

###### 1. Property rights .....20%

- 1.01 Property rights
- 1.02 Intellectual property protection <sup>1/2</sup>

###### 2. Ethics and corruption.....20%

- 1.03 Diversion of public funds
- 1.04 Public trust of politicians
- 1.05 Irregular payments and bribes

###### 3. Undue influence.....20%

- 1.06 Judicial independence
- 1.07 Favoritism in decisions of government officials

###### 4. Government inefficiency .....20%

- 1.08 Wastefulness of government spending
- 1.09 Burden of government regulation
- 1.10 Efficiency of legal framework in settling disputes
- 1.11 Efficiency of legal framework in challenging regulations
- 1.12 Transparency of government policymaking

###### 5. Security .....20%

- 1.13 Business costs of terrorism
- 1.14 Business costs of crime and violence
- 1.15 Organized crime
- 1.16 Reliability of police services

##### B. Private institutions.....25%

###### 1. Corporate ethics .....50%

- 1.17 Ethical behavior of firms

###### 2. Accountability .....50%

- 1.18 Strength of auditing and reporting standards
- 1.19 Efficacy of corporate boards
- 1.20 Protection of minority shareholders' interests
- 1.21 Strength of investor protection\*

#### 2nd pillar: Infrastructure.....25%

##### A. Transport infrastructure .....50%

- 2.01 Quality of overall infrastructure
- 2.02 Quality of roads
- 2.03 Quality of railroad infrastructure
- 2.04 Quality of port infrastructure
- 2.05 Quality of air transport infrastructure
- 2.06 Available seat kilometers\*

##### B. Energy and telephony infrastructure.....50%

- 2.07 Quality of electricity supply
- 2.08 Fixed telephone lines\* <sup>1/2</sup>
- 2.09 Mobile telephone subscriptions\* <sup>1/2</sup>

#### 3rd pillar: Macroeconomic environment.....25%

- 3.01 Government budget balance\*
- 3.02 National savings rate\*
- 3.03 Inflation\* <sup>o</sup>
- 3.04 Interest rate spread\*
- 3.05 Government debt\*
- 3.06 Country credit rating\*

(Cont'd.)

## Appendix A: Structure of the Global Competitiveness Index (cont'd.)

### 4th pillar: Health and primary education .....25%

#### A. Health.....50%

- 4.01 Business impact of malaria<sup>f</sup>
- 4.02 Malaria incidence\*<sup>f</sup>
- 4.03 Business impact of tuberculosis<sup>f</sup>
- 4.04 Tuberculosis incidence\*<sup>f</sup>
- 4.05 Business impact of HIV/AIDS<sup>f</sup>
- 4.06 HIV prevalence\*<sup>f</sup>
- 4.07 Infant mortality\*
- 4.08 Life expectancy\*

#### B. Primary education.....50%

- 4.09 Quality of primary education
- 4.10 Primary education enrollment rate\*<sup>g</sup>

## EFFICIENCY ENHANCERS

### 5th pillar: Higher education and training .....17%

#### A. Quantity of education .....33%

- 5.01 Secondary education enrollment rate\*
- 5.02 Tertiary education enrollment rate\*

#### B. Quality of education .....33%

- 5.03 Quality of the educational system
- 5.04 Quality of math and science education
- 5.05 Quality of management schools
- 5.06 Internet access in schools

#### C. On-the-job training .....33%

- 5.07 Local availability of specialized research and training services
- 5.08 Extent of staff training

### 6th pillar: Goods market efficiency .....17%

#### A. Competition .....67%

##### 1. Domestic competition .....variable<sup>h</sup>

- 6.01 Intensity of local competition
- 6.02 Extent of market dominance
- 6.03 Effectiveness of anti-monopoly policy
- 6.04 Extent and effect of taxation
- 6.05 Total tax rate\*
- 6.06 Number of procedures required to start a business\*<sup>i</sup>
- 6.07 Time required to start a business\*<sup>i</sup>
- 6.08 Agricultural policy costs

##### 2. Foreign competition.....variable<sup>h</sup>

- 6.09 Prevalence of trade barriers
- 6.10 Trade tariffs\*
- 6.11 Prevalence of foreign ownership
- 6.12 Business impact of rules on FDI
- 6.13 Burden of customs procedures
- 10.04 Imports as a percentage of GDP\*<sup>g</sup>

#### B. Quality of demand conditions .....33%

- 6.14 Degree of customer orientation
- 6.15 Buyer sophistication

### 7th pillar: Labor market efficiency .....17%

#### A. Flexibility .....50%

- 7.01 Cooperation in labor-employer relations
- 7.02 Flexibility of wage determination

- 7.03 Rigidity of employment\*
- 7.04 Hiring and firing practices
- 7.05 Redundancy costs\*
- 6.04 Extent and effect of taxation<sup>1/2</sup>

#### B. Efficient use of talent.....50%

- 7.06 Pay and productivity
- 7.07 Reliance on professional management<sup>1/2</sup>
- 7.08 Brain drain
- 7.09 Female participation in labor force\*

### 8th pillar: Financial market development .....17%

#### A. Efficiency.....50%

- 8.01 Availability of financial services
- 8.02 Affordability of financial services
- 8.03 Financing through local equity market
- 8.04 Ease of access to loans
- 8.05 Venture capital availability
- 8.06 Restriction on capital flows

#### B. Trustworthiness and confidence .....50%

- 8.07 Soundness of banks
- 8.08 Regulation of securities exchanges
- 8.09 Legal rights index\*

### 9th pillar: Technological readiness.....17%

#### A. Technological adoption.....50%

- 9.01 Availability of latest technologies
- 9.02 Firm-level technology absorption
- 9.03 FDI and technology transfer

#### B. ICT use .....50%

- 9.04 Internet users\*
- 9.05 Broadband Internet subscriptions\*
- 9.06 Internet bandwidth\*
- 2.08 Fixed telephone lines\*<sup>1/2</sup>
- 2.09 Mobile telephone subscriptions\*<sup>1/2</sup>

### 10th pillar: Market size .....17%

#### A. Domestic market size .....75%

- 10.01 Domestic market size index\*<sup>j</sup>

#### B. Foreign market size.....25%

- 10.02 Foreign market size index\*<sup>k</sup>

## INNOVATION AND SOPHISTICATION FACTORS

### 11th pillar: Business sophistication .....50%

- 11.01 Local supplier quantity
- 11.02 Local supplier quality
- 11.03 State of cluster development
- 11.04 Nature of competitive advantage
- 11.05 Value chain breadth
- 11.06 Control of international distribution
- 11.07 Production process sophistication
- 11.08 Extent of marketing
- 11.09 Willingness to delegate authority
- 7.07 Reliance on professional management<sup>1/2</sup>

(Cont'd.)

**12th pillar: Innovation.....50%**

- 12.01 Capacity for innovation
- 12.02 Quality of scientific research institutions
- 12.03 Company spending on R&D
- 12.04 University-industry collaboration in R&D
- 12.05 Government procurement of advanced technology products
- 12.06 Availability of scientists and engineers
- 12.07 Utility patents\*
- 1.02 Intellectual property protection 1/2

f The impact of malaria, tuberculosis, and HIV/AIDS on competitiveness depends not only on their respective incidence rates but also on how costly they are for business. Therefore, in order to estimate the impact of each of the three diseases, we combine its incidence rate with the Survey question on its perceived cost to businesses. To combine these data we first take the ratio of each country's disease incidence rate relative to the highest incidence rate in the whole sample. The inverse of this ratio is then multiplied by each country's score on the related Survey question. This product is then normalized to a 1-to-7 scale. Note that countries with zero reported incidence receive a 7, regardless their scores on the related Survey question.

g For this variable we first apply a log-transformation and then a min-max transformation.

h The *competition* subpillar is the weighted average of two components: *domestic competition* and *foreign competition*. In both components, the included variables provide an indication of the extent to which competition is distorted. The relative importance of these distortions depends on the relative size of domestic versus foreign competition. This interaction between the domestic market and the foreign market is captured by the way we determine the weights of the two components. Domestic competition is the sum of consumption (C), investment (I), government spending (G), and exports (X), while foreign competition is equal to imports (M). Thus we assign a weight of (C + I + G + X)/(C + I + G + X + M) to *domestic competition* and a weight of M/(C + I + G + X + M) to *foreign competition*.

i Variables 6.06 and 6.07 combine to form one single variable.

j The size of the domestic market is constructed by taking the natural log of the sum of the gross domestic product valued at purchasing power parity (PPP) plus the total value (PPP estimates) of imports of goods and services, minus the total value (PPP estimates) of exports of goods and services. Data are then normalized on a 1-to-7 scale. PPP estimates of imports and exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP. The underlying data are reported in the data tables section of *The Global Competitiveness Report 2010–2011* (see Tables 10.03, 10.04, and 10.05 of that *Report*).

k The size of the foreign market is estimated as the natural log of the total value (PPP estimates) of exports of goods and services, normalized on a 1-to-7 scale. PPP estimates of exports are obtained by taking the product of exports as a percentage of GDP and GDP valued at PPP. The underlying data are reported in the data tables.

**Notes**

a Formally, for a category *i* composed of *K* indicators, we have:

$$category_i = \frac{\sum_{k=1}^K indicator_k}{K}$$

b The weights are the following:

Weights	Factor-driven stage (%)	Efficiency-driven stage (%)	Innovation-driven stage (%)
Basic requirements	60	40	20
Efficiency enhancers	35	50	50
Innovation and sophistication factors	5	10	30

For further information, see Chapter 1.1 of *The Global Competitiveness Report 2010–2011*.

c Formally, we have:

$$6 \times \frac{(\text{country score} - \text{sample minimum})}{(\text{sample maximum} - \text{sample minimum})} + 1$$

The *sample minimum* and *sample maximum* are, respectively, the lowest and highest country scores in the sample of economies covered by the GCI. In some instances, adjustments were made to account for extreme outliers. For those indicators for which a higher value indicates a worse outcome (e.g., disease incidence, government debt), the transformation formula takes the following form, thus ensuring that 1 and 7 still corresponds to the worst and best possible outcomes, respectively:

$$-6 \times \frac{(\text{country score} - \text{sample minimum})}{(\text{sample maximum} - \text{sample minimum})} + 7$$

d For those categories that contain one or several half-weight variables, country scores for those groups are computed as follows:

$$\frac{(\text{sum of scores on full-weight variables}) + \frac{1}{2} \times (\text{sum of scores on half-weight variables})}{(\text{count of full-weight variables}) + \frac{1}{2} \times (\text{count of half-weight variables})}$$

e In order to capture the idea that both high inflation and deflation are detrimental, inflation enters the model in a U-shaped manner as follows: for values of inflation between 0.5 and 2.9 percent, a country receives the highest possible score of 7. Outside this range, scores decrease linearly as they move away from these values.



**Table B1. Regression results (dependent variable: growth rate of real GDP)**

	I/GDP	FDI/GDP	∅L/L	Adjusted R <sup>2</sup>
Cape Verde	0.0231 (0.17)	0.3048* (1.99)	-2.553 (-0.99)	0.052
Ghana	0.0869* (2.29)	-0.1292 (-0.77)	-0.0230 (-0.12)	0.157
Nigeria	0.4671 (1.48)	-0.2458 (-0.48)	21.44 (1.41)	0.058
Senegal <sup>1</sup>	0.1659 <sup>†</sup> (1.91)	0.7736 (1.67)	-5.987 (-1.45)	0.318
Sierra Leone	0.0263 (0.04)	0.1599 (0.33)	4.697* (3.06)	0.295
Egypt	0.01162 (0.16)	0.4003* (2.71)	0.1862 (0.67)	0.212

Source: Authors' calculations.

\* Denotes significance at 5 percent; <sup>†</sup> denotes significance at 10 percent.

<sup>1</sup> Data for Senegal are for 1988–2008.

In this appendix we empirically investigate the FDI-productivity nexus in selected West African countries, using the growth accounting framework. In this framework, FDI affects growth and productivity through its effect on total factor productivity (TFP), which would result from technology transfer and knowledge diffusion, increased efficiency in management, competition, and better production techniques. The framework also looks at the impact of capital on output (the marginal product of capital, or MPK). In the growth accounting approach, output is produced according to:<sup>1</sup>

$$Y = AL^\alpha K^{1-\alpha}, \quad (1)$$

where  $Y$  is output,  $A$  is TFP,  $L$  is labor,  $K$  is capital, and  $\alpha$  ( $1 - \alpha$ ) is the share of labor (capital) in output. The marginal product of capital becomes:

$$MPK_p = (1 - \alpha) AL^\alpha K^{-\alpha}, \quad (2)$$

which assumes identical technologies ( $\alpha$  and  $A$ ), and that cross-country differences in marginal productivity of capital stem from differences in the level of capital. Countries with same levels of capital would differ in their rates of return on capital depending on their level of TFP,  $A$ .

Denoting FDI stock as  $F$ , the aggregate production function becomes:

$$Y = A(F)L^\alpha K^{1-\alpha}, \quad (3)$$

with  $A(F)$  reflecting the possibility that FDI influences TFP. Marginal product of FDI (MPFK) under this production function becomes:

$$\begin{aligned} MPFK &= A_F L^\alpha K^{1-\alpha} + (1 - \alpha) A(F) L^\alpha K^{-\alpha} \\ &= A_F L^\alpha K^{1-\alpha} + MPK_p, \end{aligned} \quad (4)$$

where  $A_F$  is the effect of FDI on TFP. Where such spillover effect is positive, the social return on FDI is

higher than the private marginal product of capital,  $MPK_p = (1 - \alpha) AL^\alpha K^{-\alpha}$ . The total differentiation of logarithm of (3) yields the following modified growth accounting equation:

$$\frac{dY}{Y} = \frac{A_F dF}{A} + \alpha \frac{dL}{L} + (1 - \alpha) \frac{dK}{K}. \quad (5)$$

Since from (1),  $(1 - \alpha) = MPK_p \frac{K}{Y}$  and  $dK = I$ , the last term becomes  $\beta \frac{I}{Y}$  where  $\beta = MPK_p$ . Similarly, the first term of (5) can be rewritten as  $A_F \frac{Y}{A} \frac{dF}{Y}$ , where  $dF$  is FDI flow and  $\lambda = A_F \frac{Y}{A}$  is the first term of (4). Note that  $\lambda$  is the marginal product of TFP that can be attributed to FDI spillovers. Equation (5) then changes to:

$$\frac{dY}{Y} = \lambda \frac{dF}{Y} + \alpha \frac{dL}{L} + \beta \frac{I}{Y}. \quad (6)$$

Annual time-series data for emerging and frontier markets in West Africa (Cape Verde, Ghana, Nigeria, and Senegal) in 1987–2008 are used and the results compared with those for Egypt. The data for FDI, GDP (in 2000 constant prices), and investment (in 2000 constant prices) in these countries were obtained from the African Development Bank, *African Economic Outlook* database, available at [www.africaneconomicoutlook.org](http://www.africaneconomicoutlook.org). The employment data are taken from the International Labour Organization, *Key Indicators of the Labour Markets* database, available at [http://www.ilo.org/empelm/what/lang—en/WCMS\\_114240/index.htm](http://www.ilo.org/empelm/what/lang—en/WCMS_114240/index.htm). The ordinary least squares (OLS) method is used to estimate the relationship between FDI and economic growth. Estimations were carried out with Minitab (version 16) and Stata (version 10).<sup>2</sup>

## Notes

- 1 This section is based on Sadik and Bobol 2001 and Al-Mawali 2004.
- 2 Given that all the variables are in ratios, the inherent (1) trends cancel each other and hence non-stationarity is not as such an issue.

