



Light Manufacturing in Africa

Targeted Policies to Enhance
Private Investment and Create Jobs

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After stagnating for most of the past 45 years, economic performance in Sub-Saharan Africa is at a turning point. Between 2001 and 2010 the region's gross domestic product grew at an average of 5.2 percent a year and per capita income grew at 2 percent a year, up from -0.4 percent in the previous 10 years. The reforms of the 1990s that focused on macroeconomic stability and liberalization began to gain traction. Between 2001 and 2010 net flows of foreign direct investment totaled about US\$33 billion—almost five times the US\$7 billion total between 1990 and 1999—and export growth was robust (World Bank 2011).

Experience elsewhere shows that this growth cannot be sustained without a structural transformation that lifts workers from low-productivity agriculture and the informal sector to higher-productivity activities. This transformation has yet to take place in Sub-Saharan Africa. The booming price of commodities (oil, cotton, metals, minerals, and others) that Sub-Saharan Africa mostly exports fueled a large part of the past decade's growth. Investment remains low in Africa—less than 15 percent of gross domestic product, compared with 25 percent in Asia—and more than 80 percent of workers are stranded in low-productivity jobs.

Labor-intensive light manufacturing led the economic transformation of many of the most successful developing countries, but it has not fared well in Sub-Saharan Africa. While China's emergence in the global manufacturing market since 1980 has resulted in a broad decline in the market share of all regions, the decline in Sub-Saharan Africa's share has been longer and deeper than most. Sub-Saharan Africa's share of global light manufacturing has continually declined—to less than 1 percent—and preferential access to U.S. and European Union (EU) markets has made little difference. Indeed, without

structural transformation, Sub-Saharan Africa is unlikely to catch up with more prosperous countries like China and Vietnam, which were not very different from Sub-Saharan Africa in the 1980s.

In addition to increasing the productivity of medium and large formal firms, Sub-Saharan Africa has to raise the productivity and encourage the upgrading and expansion of small enterprises, mostly in the informal sector. Light manufacturing in Sub-Saharan Africa is characterized by a few medium-size formal firms providing products to niche or protected markets and by a vast number of small, low-productivity informal firms providing low-quality products to the domestic market. These enterprises provide low-paying jobs, little in foreign exchange earnings, and few productive employment opportunities for young Africans. Encouraging the productivity and expansion of small firms has not received adequate attention and will be addressed in this report.

This study draws on the following five analytical tools:

- New research based on the World Bank Enterprise Surveys
- Qualitative interviews with about 300 enterprises (both formal and informal) of all sizes in China, Ethiopia, Tanzania, Vietnam, and Zambia, conducted by the study team and based on a questionnaire designed by Professor John Sutton of the London School of Economics
- Quantitative interviews with about 1,400 enterprises (both formal and informal) of all sizes in the five countries listed above, conducted by the Centre for the Study of African Economies at Oxford University and based on a questionnaire designed by Professor Marcel Fafchamps and Dr. Simon Quinn of Oxford University
- Comparative value chain and feasibility analysis based on in-depth interviews of about 300 formal medium enterprises in the same five countries, conducted by the consulting firm Global Development Solutions, Inc.
- A study of the impact of Kaizen managerial training for owners of small and medium enterprises. This training, delivered to about 250 entrepreneurs in Ethiopia, Tanzania, and Vietnam, was led by Japanese researchers from the Foundation for Advanced Studies on International Development and the National Graduate Institute for Policy Studies.

A discussion of why we chose these countries and these analytical tools is presented in this report. Detailed results can be found online at <http://econ.worldbank.org/africamanufacturing>.

This study has five features that distinguish it from previous studies. First, the detailed studies on light manufacturing at the subsector and product levels in five countries provide in-depth cost comparisons between Asia and Africa. Second, building on a growing body of work, the report uses a wide array of quantitative and qualitative techniques, including quantitative surveys and

value chain analysis, to identify key constraints to enterprises and to evaluate differences in firm performance across countries. Third, the findings that firm constraints vary by country, sector, and firm size led us to adopt a targeted approach to identifying constraints and combining market-based measures and selected government interventions to remove them. Fourth, the solution to light manufacturing problems cuts across many sectors and does not lie only in manufacturing alone. Solving the problem of manufacturing inputs requires solving specific issues in agriculture, education, and infrastructure. Fifth, the report draws on experiences and solutions from other developing countries to inform its recommendations. The report's goal is to find practical ways to increase employment and spur job creation in Sub-Saharan Africa.

Potential for Light Manufacturing: Creating Millions of Productive Jobs

Using new evidence, this report shows that feasible, low-cost, sharply focused policy initiatives aimed at enhancing private investment could launch Sub-Saharan Africa on a path to becoming competitive in light manufacturing. These initiatives would complement progress on broader investment reforms and could increase the share of industry in regional output and raise the market share of domestically produced goods in rapidly growing local markets for light manufactures. And as local producers increase the scale of their operations, improve the quality of their products, and accumulate experience with technology, management, and marketing, they can take advantage of emerging export opportunities. In Sub-Saharan Africa, as in China and Vietnam (which also experienced accelerated growth), policies that encourage foreign direct investment can speed industrial development and export expansion. The impact of isolated successes can be multiplied, as demonstrated by Ethiopia's recent foray into selling cut flowers in EU markets: a single pioneering firm opened the door to an industry that now employs 50,000 workers. The strategies proposed here could initiate a process with the potential to create millions of productive jobs.

Sub-Saharan Africa's potential competitiveness in light manufacturing is based on two advantages. The first is a labor cost advantage. In Ethiopia, for example, labor productivity in some well-managed firms can approach levels in China and Vietnam. At the same time, Ethiopia's wages are only a quarter of China's and a half of Vietnam's, and its overall labor costs are lower still. Sub-Saharan Africa's second advantage is an abundance of natural resources that supply raw materials such as skins for the footwear industry, hard and soft timber for the furniture industry, and land for the agribusiness industry. Institutional obstacles and unsuitable policies, however, have prevented local producers from taking advantage of certain resources. Timber costs are far higher in

Ethiopia than in China or Vietnam, leading Ethiopia to import Asian furniture despite Ethiopia's enormous unexploited potential to supply domestic timber, especially bamboo. This report envisions reforms that can unlock the potential of domestic resources like leather and bamboo to make a growing range of light manufactures competitive in the domestic market and, eventually, in global markets for labor-intensive products.

Is there room for Sub-Saharan Africa in the global market today? Yes, if Africa can exploit its opportunities soon. China dominates the global export market in light manufactures, and its competitive edge far exceeds that of low-income exporters that recently entered the global market. But the steeply rising costs of land, regulatory compliance, and especially labor (including both wages and benefits) in China's coastal export manufacturing centers have begun to erode these centers' cost advantage. This erosion will continue and probably accelerate in the coming years. New entrants have already begun to line up: Bangladesh, Cambodia, and China's interior provinces. The ongoing redistribution of cost advantages in labor-intensive manufacturing presents an opportunity for Sub-Saharan Africa to start producing many light manufactures, enhance private investment, and create millions of productive jobs.

Fortunately, the current global trading environment favors Sub-Saharan Africa if it can overcome key constraints in the most promising subsectors. Along with low labor costs and abundant resources, Sub-Saharan Africa enjoys duty-free and quota-free access to U.S. and EU markets for light manufactures under the Africa Growth and Opportunity Act and the Cotonou Agreement.

Are these advantages enough to offset Sub-Saharan Africa's generally low labor productivity relative to that of its Asian competitors? Yes, if appropriate supportive policies are implemented. This report draws inspiration from Asia, which demonstrates the enduring benefits of adopting policies early that facilitate competitive output and input markets; attract foreign direct investment to capitalize on the region's comparative advantage in low-wage labor; and provide technological, commercial, and managerial expertise. Like Asia, Sub-Saharan Africa could benefit from applying policies that accord free access to domestic and international markets for the inputs and outputs associated with light manufacturing and create conditions conducive to attracting foreign direct investment.

Case Study: Ethiopia

Using the five analytical tools described above and data from three African and two Asian countries, this study confirms that select African countries have the potential for light manufacturing. To realize this potential, these countries must overcome constraints that vary by country, subsector, and firm size.

Previous studies identified constraints in a long list of cross-cutting issues, including corruption, red tape, inadequate utilities, poor transport, poor skills, poor access to finance, and so on. In contrast, our detailed analysis points to a smaller, more specific, and sometimes new set of key constraints. Narrowing the analysis can make the reform agenda more manageable within the financial and human resource constraints of most African countries. The report presents an in-depth diagnosis of the constraints in five light manufacturing subsectors in Ethiopia: apparel, leather products, agribusiness, wood products, and metal products. We propose policy reforms to address these constraints based on the successes of other countries.

Ethiopia navigated the global economic crisis in 2008–09 better than many developing countries, encountering only modest declines in exports, remittances, and foreign investments, which have since recovered beyond their pre-crisis levels. Growth in exports and earnings, in conjunction with a relative slowdown in imports, has enabled foreign exchange reserves to rise. Overall inflation has dropped to single digits, mainly due to declining food prices, and growth has remained strong at about 8 to 9 percent a year since 2009. The Ethiopian government is committed to achieving continued growth within a stable macroeconomic framework in the context of the new five-year development plan (Growth and Transformation Plan 2010/11–2014/15, Ministry of Finance and Economic Development 2010). The plan's strategic pillars include sustaining rapid economic growth by promoting industrialization, enhancing social development, investing in agriculture and infrastructure, and strengthening governance and the role of youth and women.

Although each country's economy is unique—and several aspects of Ethiopia's governance, institutions, and political environment set it apart—there are enough common factors to make Ethiopia a good exemplar for a large group of Sub-Saharan African countries. Ethiopia has many natural resources that can provide valuable inputs for light manufacturing industries serving both domestic and export markets. Among its abundant resources are cattle, which can be processed into leather and its products; forests, which can be managed for the furniture industry; cotton, which can support the garments industry; and agricultural land and lakes, which can provide inputs for agroprocessing industries. Ethiopia has abundant low-cost labor, which gives it a comparative advantage in less-skilled, labor-intensive sectors such as light manufacturing. Ethiopia also shares several negative factors with other low-wage African countries, such as shortages of industrial land, poor trade logistics (particularly in landlocked countries), and limited access to finance.

This report does not claim that its Ethiopia-specific findings apply to all Sub-Saharan African countries, although, as discussed in part II, there are some commonalities among the three Sub-Saharan African countries studied in this report. Nevertheless the analytical approach applied to Ethiopia can be replicated

in other African countries to derive specific diagnoses and propose solutions tailored to country circumstances. Detailed policy recommendations for Tanzania and Zambia will be available shortly. Replicating this study's methodology beyond our countries of focus will enable a rich analysis of the constraints to light manufacturing in other Sub-Saharan African countries and provide concrete policy recommendations to facilitate the growth of this sector across the region.

Apparel: Poor Trade Logistics

Given the ready availability of the technology and skills required to manufacture garments, there is obvious potential for domestic firms to increase their share in the domestic and global clothing markets. A significant and growing labor cost advantage, access to a state-of-the-art and well-located container port in Djibouti, and duty-free access to the U.S. and EU markets offer Ethiopia the opportunity to expand its apparel industry. Foreign direct investment can accelerate the process of ramping up production and exports. Ethiopia's potential for expanding its production of high-quality cotton enhances the potential benefits associated with expanded production of clothing. The binding constraint on Ethiopia's competitiveness in apparel has been poor trade logistics, which wipe out its labor cost advantage and cut it off from the higher-value, time-sensitive segments of the market.

Establishing a green channel for apparel at customs, providing free and immediate access to foreign exchange, reducing the cost of letters of credit, and setting up an industrial zone close to Djibouti would resolve the most important trade logistics issues. As in China and Vietnam, these reforms would position Ethiopia to attract outside investors to lead the industry. Competitiveness could be reinforced by developing a competitive textiles industry (Ethiopia produces high-quality cotton and has cheap hydro-energy). While Ethiopia's apparel sector currently generates only US\$8 million in exports and 9,000 jobs, Vietnam has—with policies similar to those recommended in this report—achieved US\$8 billion in exports and created 1 million productive jobs.

Leather Products: Input Shortages

Ethiopia has even greater potential in leather, which is more labor intensive than apparel. Italian shoe importers express the highest regard for Ethiopian leather. Modest, targeted reforms could enable Ethiopia's large animal herds to produce vast amounts of some of the best leather in the world. Furthermore, the penalty of poor trade logistics is less serious because leather products are less time sensitive than apparel. The immediate constraint is limited access to high-quality processed leather.

Enabling imports of high-quality processed leather would easily and immediately solve the acute shortage of leather in the industry. Removing restrictions

on the exports of leather would increase incentives to invest in the Ethiopian leather supply chain. The challenge is to expand the commercial production and sale of high-quality animal hides. Facilitating access to rural land for good-practice animal farms (already written into Ethiopia's current development plan) will open the door to large-scale commercial herding enterprises. Promoting better breeds, controlling cattle diseases, and enabling the use of cattle as collateral would expand the capacity of small-scale operators to contribute to a larger supply of quality hides. Ectoparasites—a disease that affects Ethiopian hides—can be controlled by a modest program costing less than US\$10 million a year. And improving trade logistics along the same lines as apparel would further enhance competitiveness. Vietnam—with a population similar to that of Ethiopia—created 600,000 productive jobs in the leather products sector by implementing policies similar to those recommended in this report.

Agribusiness: High Input Prices

As exemplified by the success of coffee and cut flowers, the potential for agribusiness lies in low wages, varied soil and climatic conditions, opportunities to increase yields on cultivated land, and large tracts of unused arable land. Ethiopia has the second largest dairy cattle population in Sub-Saharan Africa, behind Sudan and followed by Tanzania. As in other sectors, problems lie in the market for inputs (in agriculture), where distortions lead to low productivity and high prices. Fixed prices for several food items discourage farmers from increasing productivity. Issues in the seed and fertilizer markets also contribute to very low agricultural productivity—yield rates for wheat are generally less than 1 ton per hectare. Investor access to rural land is also difficult because of the confluence of traditional rights with state ownership of land. And neither agricultural land nor cattle can be used as collateral for loans.

To unleash the vast potential of agribusiness, the government should facilitate private sector investments in key input markets, such as fertilizers and hybrid seeds, and extend rural food safety nets to vulnerable urban dwellers as an alternative to price caps and export bans. In recent years, the government has encouraged these investments, and this trend should continue. The government is also advised to pilot in key locations the use of land and cattle as collateral and facilitate access to rural land for good-practice investors.

Wood and Metal Products: Land and Finance

Firms in the wood and metal products subsectors rely on expensive imports of wood and steel. Ethiopia has the natural resources to develop a competitive supply of wood, but its current supply is unreliable, unsustainable, and poorly organized. Even in the better-managed wood product firms, labor productivity is low—a worker produces 4.5 chairs a day in China and 1.9 in Vietnam, but

only 0.3 in Ethiopia. Ethiopia's steel subsector is also constrained. The price of steel is 30 percent higher in Ethiopia than in China due to poor trade logistics and high import tariffs.

The potential lies not in exports (at least initially) but in the growing domestic market and in the high weight-to-value ratio of finished wood and metal imports. The sector is dominated by smaller, mostly informal, firms with no large or exporting firms. For wood the government should facilitate access to rural land and financing for private wood plantations. For metals the cost of inputs could be reduced by cutting the 10 percent import tariff on steel and exploiting Ethiopia's proven reserves of iron ore. For both subsectors the government could support the most deserving enterprises by facilitating their access to skills, finance, and industrial land as part of "plug-and-play" industrial parks.

The Five Subsectors

In sum, although labor productivity is high among the few larger firms in four of the five subsectors, it remains low on average, especially for smaller firms that lack entrepreneurial, managerial, and technical skills. Access to industrial land and formal finance are also constraints in each of the subsectors. Smaller firms are constrained because the government gave larger exporters in certain sectors (including apparel and leather) preferred access to land and finance. Banks do not accept machinery or cattle as collateral, and restrictions on buying and selling make land difficult to use as collateral. Without easy access to land and finance, small firms remain small, low in productivity, and unable to upgrade technology or expand production.

Input policy issues are the most significant constraints (table 1). This finding is important because issues related to input industries tend to be overlooked in the reform agenda for light manufacturing. Indeed, Ethiopia (like many other African countries) should reform the many input industries where it has a comparative advantage—leather, wood, many agricultural products, and possibly apparel and steel—thanks to abundant natural resources, a favorable climate, and the potential for cheap hydro-energy.

Detailed policy recommendations, including the time frame for implementation, are presented in table 2. Many of these recommendations, consistent with the traditional agenda for investment climate reform, seek to promote competition and reduce transaction costs (such as improved trade logistics and lower import tariffs). In this case, however, the detailed subsector diagnostics and the cross-country comparisons reduce the number of policy recommendations and make them more specific. More importantly, the benefits of policy reforms are easy to identify. Some new critical issues have also emerged, such as the need to develop wood plantations. Even implementation of the "traditional" investment climate reforms can be dramatically improved by focusing,

Table 1 Constraints in Ethiopia, by Importance, Size of Firm, and Sector

		Input industries	Land	Finance	Entrepreneurial skills	Worker skills	Trade logistics
Apparel	Smaller	Important	Critical	Critical	Important	Important	
	Large	Important			Important		Critical
Leather products	Smaller	Critical	Critical	Critical	Important		
	Large	Critical			Important		Important
Wood products	Smaller	Critical	Important	Important	Important	Important	
	Large	Critical	Important	Important	Important	Important	
Metal products	Smaller	Critical	Important	Important	Important	Important	
	Large	Critical	Important	Important	Important	Important	
Agribusiness	Smaller	Critical	Critical	Critical	Important		
	Large	Critical	Critical	Important			

Source: Authors.

Note: Blank cells are not a priority.

at least initially, on the subsectors where they will yield the most benefits (such as trade logistics for apparel and leather products) and for which the country has a comparative advantage.

Implementing this policy agenda will require coordination across various government departments and agencies and a clear understanding of the objective of promoting the competitiveness of light industry manufacturers in the domestic and global markets. Before they commit resources, domestic and foreign investors need to see credible commitments from government pledging to complete the reform agenda. High-level support is a crucial ingredient in execution of the report's recommendations. We suggest that the Ethiopian government put in place a dedicated high-level team to develop and implement the proposed reform program.

The priorities and sequencing of policy reforms and interventions should adhere to three criteria. First, these measures should focus on sectors and subsectors demonstrating the most potential for comparative advantage and job growth. Second, measures should be the most cost-effective in the short and long runs, with the least fiscal impact. Third, implementation capacity and implications for governance and the political economy of policy reforms should be thoroughly assessed and used as a guide.

The report highlights the importance of industry-specific issues (such as the effects of cattle disease on leather, import tariffs on steel, and price caps on agricultural products) in addition to economywide issues (such as poor access to industrial land, lack of technical skills, and poor trade logistics). This raises the

Table 2 Proposed Policy Measures in Ethiopia

Sector	Short term (6–12 months)	Medium term (1–2 years)	Long term (2–5 years)
All sectors	(a) Remove import tariffs on all inputs for light manufacturing, including those that are destined for national and regional markets; (b) offer incentives for banks and other financial institutions to offer financing for machinery to well-managed firms	(a) Develop collateral markets to improve access to finance; for example, facilitate the use of machines, livestock, and land as collateral; (b) support programs such as Kaizen’s managerial training on marketing and business strategy, production and quality management, and business record keeping; (c) improve the performance of trade between Addis Ababa and Djibouti, investigate and address issues relating to letters of credit, fuel costs, and competition among trucking companies; (d) harmonize and improve customs procedures by simplifying procedures and leveraging information technology	(a) Develop “plug-and-play” industrial zones to facilitate access to industrial land and basic infrastructure; consider setting up zones next to Djibouti; (b) develop the hard infrastructure (across boundaries) to support multimodal systems, which would entail rehabilitating the railway line between Addis Ababa and Djibouti (planned); (c) develop strategic partnerships along key trade corridors, including with Djibouti, to optimize port operations and minimize charges; (d) in partnership with the private sector, design technical skills development programs such as those at the Penang Skills Development Centre (Malaysia) that offer a variety of sector-specific short- and long-term certificate, diploma, and degree courses
Apparel	(a) Remove restrictions on exports of cotton; (b) guarantee the immediate availability of foreign exchange for apparel producers; (c) eliminate foreign exchange fee; (d) establish a green channel for apparel at customs; (e) negotiate lower handling fees with Djibouti	See the proposals for all sectors	See the proposals for all sectors
Leather products	(a) Remove restrictions on exports of leather and facilitate the import of high-quality processed leather; (b) guarantee the immediate availability of foreign exchange for leather producers; (c) eliminate foreign exchange fee; (d) establish a green channel for leather at customs; (e) negotiate lower handling fees with Djibouti	(a) Control cattle disease; (b) facilitate access to rural land for strategic investors in cattle through an inclusive and transparent process	Promote cross-breeding of cows

Wood products	Reduce taxes on legal wood	(a) Facilitate access to land and financing for sustainable private wood plantations of fast-growing species on degraded land close to the main urban centers; (b) facilitate access to rural land for strategic investors in wood plantations through an inclusive and transparent process	(a) Fight illegal logging; (b) enable carbon financing
Metallic products	See the proposals for all sectors	(a) Promote the exploitation of iron ore deposits; (b) conduct a feasibility study to assess the competitiveness of a domestic steel industry	See the proposals for all sectors
Agricultural products	Remove price controls on agricultural products	(a) Facilitate private sector investments in key input markets such as hybrid seeds and fertilizers (for example, by easing access to foreign exchange); (b) facilitate access to rural land for strategic investors in agricultural plantations through an inclusive and transparent process; (c) provide technical assistance to smallholders to connect with strategic investors	Promote cross-breeding of cows

Source: Authors.

Note: Proposals would benefit both small and large firms, with the exception of the promotion of iron ore deposits, which would only benefit large firms.

issue of how to prioritize and package policy reforms within and across sectors given that the government cannot tackle all issues at once. Specific reforms and economywide reforms need not be mutually exclusive. They can be complementary, and both are needed to move the economy forward. Priorities should be determined by cost-benefit analysis. Where hard choices are required, the government should give priority to the locations and industries with the greatest potential, taking into account the political cost of reforms. This approach would also help to expand the reforms through demonstration effects. China adopted this approach with land reforms (initiated in the Shenzhen Special Economic Zone), and Mauritius adopted it with labor reforms (first limited to exporters). Of course, such deliberately targeted reforms may be prone to mistakes and capture—hence the importance of a transparent and professional process to implement reforms and the political courage to correct mistakes.

African Competitiveness in Light Manufacturing and Possible Solutions from Asia

Although the specific nature and relative importance of the binding constraints and policy responses will vary by country, subsector, and firm size, the analysis in Tanzania and Zambia confirmed that most of the main constraints fall into the same six categories as in Ethiopia: input industries, trade logistics, access to finance, access to industrial land, worker skills, and entrepreneurial skills. Detailed policy recommendations on Tanzania and Zambia will be presented in an upcoming report.

To address the issues identified above, other successful developing countries have implemented several practical solutions, explored below.

Plug-and-Play Industrial Parks

In developing plug-and-play industrial parks, China gradually learned to address multiple constraints. Beginning in the late 1970s, special economic zones provided mostly foreign-owned firms with access to industrial land, port facilities, standardized factory shell buildings, worker housing, and duty-free import of materials and equipment for export production. Initial success encouraged the proliferation of industrial parks for domestic firms serving both home and overseas markets. Zone operations subsequently expanded to include training facilities and one-stop shops for business regulations. These initiatives considerably reduced financing costs and risks for the better-managed small firms, allowing them to grow into medium enterprises despite their inability to obtain bank loans. This is how China avoided the “missing middle” problem, where the size distribution of firms is characterized by either very small or very

large firms. The parks also contributed to the development of industrial clusters by making it easier for smaller firms to locate near larger firms, generating economies of scale and scope for Chinese industries. And housing workers next to plants reduced the labor costs for plant operators as well as the cost of living for workers.

Proximity first to Hong Kong SAR, China, and later to domestic ports that gradually developed into world-class cargo facilities, enabled China's special economic zones to help resolve trade logistics issues. Establishing the Shenzhen Special Economic Zone next to Hong Kong SAR, China, transformed a fishing village into a leading light manufacturing city of 8 million people in less than 30 years. The parks also served as the testing ground for difficult reforms: Shenzhen led China's adoption of a market-friendly land-lease system and many other new institutional and regulatory arrangements.

The key to success is intense competition and cooperation among firms inside and outside the parks. Most parks did not preselect specific light industries, instead letting market forces drive the formation of specialized clusters. The parks, including the factory shells and housing, are financed by local governments as well as the private sector. The local governments' share is often financed by bank loans (with the zone's real estate as collateral), repaid with the additional tax revenues from increased economic activity. To be successful, parks must be part of a package of interventions that address the most binding constraints limiting production and trade.

Key Input Industries

China and Vietnam reformed and supported key input industries so they could become competitive. Nationally, both China and Vietnam encouraged foreign direct investment for key inputs (as in machine manufacturers) and developed sustainably managed wood plantations and competitive agricultural sectors. They supported input and output markets through the provision of land and financing, as with the local government-managed Yiwu market in China, now the largest commodity market in the world. China and Vietnam also provided support and coordination along the value chains, while gradually reducing the trade restrictions protecting domestic input industries. In addition, China exempted export producers in special economic zones from paying taxes and duties on imported inputs; offered tax rebates to exporters outside the special economic zones; and gradually developed programs to provide information and technical assistance on inputs, technology, and suppliers to small and medium enterprises. The report shows that removing Ethiopia's import duty on inputs in the light manufacturing sector would cost no more than 2 percent of total tax revenue, which could easily be recouped by imposing an excise tax, if needed.

Trade Logistics

Both China and Vietnam relied on good trade logistics at the outset of their light manufacturing journey by creating manufacturing zones close to ports and then exempting firms in those zones from numerous domestic regulations and tariffs and import restrictions. This approach enabled China and Vietnam to import efficiently the inputs that domestic firms could not produce or supply competitively, allowing firms based in the new zones to gain access to export markets cheaply and quickly. Locating industrial zones next to world-class ports with efficient customs also made a difference, as shown in Shenzhen.

Emulating China and Vietnam will not be enough for Sub-Saharan Africa, especially in the many countries without direct access to a world-class port. African governments need to work together to pursue regional integration by improving trade logistics along key business corridors, especially governance and regulation at ports. To improve connectivity and increase competition, African countries should continue to develop the hard infrastructure to support multimodal systems combining trucking, railways, airways, and shipping. To harmonize and improve customs, countries should simplify procedures and leverage information and technology. And to increase competition among freight forwarders and shipping and trucking companies, countries should remove price controls and restrictions on foreign direct investment.

First Movers

Entrants in new industries typically face high costs and risks. This is especially true in Sub-Saharan Africa, where industrial structure and infrastructure are limited and regulatory and governance risks are high. But the prospect of single entrants serving as catalysts for the rise of competitive new industries is real, as illustrated by Ethiopia's rose industry, which began with a single firm and quickly grew to more than a dozen firms with direct employment exceeding 50,000 workers (plus further job creation among suppliers of transport, packaging materials, and so on). The rise of Ethiopia's rose industry began after the government facilitated land access for the first rose plantation, demonstrating the potential benefits of undertaking a limited, sharply focused policy intervention on behalf of promising start-ups.

In China initial efforts to promote the expansion of low-wage, labor-intensive production have given way to programs offering support to start-ups in more complex sectors, often involving skilled labor and high technology. Support may begin before firms move into the industrial zones, with site selection proposals, project reviews, and licenses for land use and construction. After moving in, firms may obtain technical assistance, technological upgrading, and access to market information through networking to guide the firm and the industry to become nationally competitive. Support to first movers can be provided on a one-time basis (to avoid rent seeking) and does not have to be expensive.

Governments can provide a matching-grant scheme to share the high risks of first movers, such as paying for part of a feasibility study. Government support does not need to target large foreign firms. Official efforts to disseminate basic knowledge about markets and suppliers alone may unleash new industries, as with Zambia's corrugated tin roof industry. Support to first movers should be open, transparent, and consistent, and all candidates should have access to the same benefits and information.

Entrepreneurial Skills

Our quantitative survey shows that entrepreneurs who receive technical assistance at start-up can deliver significantly better business outcomes. Ethiopia's Ramsay Shoe Factory shows the importance of technical assistance in raising the quantity and quality of output. Africa's multitude of small informal firms includes many operators with substantial entrepreneurial talent. The Kaizen study shows that lack of basic management skills limits the capacity of small firms to accumulate assets and expand (Sonobe, Suzuki, and Otsuka 2011). It also shows that, as in the case of Ramsay, access to modest and inexpensive training or technical support can open the door for some informal firms to prosper and expand into substantial generators of employment and, in some cases, exports. African governments should seek opportunities to invest in programs that can improve managerial and technical skills, especially among small-scale operators already working in high-potential subsectors. Governments should also help domestic firms to adopt and adapt existing technologies by providing targeted technical support and advice to owners and entrepreneurs. This support should encompass not only informal firms, but formal, large enterprises as well.

One way to help entrepreneurs is through Kaizen's managerial training in three modules: marketing and business strategy, production and quality management (including a brief introduction to workplace housekeeping techniques and other Kaizen activities), and business record keeping. Even a three-week training program can improve entrepreneurs' management practices and substantially increase their willingness to pay for the program. Foreign direct investment offers another way to expand the domestic stock of entrepreneurial skills. In China firms first benefited from the knowledge provided by overseas Chinese entrepreneurs and foreign managers at multinational branch plants. Firms then benefited from the transfer of know-how associated with foreign direct investment, which contributed to a new generation of domestic entrepreneurs.

Vocational Training to Improve Workers' Skills

Even with its low-skill workforce, Sub-Saharan Africa could become competitive in some light manufacturing sectors. In the apparel sector, for example, small numbers of managers and technicians can guide hundreds of workers. Specialists report that inexperienced workers can learn to operate sewing

machines in no more than two weeks. For the longer term, upgrading to more complex production will require a better-trained workforce than is currently available. But the expansion of light industry need not await higher school enrollment and better-quality schooling. Industrialization can begin rapidly by targeting promising sectors with modest skill requirements—the objective of this report—and then adopting policy measures that contribute to lowering the training costs facing would-be private investors. Together with the private sector, governments can offer technical assistance to foster industry-specific vocational training for less-skilled workers. Such training could be offered to smaller firms in industrial clusters (including informal ones) and to larger firms in industrial parks.

Governments, in partnership with the private sector, can leverage publicly funded programs to turn out technicians who can operate or repair simple machines, read instructions, and use the Internet to communicate and search for information. In addition to good basic education, governments could design technical skills development programs such as those at the Penang Skills Development Centre (Malaysia), which offers a variety of sector-specific short- and long-term certificate, diploma, and degree courses for all levels of the workforce. Dedicated skills development schools have had huge payoffs in countries where they were directed at sectors in which the country had a latent comparative advantage.

Implementation Issues

The report emphasizes how important it is for African governments to focus their scarce resources on resolving the most significant constraints on light manufacturing industries with the biggest potential. Reform implementation should take into account five considerations:

- First, policy interventions should begin with pilot initiatives and be continually revised and updated. As the Chinese reform experience shows, where policy reforms are needed, pilot initiatives can be designed in selected rural, geographically isolated areas to ensure that lessons are learned before scaling up (Zhang, de Haan, and Fan 2010). Implementation should be decentralized as much as possible to increase proximity to the private sector, improve accountability, and foster competition between local governments.
- Second, not all efforts to support selected industries will succeed. The Asian experience shows that governments should be willing to drop failing policies. For this reason it is important to keep pilot initiatives small and put in place effective monitoring and evaluation mechanisms to review and improve ongoing interventions regularly.
- Third, the fundamental role of the government in private sector development is to foster competition. Ongoing patterns of development in light

manufacturing in China and Vietnam show that competition is the most critical aspect of industrial development. In both countries, initial preference for state-run enterprises has given way to national policies that facilitate the growth of light manufacturing industries through open competition.

- Fourth, it is important for African governments to mobilize support from all partners—the private sector, nongovernmental organizations, and the donor community—in their structural transformation efforts.
- Fifth, one of the best ways for the government to facilitate robust private sector growth is to maintain a stable and conducive macroeconomic environment and ensure that natural resources are well managed. Most African countries have made substantial progress in this area in recent years, and these efforts should continue.

The fiscal impact and political economy of light manufacturing policy reforms should be assessed before implementation begins. It is often said that limited capacity and weak governance make it difficult for many Sub-Saharan African countries to design and implement the specific policies proposed here. But the proposed approach is not expected to create serious governance issues for four reasons:

- First, although some of the proposed reforms would reduce the rent of vested interest groups, the extent of policy intervention is smaller than the traditional big-bang approach, and any political impact is likely to be smaller. The benefits can be calculated up-front, and a deeper analysis of political economy issues can be conducted to reduce the losses of vested interest groups.
- Second, the proposed policy reforms would be consistent with the latent comparative advantage of the economy. If subsidies and other supportive policies target industries consistent with latent comparative advantage, the required subsidies will be small but will attract many new entrants into a competitive sector, making rent seeking less likely.
- Third, policy interventions should increase competition (for example, by reducing entry costs and risks) as well as the capacity of firms to compete. This is the opposite of what past, failed industrial policies did in Africa, such as policies protecting and subsidizing a few companies in industries in which the country had no comparative advantage.
- Fourth, while the broader agenda of good governance is important, African governments should not wait for improvements before supporting the private sector with focused policies to enhance investment and create more growth and more jobs. The East Asian experience shows that, with capable leadership that promotes development by encouraging private business and enabling market forces, a country can achieve impressive results even if the governance issues have not been addressed at all levels.

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Part 1

Setting the Stage

Good Possibilities for Light Manufacturing in Sub-Saharan Africa

After stagnating for most of the past 45 years, economic performance in Sub-Saharan Africa is markedly better, suggesting a turning point (Arbache, Go, and Page 2008). Between 2001 and 2010 gross domestic product (GDP) grew 5.2 percent a year and per capita income grew 2 percent a year, up from -0.4 percent in the previous 10 years and exceeding growth in both Latin America and the Caribbean and in high-income countries (World Economic Forum 2011). The reforms of the 1990s, which focused on macroeconomic stability and liberalization, began to gain traction. After decades of relying mostly on donor finance and its own resources, Sub-Saharan Africa found a spot in the global market for foreign direct investment (FDI). Between 2000 and 2009, net FDI flows averaged about US\$22 billion a year, more than five times the average of US\$4 billion a year between 1990 and 1999 (UNCTAD 2011). And export growth was robust. These growth-related indicators suggest that Sub-Saharan Africa's economies, typically perceived as the last stronghold of traditional agriculture and underdevelopment in a globalized world, have turned a corner.

Structural Transformation

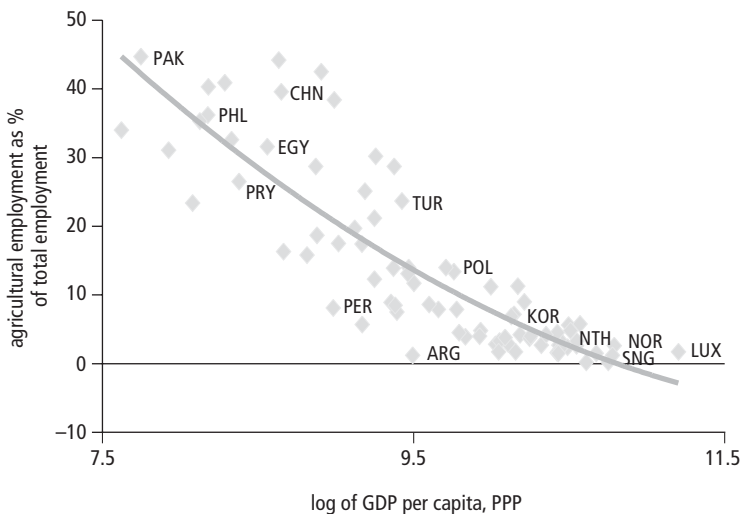
Sub-Saharan Africa's recent growth would mark the start of a new development trajectory if the attendant structural transformation, another indicator of sustainable growth, were equally visible. But it is not, as reflected in trade trends. The role of exports in the economy increased a little, to 32 percent during 2000–09 relative to 27 percent in the previous decade, but export diversification remained elusive. While export growth accelerated in the last decade, 73 percent of it was attributable to mineral exports, which spiked in a commodity price boom. Africa's share in the global economy also remained marginal. Between 1980 and 2008 its share of global exports stagnated at 1.3–1.6 percent, while East Asia's share increased from 3.3 to 14 percent (World Economic Forum 2011). Nor did Sub-Saharan Africa's investment growth, which should follow

a pickup in FDI, materialize.¹ The macroeconomic reforms of the 1990s led to more sustainable fiscal policies, controlled inflation, and better managed debt. Some countries went further and addressed fundamental structural rigidities by divesting public sector activities, opening some government monopolies, such as telecommunications, to private participation, and reducing public sector borrowing from domestic banks to expand opportunities for the financing of private investment. But a surge in private investment did not ensue.

Without structural transformation, it is questionable whether Africa can create the millions of higher-productivity jobs needed to lift workers out of agriculture and the informal sector. Structural transformation was the foundation of labor productivity growth and prosperity in Asia. Millions of better-paying jobs were created with the emergence of labor-intensive sectors where productivity was higher than in agriculture and the informal sector.

A large, low-productivity agriculture sector that employs as much as 60 percent of the labor force is typical for a Sub-Saharan African economy (UNCTAD 2011). Including workers in the informal sector, close to 80 percent of all Sub-Saharan African workers are in low-productivity, low-income jobs. In light of the negative association between employment in agriculture and income per capita (figure 1.1), the only channel through which to create better-paying jobs is structural transformation to reallocate workers from low-productivity agriculture and the informal sector into more productive economic activity in

Figure 1.1 Employment in Agriculture and Income in Select Countries, 2008



Source: World Bank 2010.

manufacturing and services (McMillan and Rodrik 2011). Without this transformation, Africa cannot redress the prevailing market dualism that separates the thousands of small, mostly informal firms from the limited number of large, formal firms.

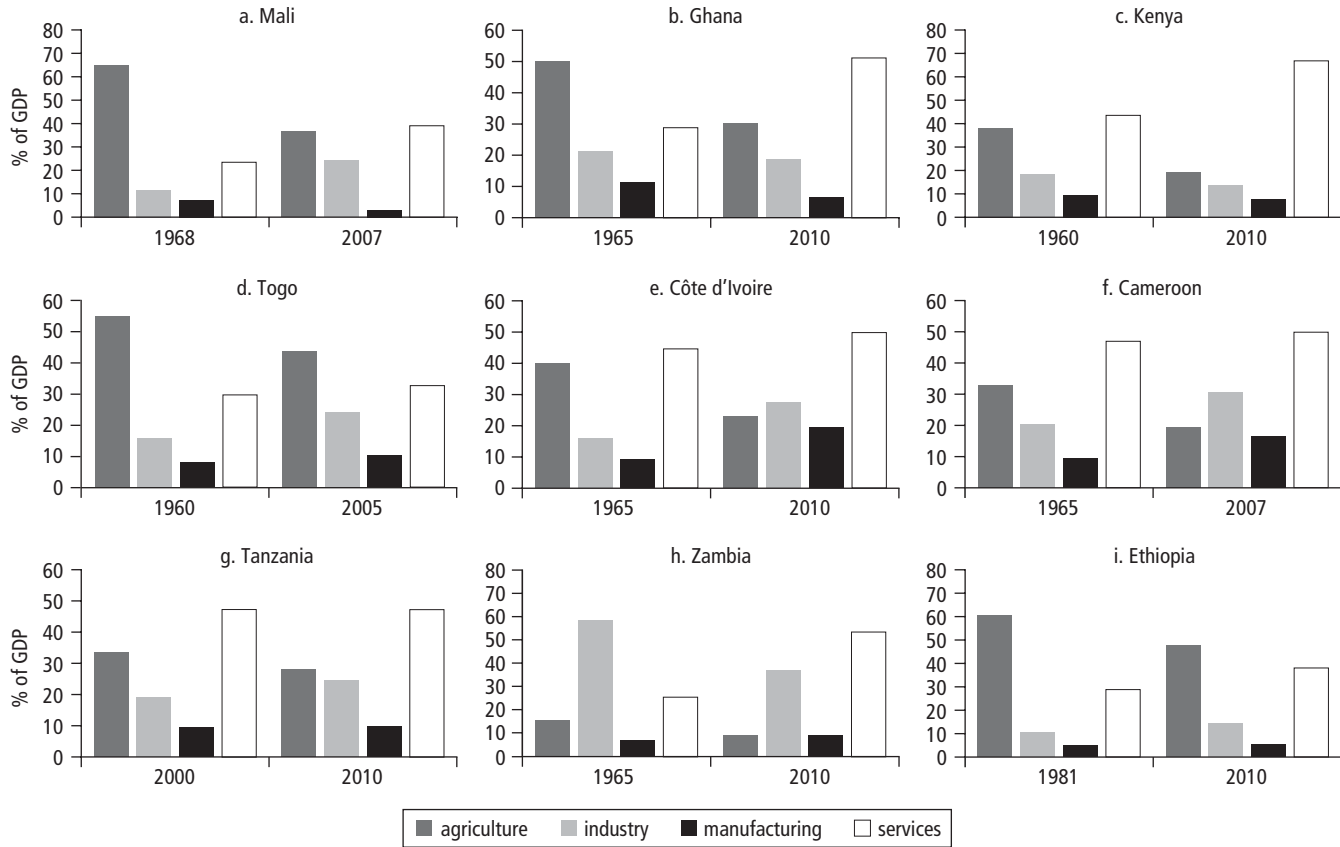
For the huge pool of workers in agriculture and the informal sector, labor-intensive manufacturing that requires skills not too different from their current ones could be a source of more productive employment. Agricultural incomes are invariably low, whether in coffee-producing Tanzania and Uganda—where about 75 percent of workers are in agriculture and 10–15 percent are in household enterprises—or in cotton-producing Burkina Faso (nearly 85 and 10 percent, respectively; Fox 2011).

In addition to increasing the productivity of medium and large formal firms, Sub-Saharan Africa can derive great benefit from systematic efforts to raise the productivity of small enterprises, mostly in the informal sector. Light manufacturing in Sub-Saharan Africa is characterized by a few formal medium-size firms providing products to niche or protected markets and by a vast number of small, informal, low-productivity firms providing low-quality products to the domestic market. These enterprises provide very low-paying jobs, little in foreign exchange earnings, and not much productive employment for aspiring young Africans.

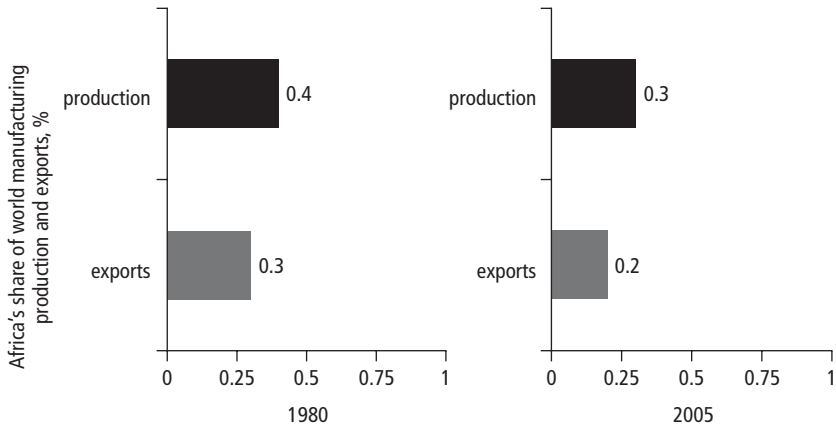
The structure of most Sub-Saharan economies has not changed in the last half century. They continue to be dominated by agriculture (figure 1.2) or mining. While labor productivity in mining is undoubtedly high, it has limited potential for employment. The large service sector in most African countries comprises predominantly nontradable services, such as retail trade, where labor productivity is also low. In recent years, tourism seems to be growing well in some countries, but other tradable services have yet to emerge. The conspicuous absence of more productive, higher-wage employment options outside agriculture and the informal sector explains why, at the end of the first decade of the twenty-first century, incomes in Sub-Saharan Africa lag those of other developing countries by a considerable margin.² Worldwide, the average labor productivity is only US\$17,530 in agriculture but US\$38,503 in manufacturing (US\$2,000 purchasing power parity; McMillan and Rodrik 2011).

Yet another metric of structural transformation is a shift in what Africa produces and exports to the rest of the world. The emergence of new sectors and scaling up of more productive ones should elevate a country's position in the global market and should be measurable in a shift of its production or export basket from low-value primary products and services (such as household enterprises engaged in petty trading) toward higher value added ones. This process has been slow to occur in Sub-Saharan Africa. Despite having the most open economies, as shown in the high share of trade in GDP, Sub-Saharan Africa saw its participation in global manufacturing production and exports decline

Figure 1.2 Economic Structure in Select Sub-Saharan African Countries, Various Years, 1960–2010



Source: Monga 2011; World Development Indicators data, various years.

Figure 1.3 Share of Sub-Saharan Africa in Global Production and Exports, 1980 and 2005

Source: Amoako 2011.

between 1980 and 2005 (figure 1.3). While the emergence of China in the global manufacturing market since 1980 has resulted in a broad decline in the share of all regions in this market, the decline of Sub-Saharan Africa's share has been much longer and deeper. Sub-Saharan Africa's share of global light manufacturing has been continually declining—to less than 1 percent—and preferential access to the U.S. and European Union (EU) markets has made little difference. This signals the declining competitiveness of its manufacturing, an important route out of agriculture.

Light Manufacturing, Including Agribusiness, as a Possible Driver of Africa's Structural Transformation

While light manufacturing³ is not the only alternative to low-productivity agriculture, it has been historically, and still is, an important source of growth and productive employment in economies abundantly endowed with less-skilled labor and a comparative advantage in labor-intensive sectors. In almost every country the transformation from traditional agriculture toward a modern economy began with light manufacturing—cotton and silk textiles in Japan; textiles, food processing, and a host of labor-intensive consumer products in Taiwan, China; and so on—because of its potential to absorb a large pool of less-skilled workers rapidly from agriculture into new occupations that substantially increased their productivity without imposing steep capital requirements.

So, just as rising costs of labor and land diminished the comparative advantage of light industry in Taiwan, China, and Hong Kong SAR, China, during the 1970s, opening the door to rapid expansion of China's production of labor-intensive export goods beginning in the 1980s, the rapid cost escalation now facing China's export-oriented light manufacturing sector creates opportunities that could jump-start Sub-Saharan Africa's structural transformation in the near future because it is well endowed with inexpensive, low-skilled labor, a key ingredient in the initial industrialization of a long list of Asian economies.

For Ethiopia and many other nations of Sub-Saharan Africa, the light manufacturing sector offers an attractive choice for making optimal use of its abundant labor and natural resources to create better-paying jobs fairly rapidly for its vast pool of less-skilled labor in agriculture and the informal sector. This is also evident in East Asian and South Asian countries, where light industries continue to employ vast numbers of unskilled workers, especially in India (Panagariya 2008).

Light manufacturing can be important even in countries with no clear comparative advantage in it. In such countries, while it may not be a viable export industry, light manufacturing could still replace imports and serve the domestic market. The overt dependence of many Sub-Saharan African countries on aid-financed imports of light manufactures could be reduced by development of a light manufacturing sector that uses domestic raw materials and less-skilled labor, conserving foreign exchange.

Does Sub-Saharan Africa Have a Comparative Advantage in Light Manufacturing?

In our study of Enterprise Survey data for 89 countries, we find that, since Africa is mainly located at the less sophisticated end of the technology spectrum, its natural comparative advantage likely would be low-tech rather than high-tech manufacturing (Harrison, Lin, and Xu 2011). These data allow us to classify the manufacturing sectors into low tech (food and beverages, leather, wood processing and wood products, simple metal products, textiles, and garments) and high tech (metal and machinery, electronics, chemical and pharmaceutical products, nonmetal and plastic products, automobiles, and parts).²⁴ Africa clearly has a latent comparative advantage in low-tech manufacturing. And light manufacturing and a few services have a significantly larger employment potential than heavy manufacturing or more sophisticated services.

Sub-Saharan Africa's comparative advantage in light manufacturing hinges on whether it has an advantage in low-wage labor. Among Ethiopia, Tanzania, and Zambia, Ethiopia generally has the lowest wages for skilled and unskilled workers in five light manufacturing industries (table 1.1), almost a third of Vietnam's in most industries—polo shirts, leather loafers, and milled wheat.

Table 1.1 Monthly Wages in the Light Manufacturing Sectors of Five Countries, by Skill Level*US\$*

Product	China		Vietnam		Ethiopia		Tanzania		Zambia	
	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled	Skilled	Unskilled
Polo shirts	311–370	237–296	119–181	78–130	37–185	26–48	107–213	93–173	—	—
Dairy milk	177–206	118–133	—	31–78	30–63	13–41	150–300	50–80	106–340	54–181
Wooden chairs	383–442	206–251	181–259	85–135	81–119	37–52	150–200	75–125	200–265	100–160
Crown cork	265–369	192–265	168–233	117–142	181 ^a	89 ^a	—	—	510 ^b	342 ^b
Leather loafers	296–562	237–488	119–140	78–93	41–96	16–33	160–200	80–140	—	—
Milled wheat	398–442	192–236	181–363	78–207	89–141	26–52	200–250	100–133	320–340	131–149
Average	305–399	197–278	154–235	78–131	77–131	35–53	153–233	80–130	284–364	157–208

Source: Global Development Solutions 2011.

Note: — = Not available.

a. Bottom of range; upper range not known.

b. Top of range; lower range not known.

These data refer to the cash wages paid to factory workers. Labor costs are not limited to cash wages; they also include employer contributions to pension plans, health and unemployment insurance, and other fringe benefits, as well as employer outlays on training, housing, recreation, and so on. Although systematic data are not readily available, nonwage labor costs in China are often high and seem likely to rise quite rapidly, perhaps more rapidly than cash wages. Since nonwage labor costs in many Sub-Saharan African countries are low and seem likely to remain so, expanding wage comparisons to include the full costs borne by employers seems certain to increase the potential cost advantages available to African firms entering labor-intensive light industries, both today and, especially, in the future.

In China, nonwage labor costs vary widely depending on location and type of firm. Urban manufacturers in the organized sector face substantial payouts. The labor costs of rural manufacturers and informal enterprises consist almost entirely of cash wages. Costs are expected to rise substantially in the future because the nonwage costs of registered urban enterprises are likely to rise and the range of firms expected to pay these costs is likely to expand.

There are several reasons for expecting the overall ratio of fringe benefits to cash wages to rise substantially in China in coming years. In the past, Chinese employers, especially in the south and in the private sector, have frequently ignored official regulations on wages, hours, and safety net contributions. Focusing on fringe benefit contributions, Banister (2005, 27) writes, "Noncompliance is rampant and penalties are rarely enforced." The same has been true in other dimensions of employment and compensation. Employers have used a variety of tactics to escape payment: underreporting earnings (Banister 2005, 28); simply ignoring laws and regulations; or substituting "contractors" (that is, workers supplied by local employment agencies often associated with the municipal labor bureau) for formal workers, a device that leaves the employment agency to cover (or, most probably, to ignore) contributions for fringe benefits.⁵ Another big loophole arises from the presence of large numbers of migrant workers in Chinese urban factories; migrants are generally excluded from social programs aimed at registered urban residents.

Chinese authorities are gradually increasing their enforcement of existing regulations. In addition, recent legislation, particularly three laws enacted in 2008—the labor contract law, the employment protection law, and a statute governing mediation and arbitration of labor disputes—have strengthened the position of employees in labor-management relations, including migrant workers whose lack of urban residence permits had previously disqualified them from participating in municipal health, welfare, and pension programs. Academic summaries report that this legislative package will "increase labor costs" and "enhance labor costs of the enterprises," a view emphatically endorsed by

employers during field visits to export-oriented manufacturers in Guangdong and Fujian (Zhao and Zhang 2010).

Access to benefits is expected to increase as a result of several trends:

- The 2008 labor legislation envisions a general formalization of labor relations, so that we should expect (a) tightening up of supervision and oversight, which will increase compliance among formal urban firms and also reduce the frequency with which local government agencies collude with employers in arrangements that effectively exclude substantial numbers of workers from participating in pension and safety net programs, and (b) increased pressure on the part of workers, including migrants, to benefit from arrangements mandated by laws and regulations. This will occur partly because of the new laws and partly because of market trends that increase workers' choice and thus bargaining power.
- There is a modest but growing tendency for some provinces and cities to lower (with the intent of eventually eliminating) long-standing barriers that restrict the migration of rural people into the cities and limit the eligibility of migrant workers to participate in pension, health care, education, and other systems designed to benefit registered urban residents.
- Chinese authorities have initiated a gradual expansion of pension, health, and safety net systems, initially established for the sole benefit of regular urban residents, to include growing participation by rural residents.

While the impact of these changes will be gradual rather than sudden and while some of the changes will not affect manufacturing costs, the cumulative impact on factory labor costs is likely to be substantial. For example, Yiping Huang (2010, 74, emphasis added) plausibly speculates, "If urban employers made social welfare contributions on behalf of their migrant workers, their *payrolls could rise by 35–40 percent.*" Chinese exporters, particularly in labor-intensive sectors like apparel, depend almost entirely on migrants to fill low- and semiskilled positions. A realistic appraisal of China's current political economy should include the expectation that the next 5–10 years will likely see a move to allow migrants working in urban factories to join at least some of the pension, health care, unemployment, and other programs described above. Any reform of this sort will further enlarge the substantial labor cost advantage available to Sub-Saharan African entrants into the light industry sectors that are the focus of this report.

A low-wage advantage alone does not guarantee Sub-Saharan Africa a comparative advantage in less-skilled labor-intensive manufacturing. As Sub-Saharan Africa competes with other low-wage regions (for example, South Asia), at least two other factors come into play. First, productivity is as important as wages in determining comparative advantage. Second, because wages and labor

Table 1.2 Labor Productivity in the Light Manufacturing Sectors of Five Countries

Labor productivity	China	Vietnam	Ethiopia	Tanzania	Zambia
Polo shirts (pieces per employee per day)	18–35	8–14	7–19	5–20	—
Leather loafers (pieces per employee per day)	3–7	1–6	1–7	4–6	—
Wooden chairs (pieces per employee per day)	3–6	1–3	0.2–0.4	0.3–0.7	0.2–0.6
Crown corks (pieces per employee per day × 1,000)	13–25	25–27	10	—	201
Wheat processing (tons per employee per day)	0.2–0.4	0.6–0.8	0.6–1.9	1–22	0.6–1.6
Dairy farming (liters per employee per day)	23–51	2–4	18–71	10–100	19–179

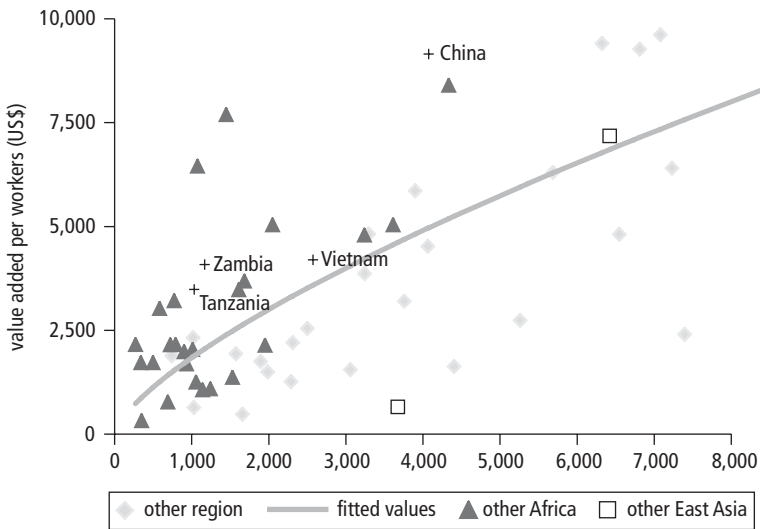
Source: Global Development Solutions 2011.

Note: — = Not available. Crown cork (bottle cap) production in Zambia is fully automated. Figures for wheat processing are from a sample of small enterprises in all five countries.

productivity vary across sectors, sector specificity is an important determinant of a country's comparative advantage in labor-intensive light manufacturing (table 1.2). Relative to East Asia, Sub-Saharan Africa's labor productivity is low except in *some* sectors in *some* countries. In sectors in which Ethiopia has a comparative advantage, also characterized by competition, good management can elevate labor productivity to a point comparable to that of the average firm in China or Vietnam.

Physical labor productivity in the three African countries falls within the range observed in Chinese and Vietnamese firms (although product quality may fall short of their standards, as occurs with polo shirts) except for wooden chairs and also Chinese flour milling, where the productivity figures shown in table 1.2 pertain to small operations located far below the domestic best-practice frontier.⁶ When low wages are paired with the number of products a worker can produce in a day (labor productivity) in a well-managed firm, Ethiopia and Tanzania have a labor cost advantage. The production of one to seven pieces of footwear per employee per day in Ethiopia and four to six in Tanzania confirms this (table 1.2). On closer inspection, labor productivity is significantly higher in *well-managed* Ethiopian and even Zambian firms. And if other nonlabor-related constraints are lifted, it is high enough to restore the firms' labor cost advantage. For example, labor productivity in polo shirt production is 19 pieces per employee per day in a well-managed firm, underscoring Ethiopia's potential labor cost advantage in garments.⁷ This also points to the importance of entrepreneurial skills, which determine whether a firm is well managed.

More comprehensive evaluations also validate Sub-Saharan Africa's comparative advantage in less-skilled labor. Findings of firm survey analyses for this study validate the value chain results. Across Africa, our study of wages and pro-

Figure 1.4 Labor Productivity per Worker in Select Countries, 2005

Source: Clarke 2011a.

Note: Calculations based on data from World Bank Enterprise Surveys. East Asia is China, Indonesia, the Philippines, Thailand, and Vietnam. Africa is Sub-Saharan Africa only. Data are for all Enterprise Surveys conducted since 2006 with at least 50 firms. Countries with GDP over US\$8,000 are excluded. The fitted values line is from a log-log regression.

ductivity in manufacturing using the Enterprise Surveys shows that—considering per capita income (a proxy for institutional environment and the quality of physical infrastructure, which are shown by other studies to affect firm performance)—value added per worker (labor productivity) does not appear to be consistently lower in Sub-Saharan Africa than in other regions (Clarke 2011a). Indeed, more countries lie above the regression line than below (figure 1.4).⁸ In a more detailed study, also from the World Bank’s Enterprise Surveys (investment climate assessments) for formal firms, Harrison, Lin, and Xu (2011) examine the simultaneous effect of political, geographic, and business environments on firm performance. They find that, after controlling for the business environment, productivity, and sales growth, the formal manufacturing sector performs as well in Africa as in other countries at a similar level of income.⁹ So, lower labor productivity in Sub-Saharan Africa’s light manufacturing sector does *not* seem to be due to the characteristics of the workforce, such as weaker skills and unionization. And improving the business environment should go a long way toward restoring African competitiveness in light manufacturing.

In our quantitative survey of small and medium enterprises in Ethiopia, Tanzania, Zambia, China, and Vietnam, Sub-Saharan Africa’s workers are found to be as productive as workers in East Asia.

Africa's Performance in Light Manufacturing

Weak competitiveness in nearly all light manufacturing industries and the marginal role of light manufacturing in exports and the overall economy sum up Sub-Saharan Africa's performance relative to that of other developing countries. Evidently, the celebrated growth rates of the last decade were not propelled by light manufacturing. Due to tougher global competition, producers in Sub-Saharan Africa cannot currently sell their products even in the domestic market and certainly not in the global market. The outcome? A slower or even arrested pace of structural transformation (as evident from Sub-Saharan Africa's exports to the world) and a widening gap in size and sophistication between Sub-Saharan Africa and other developing countries, particularly in Asia.

No Sign of Industrialization

A large part of Sub-Saharan Africa's higher GDP growth was propelled by price booms in agriculture and natural resources. Growth in manufacturing did recover from negligible values in the 1990s to about 4 percent a year during 2000–07, but had no effect on overall growth. Manufacturing contributes only about 8 percent of GDP in Sub-Saharan Africa today. Its gradual decline from nearly 11 percent in the 1980s confirms the dominance of agriculture and minerals and shows how far Africa is from becoming an industrial economy (table 1.3). Additional evidence of limited industrial progress comes from trade statistics and domestic production data confirming that many garments—as well as other light manufactures that Africa produced in the 1990s for domestic consumption—are now imported.

By contrast, East Asia and South Asia, the two fastest-growing developing regions, have enjoyed even faster growth of manufacturing, widening the gap with Africa. Between 1990 and 2007 East Asia sustained growth of about 10

Table 1.3 Level of Industrialization, by Region, 1960s–2000s
manufacturing as a % of GDP

Decade	East Asia and the Pacific	Europe and Central Asia	Latin America and the Caribbean	Middle East and North Africa	South Asia	Sub-Saharan Africa
1960s	24.8	—	25.6	—	14.2	9.4
1970s	31.5	—	26.5	—	15.7	10.1
1980s	31.5	—	26.5	12.3	16.1	10.7
1990s	30.4	21.3	19.6	14.2	16.1	10.8
2000s	31.1	18.5	18.0	12.1	15.7	8.5

Source: World Bank 2010.
Note: — = Not available.

percent a year, expanding the share of manufacturing in the economy to about 30 percent and laying the foundations for a strong industrial base. South Asia's manufacturing has grown 7 percent a year since 2000.

Until liberalization in the 1980s, Sub-Saharan Africa's markets were shielded from global competition, and many products were produced domestically. But in the last two decades, imports of even simple consumer products took over in African markets. It is now well established that competition breeds innovation, weeds out inefficient firms, and encourages efficient ones to upgrade, innovate, and compete with new entrants, thus leading to an overall more competitive sector. But Sub-Saharan Africa's manufacturing sector has defied this trend.

Why? Mainly because at the start of liberalization, the playing field was not level, and no one—not policy makers, academics, or donors—paid enough attention to light manufacturing. African nations made little effort to smooth the path for would-be private entrepreneurs, neglecting lessons from the post-World War II experience of numerous formerly low-income economies—including Japan; Taiwan, China; Hong Kong SAR, China; Singapore; the Republic of Korea; Thailand; Malaysia; China; and Vietnam—that have leveraged the achievements of private sector manufacturers to promote national prosperity. So Sub-Saharan African industries marked time, while Asian industries raced ahead, especially in apparel, footwear, and furniture. After trade liberalization, most African producers could not compete with cheaper and better-quality imports, especially from China, which currently dominates the global market for light manufactures.

Worse yet, liberalization of input markets in Sub-Saharan Africa, when it occurred, typically lagged behind product market liberalization. In some cases, crippling restrictions on input markets remain in place even today, as is evident in Ethiopia's leather industry. The lack of competition sustains high input costs, which further erode the competitiveness of the final product. Today, most African light industries are not competitive globally, and African producers struggle to compete with foreign producers to sell even milk, poultry, apparel, and shoes in the domestic market. But the best-managed firms in some sectors offer a glimmer of hope.

Manufactured Exports

East and South Asia are good benchmarks for evaluating the contribution of light manufacturing to the transformation of Sub-Saharan Africa's export basket from primary commodities to other products. Manufactured exports were pivotal in the catch-up of low-income East Asia with the middle-income East Asian Tigers in the 1980s and in the latter's catch-up with Japan in the 1970s (Lin 2011). Invariably, light manufacturing preceded heavy industry. The East Asian model of export-led catch-up is notable for the size of the boom in manu-

Table 1.4 Share of Manufactures in Total Exports in Select Countries in Africa and Asia, 1990–94 and 2005–09*% of total exports*

Country	Manufactured exports		Light manufactures	
	1990–94	2005–09	1990–94	2005–09
Bangladesh	84	93	81	91
China	81	90	56	35
Ethiopia	22	13	10	9
Indonesia	27	38	19	16
India	51	54	41	29
Cambodia	22	90	21	89
Lao PDR	33	34	32	22
Pakistan	81	81	73	71
Tanzania	13	12	10	6
Vietnam	23	58	21	43
Zambia	3	6	2	3

Sources: World Bank 2010; COMTRADE SITC, 2–3 digit classification.

factured exports and the dramatic change in the composition of exports, showcased here by China and Vietnam.

Between 1990–94 and 2005–09 the share of manufactured exports in Chinese exports grew from 81 to 90 percent,¹⁰ and the share in Vietnamese exports grew from 23 to 58 percent (table 1.4). In recent years the share of light manufactures in Chinese exports declined, as China diversified into more sophisticated, high-tech products. But in Vietnam the share expanded, signaling the sector's enormous potential in low-income countries. East Asia, however, is not the only region that leveraged export-led growth to become more prosperous, as Bangladesh, Nepal, Pakistan, and Sri Lanka show (table 1.4). In 2005–09 the corresponding shares were just 9 percent in Ethiopia, 6 percent in Tanzania, and 3 percent in Zambia.

Growth in light manufacturing does not have to be tied only to exports, at least not in the short term. Sub-Saharan Africa's domestic markets may be able to absorb increased production of some simple, low-price, import-competing products such as garments, furniture, and processed food. But in the medium term the larger scale of production and size of the market will demand an export-led model. Can Sub-Saharan Africa achieve export-led growth?

The case for export-led growth in developing countries has been well established (see World Bank 2009; Harrison and Rodríguez-Clare 2010; Chenery 1980). And recent evidence indicates that there may indeed be a case for growth led by exports of light manufactures in Sub-Saharan Africa (Harrison, Lin, and

Xu 2011). More outward-oriented countries have grown faster, although establishing the direction of causality is difficult (Harrison and Rodríguez-Clare 2010). Developing countries also need to export to get the resources to import skills and technology to move up the value chains. And in resource-based industries there are learning effects from being exposed to global competition.

The astounding contrast in the transformations of their export baskets two decades apart is clear testimony to the widening of the competitiveness gap between East Asia and Sub-Saharan Africa. In less than three decades, China transformed its export basket from gas, petroleum, live animals, and a few low-tech manufactures such as fabrics and footwear to the most technologically sophisticated medium-tech and high-tech products. The export share of the top 10 products in China's export basket did not shrink with the emergence of more light manufactures. Instead, it rose from 20 to 27 percent, reflecting the primacy of light and heavy manufactures. Footwear was the only common product that China exported in the 1980s and 2000s (table 1.5).

Table 1.5 exaggerates the sophistication of China's current export basket because the contribution of Chinese factories to digital data-processing

Table 1.5 Top 10 Non-Oil Exports of China, 1980–84 and 2004–08

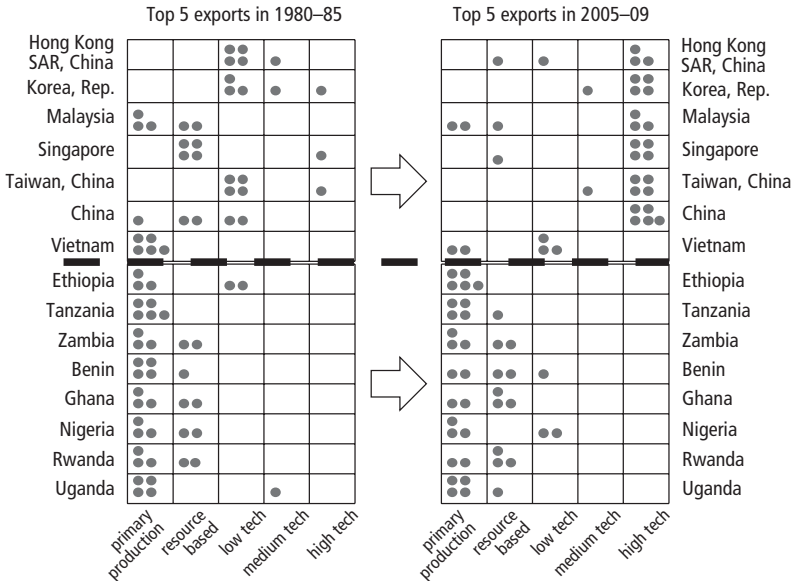
1980–84			2004–08		
Product	Level of technology	%	Product	Level of technology	%
Cotton fabrics: woven and unbleached	Low tech	3.1	Complete digital data-processing machines	High tech	5.0
Gas and oils	Resource-based	2.8	Peripheral units: control and adapters	High tech	3.5
Linens, furnishing, and textiles	Low tech	2.8	Parts and accessories	High tech	3.2
Cotton fabrics: woven and dyed	Low tech	1.9	Television, radio broadcasting, and transmitters	High tech	3.1
Basketwork, brooms, and paint rollers	Low tech	1.9	Parts and accessories for machines	High tech	3.1
Footwear	Low tech	1.5	Footwear	Low tech	2.2
Fabrics: woven and synthetic fibers	Medium tech	1.6	Sound recorders, video recorders	Medium tech	2.1
Women and infants outerwear and textiles	Low tech	1.5	Electronic microcircuits	High tech	2.0
Fine animal hair, not carded or combed	Primary	1.5	Children's toys, indoor games, and so on	Low tech	1.9
Swine, live	Primary	1.5	Outerwear knitted or crocheted	Low tech	1.9
Total share		20.0	Total share		27.7

Source: COMTRADE, SITC 2–3 digit.

machines and other “high-tech” products often consists mainly of assembly and packaging. Even so, the rising share of “high-tech” products in China’s export basket demonstrates the capacity of Chinese firms to capture substantial (and growing) shares of the value chains for products like desktop and tablet computers, smart phones, and printers that enjoy steep growth in demand and therefore contribute to China’s rapid expansion of manufacturing output, employment, and exports.

In Sub-Saharan Africa, unlike Asia, the same products have been exported for more than three decades. Of the five Sub-Saharan countries listed with their top five exports, only Nigeria and Benin have expanded into low-tech exports (figure 1.5). Expanding the list shows that six of the top nine exports retained their place in Sub-Saharan Africa’s export basket between 1980 and 2008. None of these were manufacturing items in 1980. By 2008 three products—iron ore, fuels, and tea—were replaced with diamonds, wood, and tobacco. Despite ample wood resources, as late as 2008, most of Sub-Saharan Africa was not processing simple sawlogs into furniture or roasting coffee for export.

Figure 1.5 Top Five Exports from Select Economies in Sub-Saharan Africa and Asia, 1980 and 2009



Source: PRMED Export Diversification webtool (based on COMTRADE statistics and adaptation of UNIDO’s technology definition).

Note: Data for Ethiopia is 1990–95.

The Dual Industrial Structure in Africa

Overwhelming evidence from new research, including this study, indicates that the constraints on firms vary by size, so a one-size-fits-all approach is likely to be ineffective. Small and large firms need to be treated separately, with the eventual goal of integrating them into comprehensive value chains. In light manufacturing, in particular, a prerequisite for exporting today is having the capability to fulfill large orders competitively (price and quality) and quickly. Both require tapping into scale economies associated with labor-intensive, assembly-line production chains—that is, large firm operations. By definition, smaller firms cannot do this.

There are very few medium or large companies, and those that survive struggle to compete with imports. The striking paucity of medium and large firms explains immediately why Sub-Saharan Africa’s light manufacturing cannot grow or chart an export-led growth trajectory. With the population of light industry enterprises skewed toward the proliferation of small firms, light manufacturing is constrained from playing a larger role in the domestic economy and virtually barred from exports. The small number of medium and large firms inhibits competition, discourages large new entrants, including would-be foreign investors, and stunts the sector.

It is not clear why there is such a glaring absence of large firms. Our study finds that firm growth¹¹ in a sample of small and medium producers of garments, leather products, processed foods, wood products, or metal products has been as robust within Ethiopia, Tanzania, and Zambia during 2008–10 as in Asia (Fafchamps and Quinn 2011). There is a substantial overlap in growth across the firms in Sub-Saharan Africa and East Asia—most Chinese firms in this sample did not grow much faster during 2008–10 than firms in Africa or Vietnam.

One explanation for the near absence of large firms in Sub-Saharan Africa’s light manufacturing pertains to the skills required to organize and manage medium and large firms. The capabilities of small entrepreneurs are not adequate for graduating from the typical small enterprise into the very different population of mid-size manufacturers, which need in-depth industry knowledge and experience in managing a certain scale of operation (Sutton and Kellow 2010). Söderbohm (2011) confirms this finding: “The striking fact is that small manufacturing enterprises almost always stay small . . . there is a huge (10-fold) gap in value added per head between manufacturing firms employing more than 50 workers and those employing fewer than 10 workers.”

Another explanation could be that Asian governments facilitate the process that small entrepreneurs need if they are to grow into medium and larger firms. Firm size in Sub-Saharan Africa is positively associated with the stock of capital, machinery, and land, although information on land is sparse (Fafchamps and

Quinn 2011). That association may explain why firms in the industrial parks in China can overcome these hurdles and gain access to these factors, exploit scale economies through modern technology that facilitates assembly line production, and grow into larger firms. The qualitative interviews of firm owners validate this hypothesis.

A closer look reveals that Ethiopia, Tanzania, and Zambia produce a variety of simple manufactured goods from metals fabrication to agribusiness. But these goods are produced by a very large, dynamic informal sector that caters to the low end of the domestic market, generally with lower-quality goods that have no direct competition from imports. The informal firms start out small and take advantage of lower wages and lower costs of doing business (avoiding taxes and regulations), but they remain small due to their lack of other factors of production. Their labor productivity cannot match that of larger Chinese firms.

Without exception, the owners of informal firms do not have access to the land needed to expand the scale of production. So, while they do not need finance to start-up, they cannot grow to the size of an East Asian firm. The lack of land ownership precludes the use of land as collateral to obtain financing to purchase better machines and increase productivity. Clearly, attention to firm size will be crucial to any policy interventions targeted at jump-starting light manufacturing in Sub-Saharan Africa.

A very large number of small, mostly informal, firms engage in low-productivity work. The vast majority of firms in Sub-Saharan Africa are small, with many owned and operated by household members, mostly in the informal sector.¹² In Zambia, for example, about 84 percent of workers are in informal enterprises (World Bank 2011). In many countries in the region, wages are far lower in the informal sector than in the formal sector. Workers in large privately owned firms in Ghana and Tanzania earn more than twice as much as similar workers in small firms and self-employed persons (Rankin, Sandefur, and Teal 2010). The pattern is similar in Zambia, where sales and labor costs per worker are both very low among small and medium enterprises. The average monthly labor costs per worker were about US\$120 a month in 2009 for the large, formal firms in urban areas (qualitative interviews), US\$95 a month for registered small and medium enterprises in urban areas, and only US\$43 a month for unregistered small and medium enterprises in urban areas (Clarke 2011a).

The implications of this split are clear. Low wages are a clear signal of the low productivity of at least 84 percent of the Zambian labor force, employed either in agriculture or in the urban informal sector. Similar circumstances prevail throughout the economies of Sub-Saharan Africa. Efforts to raise labor productivity and wages must build on a systematic effort to dismantle barriers that have limited the pace of structural change in Sub-Saharan Africa to a crawl, even though the experience of Asian economies demonstrates the feasibility of rapidly and substantially transforming poor economies.

China's success has earned it a huge share of the global market for apparel and other labor-intensive products. Steep increases in the cost of Chinese labor and real estate have begun to erode Chinese competitiveness in these sectors. Just as Chinese manufacturers replaced former exporters of labor-intensive goods based in Japan; Taiwan, China; and Hong Kong SAR, China, we now stand on the brink of a new transition that will shift the manufacture of labor-intensive products away from current bases along China's southern and eastern coastline.

This report highlights the opportunity for economies in Sub-Saharan Africa to participate in this transition. Episodes of success within the region, including the export of cut flowers from Ethiopia's newly developed rose plantations and the emergence of Zambia's production of corrugated roofing sheets illustrate the potential inherent in these industries.¹³

The report advocates a package of feasible and inexpensive policies to promote the expansion of labor-intensive light manufacturing. This report, backed by a panoply of comprehensive and detailed research materials, lays out a path that can combine local labor, local (and some imported) materials, and local (and imported) entrepreneurship to jump-start a development process that can expand the capacity of local producers to increase their share in local and eventually overseas markets for garments, leather products, processed agricultural goods, wooden furniture, and simple metal products.

Strategy for a Competitive Light Manufacturing Sector in Sub-Saharan Africa

Sub-Saharan Africa's potential in light manufacturing is huge because of its comparative advantages arising from low labor costs and abundant natural resources. These resources seem well suited for an expansion of manufacturing capacity that can replace imports and capture overseas markets for garments, leather goods, and processed agricultural products.

While exports of wooden furniture and simple metal products may not be feasible in the short term, there is ample local demand for them if they can compete with imports. For example, even though Ethiopia has enormous unexploited potential in timber, particularly bamboo, urban households purchase imported furniture. Why? Because the local price of US\$667 a cubic meter of timber in Ethiopia prevents local furniture makers from competing with imports from China, where the corresponding price of timber is US\$344, or Vietnam, where it is US\$146–US\$246. Under these circumstances, policies that support the commercialization of domestic timber resources hold the promise of saving foreign exchange and supporting large numbers of workers at wages well in excess of current earnings in farming or informal jobs.

Africa's potential varies by country and sector, and any strategy to boost the competitiveness of light manufacturing must recognize these specifics. Above all, Sub-Saharan Africa's comparative advantage in light manufacturing rests on the efficiency gains associated with competition in foreign and domestic markets, which guarantees the availability of key inputs at the best quality and lowest cost. Competing imports provide a good benchmark for the sector's global competitiveness.

Sub-Saharan Africa's greatest asset is its large pool of low-wage, less-skilled workers whose productivity in well-managed firms in some subsectors may already approach levels observed in China and Vietnam (tables 1.1 and 1.2). While labor productivity in the average firm is low, with the aid of good management and technical assistance, it can be elevated to move toward the productivity of the best-managed firms. The crux lies in the low skill requirements of light manufacturing subsectors, which make it possible to train, quite cheaply, an unskilled garment worker in about two weeks.¹⁴ While this advantage is unlikely to be permanent, or applicable to all countries, it provides an opportunity to promote new industries that may, like China's, prosper for decades and create millions of productive jobs, much as East Asia did early on and as Bangladesh and Vietnam are doing today.

To move the labor productivity of the average firm toward current domestic best practice does not require providing costly training for all workers. The chief ingredient is new or improved enterprise management together with targeted technical assistance—the impact of which can already be seen in the Ethiopian shoes industry. The detailed studies undertaken as part of this study demonstrate the feasibility of substantially improving management within small firms through inexpensive, short-term training programs (Sonobe, Suzuki, and Otsuka 2011). Furthermore, once begun, the process of upgrading can become self-sustaining, as word spreads of the tangible benefits accruing to early participants in training seminars. Attracting new investors, particularly overseas entrepreneurs who can provide hands-on production and marketing experience in the target industries as well as financial resources and technical expertise, can accelerate the process of industrial expansion and structural change.

Sub-Saharan Africa is fortunate to be well endowed with key inputs and raw materials for light manufacturing. If high-quality inputs are not available locally at the beginning of the expansion process, modest reforms can establish reliable supply chains (for example, for high-quality fabrics or leather) and therefore expand the scope of potentially competitive manufacturing activity. More efficient organization can yield huge savings in transport costs in industries that are located far from a port and require hauling high-volume, high-weight materials. Commercialization of domestic inputs like timber, bamboo, and leather can economize on time as well as foreign exchange and increase the capacity of domestic producers to respond quickly to shifts in demand.

The arithmetic of trade logistics costs validates the enormous potential gains from using Sub-Saharan Africa's input markets to jump-start its light manufacturing product markets. The case of raw materials for Ethiopia's leather products industry illustrates this point. Despite having some of the best hides in the world due to a favorable climate, Ethiopia employs only 8,000 workers in this sector, while Vietnam, which has the same amount of land and population, employs 600,000. As discussed in detail in chapter 8, some short-term policy measures can go a long way to restore Ethiopia's comparative advantage in this sector: eliminate export and import restrictions on leather; implement a program to control "ectoparasites," a skin disease that adversely affects the quality of leather; and modify bank arrangements to allow the use of cattle as collateral. Longer-term reforms such as modifying land tenure to allow large-scale herding would also help.

The Ingredients of Success

In sum, Sub-Saharan Africa has all the necessary inputs for a competitive light manufacturing sector: a comparative advantage in low-wage labor, abundant natural resources sufficient to offset its low labor productivity relative to its Asian competitors, privileged access to high-income markets for exports, and in most cases a sufficiently large local or regional market to allow emerging producers to develop capabilities in quick-response, high-volume production, and quality control in preparation for breaking into highly competitive export markets. For industries requiring quick access to the coast, Tanzania has a special advantage. But for industries competing with Chinese firms, landlocked Zambia, where there is no such access, instead has natural protection for industries whose products are high in volume and heavy in weight.

We already see instances in which well-managed up-to-scale firms, working in an environment of competition in both product and input markets, have succeeded in raising their productivity to the level of current Asian export leaders. This report proposes that governments in Sub-Saharan Africa follow the course pioneered by a succession of Asian nations by taking the initiative to accelerate the realization of latent comparative advantage in segments of light manufacturing in which specific, feasible, sharply focused, low-cost policy interventions can deliver a quick boost to output, productivity, and perhaps exports, opening the door to expanded entry and growth. In Sub-Saharan Africa, as in Asia, key elements in nurturing developments that can lead to a process of self-sustaining growth include liberalizing access to foreign exchange, imported inputs, and overseas product markets; fostering competition in domestic markets for inputs and outputs; improving domestic infrastructure; offering tax concessions for industrial start-ups; providing short-term training opportunities for workers and managers; and offering generous incentives to attract overseas entrepreneurs capable of filling gaps in domestic stocks of technical knowledge, managerial skills, market experience, and liquid funds.

Growing Markets Inside and Outside Africa

In recent years, four factors have opened new markets for Sub-Saharan Africa's light manufacturing firms.

- First, faster economic growth has expanded the size of the domestic market for manufactures in most countries. New markets thus offer new opportunities.
- Second, foreign investors and aid agencies in Sub-Saharan Africa are investing in the production of manufactures destined for their own markets or foreign markets. Examples include the U.S. Agency for International Development's technical assistance to Rwandese coffee farmers, culminating in a Starbucks contract for exports of locally washed and dried Rwandese coffee to the United States. Similar technical support helped a honey producer to learn how to comply with the phytosanitary standards required to begin exporting fresh honey to Trader Joe's, a U.S. supermarket. The arrival of Chinese, Indian, and Middle Eastern investors is also likely to open doors to more new markets.
- Third, for globally competitive light manufacturing in Sub-Saharan African firms, the market is the world—and that is huge. In 2005 the United States established new trade preferences under the African Growth and Opportunity Act (AGOA), granting Sub-Saharan African products exceptionally favorable access to the United States, while the EU did so under the Cotonou Agreement. These trade preferences are critical to African exporters' success in the global apparel market, for without trade preferences, they are unable to compete with efficient global exporters in the U.S. or EU markets.¹⁵
- Fourth, regional integration within Africa further increases the attractiveness of growing domestic markets. For example, Ethiopia's participation in regional trade agreements has opened up new markets. Ethiopia is a founding member of two regional blocs: the Intergovernmental Authority on Development (IGAD)¹⁶ and the Common Market for Eastern and Southern Africa (COMESA).¹⁷

China's Growing Labor Cost Disadvantage: An Opportunity for Africa

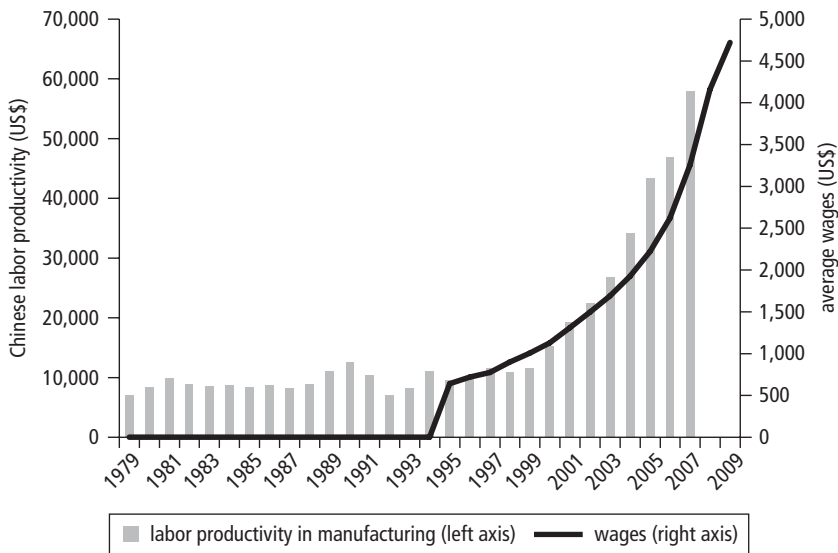
Chinese products have penetrated almost every corner of the global market. In 2004 China supplied 18 percent of the total value of the combined U.S. and EU market imports, and in 2008, it supplied 35 percent. To export light manufacturing products, Sub-Saharan producers have no choice but to compete with China, even in the U.S. market.

But the capacity of coastal Chinese firms to outperform rivals based in low-income nations on both price and quality in global markets for labor-intensive

light industry manufactures has begun an irreversible process of decline. With the depletion of its large pool of less-skilled workers, rapid cost increases, particularly in wages and nonwage labor expenses, have begun to price growing numbers of China's coastal export firms out of global markets for an expanding array of labor-intensive light industrial products. Some of the displaced production will shift to China's inland provinces, but the rise of new manufacturing clusters is already evident in countries like Vietnam, Cambodia, and Bangladesh, where infrastructure and supply chain arrangements cannot match the enviable circumstances available in coastal Chinese localities like Shenzhen and Dongguan.

Rising wages, stiffening enforcement of labor and environmental regulations, gradual expansion of costly safety net provisions, and the prospect of further increases in the international value of China's renminbi currency mean that the erosion of China's comparative advantage in the export of labor-intensive manufactures will continue and quite possibly accelerate (figure 1.6). This prospect creates an opportunity for Sub-Saharan African nations to jump-start structural changes in their domestic economies that hold the promise of delivering large and sustained increases in output, exports, employment, productivity, and incomes. China's efforts to limit the upward drift of its renminbi currency have

Figure 1.6 Labor Productivity and Average Wage Rates in Manufacturing in China, 1979–2009



Sources: National Bureau of Statistics of China 2011; Lin 2011.

contributed to substantial domestic inflation, which spurs wage demands and accelerates the erosion of cost advantages in labor-intensive manufactures.

This opens an entry point for other low-wage producers, including firms based in Sub-Saharan Africa, if they can learn to compete. But low-income South Asia, East Asia, and the Middle East and North Africa will be hot contenders for newly available slices of the global market. The challenge facing Sub-Saharan firms is whether they can compete with firms in Bangladesh, India, and Nepal, as well as Vietnam, the Lao People's Democratic Republic, and Cambodia, which have low wages and large pools of less-skilled labor. But even a small slice of the global apparel market would create millions of higher-productivity and higher-wage jobs in Sub-Saharan Africa.

Past Policy Prescriptions: An Intimidating "To Do" List

Is everything a problem? Past studies reviewing constraints to the expansion of light manufacturing in Sub-Saharan Africa often come up with a staggeringly long list, which suggests that no feasible set of policy adjustments could make the region or any country attractive to investors. Most frustrating about this list of constraints is the implication that unless all shortcomings are fixed, the sector cannot grow.

Yet we know that other economies managed to expand production and exports of light manufactures without first resolving the same sorts of constraints currently observed in Sub-Saharan Africa. Visitors to China in the mid-1970s and early 1980s were appalled by low product quality (for example, sewing machines that leaked oil onto the fabric, electric motors that failed in hot, humid weather), passive management (one manager at a large plant insisted that he did not know the unit cost of his product; another, asked to explain the presence of numerous idle workers, said, "If we didn't employ them, where would they go?"), administrative confusion (would-be investors left the Xiamen Special Economic Zone in disgust after managers failed to provide firm prices for land, electricity, or water), delays in moving merchandise through customs and port facilities, lackadaisical attitudes toward customer needs, and others.

Emerging manufacturers in Sub-Saharan Africa must, of course, compete with today's Chinese firms, not with the much weaker Chinese enterprises of the 1980s. But, as noted, powerful market forces have begun to undermine the competitive advantage of China's well-established coastal centers of labor-intensive manufacturing. This process, which has been widely remarked by visitors to the region for at least five years, reflects irreversible forces that seem certain to intensify.

As China's coastal producers of apparel, leather products, and other labor-intensive manufactures suffer a continued squeeze on profitability, they will either shift to other lines of business or move to locations in China's interior,

in other Asian nations (Bangladesh, Cambodia, or others), or—as suggested in this report—in Sub-Saharan Africa.

The recommendations of this report, based on intensive study of specific sectors in Ethiopia, Tanzania, and Zambia, draw on the experience of countries like China and Vietnam, which managed to build thriving light industries despite the handicap of problematic initial conditions. The logic underlying our recommendations is simple and direct.

While it will be very difficult for newly emergent African manufacturers to match the price and quality advantages of well-established market leaders in China's coastal regions, the gradual erosion of these firms' competitive advantage has begun and seems certain to continue. This will create growing opportunities initially, for African firms to build up their share of domestic sales of labor-intensive manufactures and, then, with the accumulation of skill, experience, and financial strength, to enter global markets in competition with new entrants from China's interior and from countries like Bangladesh and Cambodia, whose economies suffer from some of the same difficulties and constraints now visible in Ethiopia and its neighbors. As in China and Vietnam, provision of attractive incentives to recruit international entrepreneurs and attract overseas direct investment can accelerate the process and, in particular, expedite the pace of entry into global markets.

The approach proposed in this report is to use intensive study of specific light industry sectors to identify concrete packages of specific, feasible, and inexpensive policy initiatives that can create maximum opportunity to jumpstart the growth of production, employment, and exports.

The specifics of our light manufacturing analysis form the main theme of part II of this report. The following paragraphs focus on economywide issues confronting the nations of Sub-Saharan Africa.

The experience of China, Vietnam, and many other poor nations shows that development prospects benefit from macroeconomic stability and from a business environment that encourages rather than obstructs entrepreneurial initiative. Recent improvements confirm that, for many African countries, the formerly problematic macroeconomic environment is no longer a critical constraint on industrial growth. In fact, Ethiopia is among several nations in Sub-Saharan Africa that have achieved success both in improving macroeconomic conditions (less inflation, lower deficits) and in providing opportunities to private entrepreneurs during the past decade. International experience also shows that manufacturing can expand rapidly, despite the presence of problematic institutional arrangements. In China, for example, laws recognizing the government's obligation to protect the property rights of private businesses appeared only after 2000 and still lack clearly specified implementation mechanisms; in addition, private businesses continue to have little access to bank lending or to formal financial markets.

Although Sub-Saharan Africa receives unfavorable rankings for many constraints identified by the World Bank's Doing Business project, evidence from this study's quantitative and enterprise surveys shows that circumstances facing Sub-Saharan firms are not notably different from conditions surrounding their counterparts in China (Harrison, Lin, and Xu 2011). These constraints may be important, but, as Chinese experience demonstrates, they need not provide impassable barriers to expansion and upgrading.

One effective method of identifying binding constraints that we have pursued in this project is to ask firm managers what they see as the biggest constraints facing their businesses. The results of our investigation include the following.

Although the constraints vary considerably across countries, some patterns appear common (Clarke 2011b). Basic problems such as reliability of power supply, access to finance, access to land, and macroeconomic instability usually dominate at low income levels. Taxes, corruption, and crime become more important as income rises (before falling again). And labor regulation and the availability of skilled workers become more important for middle-income countries (Gelb and others 2007). In addition, we find consistent differences between the perspectives of large and small firms. Managers of small firms express deep concern over limitations arising from their lack of access to finance. Managers of large firms, by contrast, are more likely to identify troublesome labor regulation and inadequate worker education as major issues.

While managers' responses differ across sectors, quantitative analysis typically finds considerable association between measures of firm performance (profits, productivity, growth) and the quality of available infrastructure, particularly infrastructure pertaining to transportation and trade. Some studies have found that burdensome regulation (and labor regulation in particular) is associated with slower growth of firms. By contrast, these studies tend to find little association between firm performance and the prevalence of corruption.

A Selective and Practical Approach: Resolve the Most Critical Constraints in the Most Promising Subsectors

Despite these favorable observations about macroeconomic circumstances and business environment in Sub-Saharan Africa, it is evident that efforts to accelerate the development and structural transformation of African economies confront very substantial obstacles, particularly those that involve finance, infrastructure (electricity, roads), governance, and human capital. Because African governments cannot relax all of these constraints at once, we propose taking a different approach to jump-starting light manufacturing. By focusing on a handful of carefully chosen subsectors, we have been able to leverage value

chain analyses and other analytical devices to take a microscopic stock of the constraints in each subsector. Picking reasonable benchmarks and aiming for price competitiveness, we have trimmed the list to a few leading constraints in each subsector. Such priorities make the exercise more manageable, the policy actions more precise, and the sequencing more possible. They are also indispensable in pointing to the few most critical steps that Sub-Saharan governments can take to remove the most serious constraints in the most promising subsectors first and to exploit the potential for light manufacturing.

This study has new features. First, the detailed studies at the subsector and product levels show that constraints vary by country, sector, and firm size. This explains why previous economywide reforms could not relieve the bottlenecks that exist in each sector. The wide range of constraints indicates, first, that the solution to light manufacturing problems cuts across many sectors and does not lie just in manufacturing. Solving the problem of manufacturing inputs requires solving issues in agriculture, education, and infrastructure. Second, precisely because of these links, developing countries cannot afford to wait until all of the problems across sectors are resolved. Instead, a focused approach, such as the one recommended here, is needed. Third, because of the unique structure of Africa's light manufacturing sector, these constraints vary by firm size. Fourth, some of these constraints can be addressed through factory-level measures, others only by government policy, and still others only by strengthening competition.

By identifying and addressing these constraints, African countries can expand light manufacturing production in areas where they have a comparative advantage if they ensure competition in all pertinent markets. Doing so makes the targeted policy solutions practical and feasible within the country's limited financial, fiscal, human resources, and political environment.

Sub-Saharan Africa's potential competitiveness in light manufacturing is based on the following:

- A comparative advantage in low-wage, less-skilled labor. The average monthly wages for a skilled Ethiopian worker in light manufacturing is only 25 percent of that of his/her counterpart in China and 50 percent of that of his/her counterpart in Vietnam. For an unskilled worker, these ratios are 18 percent in China and 45 percent in Vietnam, indicating the significant advantage of an African producer. Expanding these comparisons to include nonwage labor costs, which are high and rising in China but low in Africa, would enlarge the potential for realizing cost savings associated with locating light industry production in African economies.
- An abundance of natural resources, which can supply critical raw materials and inputs such as hides and skins for the footwear industry and abundant land for the commercial cultivation of produce for agribusiness.

While exports of some low-value, heavy-volume products such as furniture or simple metal products may not be feasible, there is enough local demand for them if they are capable of competing with imports. Ethiopia has enormous unexploited potential in timber, particularly bamboo, which makes its furniture industry competitive in the domestic market, creating more productive jobs than in agriculture or the informal sector and saving foreign exchange.

Is there room for Africa in the global market today? China dominates the global export market in light manufactures, and its competitive edge far exceeds that of low-income exporters who recently entered the global market. Fortunately, several global factors can work in Africa's favor if it is able to overcome the key constraints in the most promising subsectors. First, Sub-Saharan Africa has the privilege of enjoying duty-free and quota-free access to the U.S. and EU markets for light manufactures under AGOA and the Cotonou Agreement. Second, rising wages in China's light manufacturing sector present an unprecedented opportunity for Sub-Saharan Africa to take up production of many light manufacturing products and create millions of productive jobs. Given its negligible share in the global market for light manufactures, the potential for growth is huge.

Notes

1. Investment is considerably smaller in Sub-Saharan Africa than in more prosperous developing countries. During 2000–09 Sub-Saharan Africa's investment rose marginally from 17 percent of GDP to 19 percent, compared with 26 percent in South Asia, the next richest region. In China and Vietnam, similar to Sub-Saharan Africa in the early 1980s, the share of investment in the economy was 39 and 33 percent, respectively (World Bank 2010).
2. In 2009 per capita income in Sub-Saharan Africa was US\$2,051 (purchasing power parity adjusted), only about 36 percent of that in the average developing country (US\$5,635).
3. Here we use the broad definition of light manufacturing, which includes the transformation of agricultural products (agribusiness).
4. The data set has "other manufacturing," which is not classified since we do not know its nature.
5. Chinese colleagues described this practice as widespread in 2007; at that time, use of contractors extended to Chinese factories operated by prominent foreign multinational manufacturers of consumer goods (author's field observations).
6. Calculations based on aggregate data for 2007 indicate that average physical labor productivity probably amounted to 1.45 tons per man-day.
7. The policy challenge is to incentivize the average garment firm to mimic well-managed firms. Results of the impact of the Kaizen managerial training programs should confirm whether there is indeed a case for transforming poorly managed into well-managed firms in light manufacturing industries where managerial expertise is a severe constraint. In Ethiopia's case this would apply to all except the leather footwear industry, although here, too, there would be a strong case for sharpening productivity through better management. A firm manager's incentive to upgrade her

- skills could be increased by exposing her to greater competition, which would weed out inefficient firms.
8. Clarke (2011a) also finds that, although labor costs in many African countries, particularly in the resource-based economies, appear to be higher relative to those in East Asia countries that have been relatively successful in manufacturing, many still compare favorably with East Asian countries, after both labor costs and labor productivity are considered.
 9. Here the business environment is broadly defined to include crime, political stability, and government expropriation including corruption.
 10. The share of manufactures in Chinese exports: 49.7 percent in 1980; 41.6 in 1970; 42.8 percent in 1959. Data for 1980 are from National Bureau of Statistics of China (2005, 68–69); data for 1959 and 1950 are from Eckstein (1977, 252).
 11. Firm growth is measured as the average change in log sales over 2008–10. The top and bottom 5 percent of the observations are dropped to ensure robustness to outliers.
 12. Although it is difficult to compare the size of the informal sector across countries due to difficulties with both definitions and measurement, most evidence suggests that the informal sector is larger in Sub-Saharan African than in other regions. Schneider (2005) estimates that the informal sector accounted for about 41 percent of GDP in the 24 African countries with data. This is similar to its share in Latin America, but higher than in most other regions.
 13. In Zambia, the zero-rating of rolled steel imports in 2000 enabled the emergence of some 20 firms to begin producing corrugated roofing sheets. Zambia experienced a shift from trading in imported roofing sheets toward manufacturing them itself and even exporting them to neighboring countries.
 14. According to survey results for light industries, “In Ethiopia and China, 85 percent to 90 percent [of firms] report that it takes at most four weeks for new workers to be fully trained” (Fafchamps and Quinn 2011; Sonobe, Suzuki, and Otsuka 2011, 16).
 15. Conway and Shah (2010). The recent decimation of Madagascar’s apparel production after the removal of its AGOA eligibility is a case in point.
 16. Other members of IGAD include Djibouti, Ethiopia, Eritrea, Sudan, Somalia, Uganda, and Kenya.
 17. The COMESA was established in November 1993 in Kampala, Uganda. It has 20 member states that stretch from the Arab Republic of Egypt in the north to Swaziland in the south. The current members are Angola, Burundi, the Comoros, the Democratic Republic of Congo, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Namibia, Rwanda, the Seychelles, Sudan, Swaziland, Uganda, Zambia, and Zimbabwe (Tanzania recently left COMESA). Before the formation of COMESA in 1993, the regional community was known as the Preferential Trade Area for Eastern and Southern Africa (PTA), which was established in September 1981 and had a different treaty than the COMESA. All previous PTA members, except the Comoros and Somalia, have signed the COMESA treaty. COMESA has a combined population of close to US\$400 million and GDP of about US\$170 billion, respectively. The total surface area is more than 9 million square kilometers, of which 60 percent is endowed with rivers and lakes with a potential for irrigation,

fisheries, and hydroelectric power generation. Less than 10 percent of the arable land in the region is under cultivation and only 5 percent of available water is used for cultivation. The region has used only 4 percent of its hydroelectric potential. The region is also a source of wealth of minerals (Birega 2004, 14).

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Part 2

What Constrains Light Manufacturing in Sub-Saharan Africa?

The World Bank's Regional Program for Enterprise Development has conducted a comprehensive set of enterprise surveys that provide perception-based and objective data. Previous analytical work to identify the investment climate constraints to firm growth in developed and developing countries has followed two broad approaches: conducting perceptions-based surveys of firm managers, asking what they see as the biggest barriers to their firm's operations and growth; and correlating firm performance and various objective and subjective measures of the investment climate. Both approaches typically lead to a long list of constraints, including electricity, corruption, crime, inadequately educated workforce, labor regulations, business licensing and permits, and so on.

But African countries, given their limited resources, cannot afford to wait until all of the problems across all sectors and locations have been resolved. Instead, they should focus on reducing the constraints in sectors demonstrating good potential for competitiveness and employment growth. This report

highlights light manufacturing as a promising starting point. The first step is to identify the most critical constraints for each country, for each light manufacturing subsector, and for firms of different sizes. Recent studies use rigorous analytical methods to evaluate owners' perceptions and firm-specific information from the enterprise surveys to identify the constraints on firm growth. This approach was also applied to research papers commissioned for this study to narrow the possible list of constraints (Harrison, Lin, and Xu 2011; Dinh, Mavridis, and Nguyen 2010).

In a review of the empirical literature on the investment climate and its effects on firm performance in Africa, Clarke (2011) finds that more than two-thirds of firm managers identify access to finance and electricity as their top concerns in more than two-thirds of African countries. Access to finance tends to be a greater concern for managers of small firms, and labor regulation and worker education are greater concerns for large firms.

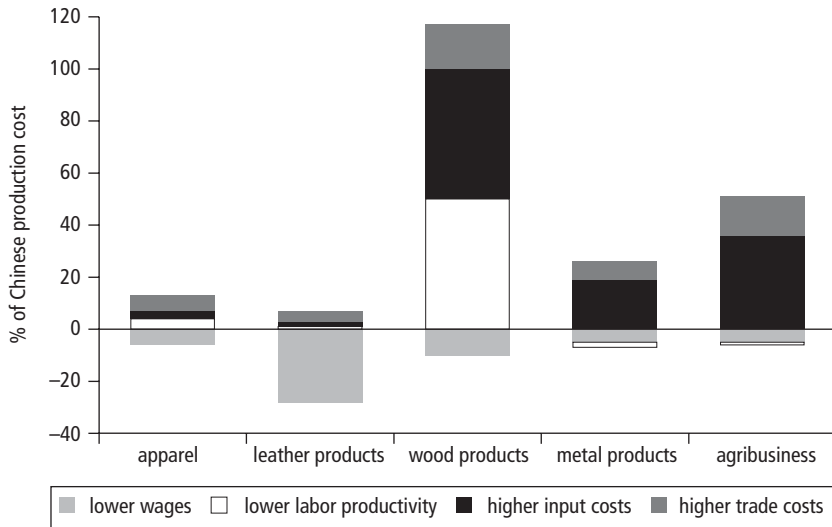
Main Constraints in Ethiopia, Tanzania, and Zambia

The findings in this part are drawn from the following sources:

- A literature review of empirical work on the investment climate facing firms in Africa as well as research papers aimed at narrowing the possible list of constraints
- Qualitative interviews of about 300 enterprises (both formal and informal of all sizes) by the study team in three African countries (Ethiopia, Tanzania, and Zambia) and two Asian countries (China and Vietnam), based on a questionnaire designed by Professor John Sutton of the London School of Economics¹
- Quantitative interviews of about 1,400 enterprises (both formal and informal of all sizes) by the Centre for the Study of African Economies at Oxford University in the same countries, based on a questionnaire designed by Professor Marcel Fafchamps and Dr. Simon Quinn of Oxford University
- Comparative value chain and feasibility analysis based on in-depth interviews of about 300 formal medium enterprises in the same five countries, conducted by the consulting firm Global Development Solutions, Inc.
- A Kaizen study on the impact of managerial training for owners of small and medium enterprises in Ethiopia, Tanzania, and Vietnam.

These materials provide complementary perspectives. The literature review allows us to build on previous findings. The comparative value chain analysis, based on a small sample of relatively large firms, allows us to benchmark the cost and productivity of African firms with those of their Asian competitors. The quantitative surveys have a much larger sample and focus on smaller firms

Figure II.1 Sources of Excess Production Costs of Medium Firms in Africa: Average across Ethiopia, Tanzania, and Zambia as a Percentage of Chinese Production Cost



Source: Global Development Solutions 2011.

(including informal ones) but do not measure cost and productivity. The qualitative interviews, which cover both small and larger firms, provide insight on issues that the other studies overlook, especially access to industrial land. And the Kaizen study shows how some policy interventions can help owners and entrepreneurs to improve firm performance.

In four of five subsectors, Africa's advantage in money wages is wiped out by higher input and trade logistics costs (figure II.1). Leather products are an exception, with the highest share of labor in production costs (45 percent in China as opposed to around 20 percent in the others). Among the up-to-scale and fairly well-managed companies, the production cost penalty due to lower labor productivity is small (except in wood products), is shielded from international competition by high transport costs, and benefits little from technical assistance for firms and workers.

Together, the analytical tools and sources of information used for this study indicate that in Ethiopia, Tanzania, and Zambia and across subsectors and sizes, six main constraints impede the competitiveness of light manufacturing: the availability, costs, and quality of inputs; access to industrial land; access to finance; lack of entrepreneurial skills, both technical and managerial; lack of worker skills; and poor trade logistics. For small firms, entrepreneurial skills,

land, inputs, and finance are the most important constraints, while for large firms, trade logistics, land, and inputs are among the more important. The six chapters in this part address each of them in turn.

Note

1. This questionnaire and all the others mentioned in this paragraph can be found online at <http://econ.worldbank.org/africamanufacturing>.

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