

# **Incentives, Exports and International Competitiveness in Sub-Saharan Africa: Lessons from the Apparel Industry**

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## Abbreviations and Acronyms

AGOA	African Growth and Opportunity Act
AGOA-SR	Special Rule for Lesser-Developed Countries
ASEAN	Association of Southeast Asian Nations
ATC	Agreement for Textiles and Clothing
CACM	Central American Common Market
EBA	Everything But Arms
EU	European Union
EPZ	Export-Processing Zone
ETEs	Export Tax Equivalents
GATT	General Agreement on Tariffs and Trade
GSP	Generalized System of Preferences
GVC	Global Value Chain
LTA	Long-Term Arrangement in Cotton Textiles
MFA	Multi-Fiber Arrangement
NAICS	North American Industrial Classification System
OECD	The Organization for Economic Cooperation and Development
PPP	Purchasing Power Parity
PSRO	Product-specific rules of origin
SCB	The Swaziland Cotton Board
SSA	Sub-Saharan African
WTO	World Trade Organization

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## EXECUTIVE SUMMARY

The elimination of quotas on apparel imports into the major importing countries of the US and European Union coincided with a rapid aggregate decline in apparel exports from Sub-Saharan African (SSA) countries. This raises a critical question for policy-makers in these countries: Can SSA exporters compete in a liberalized international apparel market?

We address this question empirically, using a combination of country-level apparel export data and firm-level data from World Bank Enterprise Surveys to uncover evidence of export-readiness and export-competitiveness in the Sub-Saharan African countries. In our country-level analysis of international trading patterns, we consider all SSA countries for which trade data exist. For firm-level analysis we restrict our work to five countries (Kenya, Mauritius, Madagascar, Swaziland, and Lesotho) for which Enterprise Surveys are available from the period just before or after the elimination of the final quotas in 2005 under the Agreement for Textiles and Clothing (ATC). We choose comparators from Asia (Bangladesh, Indonesia, Vietnam) and North Africa (Morocco, Egypt) as benchmarks for the SSA countries, and also examine their performance relative to normal world trading patterns and volumes.

Our findings, along with corresponding policy recommendations, are summarized below by addressing the following key questions. (1) The removal of quotas in 2005 created a negative shock to demand for apparel in the US and EU. Which countries adjusted to this with lowest cost? (2) What lessons can the SSA countries draw from this episode in their negotiation and exploitation of trade preferences offered by the US, EU and other potential markets? (3) How does an SSA country create or attract an export-ready apparel firm? (4) Does the poor performance of Sub-Saharan African (SSA) exporters in the period since the removal of quotas in 2005 imply that SSA countries do not have a comparative advantage in apparel, and thus should focus development efforts on other sectors?

### **1. How did SSA Countries adjust in the post-quota Period?**

*Between 2004 and 2008, all major Sub-Saharan African exporters - excluding Madagascar - lost market share in selling to the combined US/EU market; North African comparators Egypt and Morocco gained, as did other comparators, including Vietnam and Bangladesh.*

Global trade flow data on the volume of total exports to the United States and EU shows that African countries with at least US\$100 million in total exports in 2004 were Morocco, Tunisia, Egypt, Mauritius, Madagascar, Lesotho, South Africa, Kenya and Swaziland. Of these, Egypt, Madagascar and South Africa had roughly balanced sales to the two markets, while Tunisia, Morocco and Mauritius specialized for the EU market and Lesotho, Kenya and Swaziland specialized almost completely in the US market. By 2008, only Egypt and Madagascar (in addition to Morocco and Tunisia) had experienced growth in total exports and a rise in rank; the others had their export position and rank deteriorate with the removal of the ATC quotas. For the smaller African exporters (i.e. with total exports in 2004 between US\$100 million and US\$10 million) only Ethiopia experienced a rise in total value exported. East Asian countries such as Bangladesh, Vietnam and Indonesia were able to compete with Chinese exporters, and gained market share.

*The loss in market share was not due to other exogenous factors such as changes in tariff protection, changes in Rules of Origin (ROO), or other third party agreements.*

Global trade flow results are suggestive, but they do not depend solely on the removal of ATC quotas. During this time we have observed changes in tariff protection and rules of origin restrictions from the African Growth and Opportunity Act (AGOA) in the US and Everything but Arms (EBA) initiative in Europe. Some African countries were transitioning to free trade areas with the EU through their Euro-Mediterranean Association Agreements. For example, Tunisia completed this process in 2008.<sup>1</sup> For its part, the US established a Free Trade Area with Morocco.

Third-country agreements (e.g. renewed China quotas in 2006-2008 in the US and 2006-2007 in the EU) have played a role in African competitiveness. To control for these factors, and to introduce a more structural analysis of the factors determining the pattern and volume of exports, we report results from a micro-based structural model of apparel trade.<sup>2</sup> Our findings remain the same: even after controlling for the exogenous factors, we find that Madagascar and the comparator countries performed well in the adjustment to quota elimination, while the other relatively large Sub-Saharan African exporters performed poorly. These results imply that firm level characteristics and investment climate within each country are important factors determining success or failure in a post-quota world.

*Sub-Saharan African exporters were unable to match the drop in prices by East Asian competitors, especially China. Unit value of Chinese apparel exports were 28% lower in 2008, compared to 2004.*

Trade preferences under AGOA provided Sub-Saharan African countries with a price advantage of 10 to 20 percent relative to exporters in countries for which tariffs were levied. China's price competition in 2005 represented a price reduction of 34 percent on average, and this reduction continued: it is observed at 28 percent on average in 2008 relative to 2004. This gave China the price advantage, leading to large percent increases in quantity sold in 2005 and even larger increases in 2008. Other countries on average increased quantities sold but modestly. SSA countries, however, experienced precipitous declines in quantities sold.

*Chinese price reductions due to the removal of the quota premium have become smaller over time and are now similar in magnitude to the trade preferences offered through AGOA or EBA.*

Statistical analysis of the reduction in Chinese unit values, using a simple difference-in-difference regression, where we compare the impact of the MFA abolition (before versus after) for products affected by quota versus those not affected by quota, indicate that the differential opened up between Chinese and SSA unit values on average began in 2005 at about 28 percentage points,

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<sup>1</sup> This transition is also known as the Barcelona Process, and began with the Barcelona Conference in 1995. The countries of North Africa (Egypt, Tunisia, Morocco, and Algeria) are participating in this Association process. For background, consult [http://europa.eu/legislation\\_summaries/external\\_relations/relations\\_with\\_third\\_countries/Mediterranean\\_partner\\_countries/r15001\\_en.htm](http://europa.eu/legislation_summaries/external_relations/relations_with_third_countries/Mediterranean_partner_countries/r15001_en.htm)

<sup>2</sup> Using non-linear estimation we control for common effects (country size, distance, current tariffs and quotas) as well as selection bias and the effect of firm heterogeneity.

but by 2008 was reduced to 17 percentage points. This differential is similar in magnitude to the trade preferences offered to SSA firms under AGOA-SR and EBA initiatives in the US. On the quantity side, the pattern begun in the short term intensified in the medium term: China expanded its quantities sold while Sub-Saharan Africa further reduced its quantities sold.

*Madagascar and Lesotho were able to cope by increasing sales to third markets.*

Our results for the US and EU as importers raised an important question about the exporters: was an exporter's loss of market share in the US and EU offset by gains in market share in other importing countries? We address each of these through the structural model of bilateral export and import decisions presented in Conway and Fugazza (2010). Through this model, we control for various size- and location-related factors that influence international trade; we also control for the direct impact of quota removal and the existence of preferential trading agreements (such as AGOA and the EU's Association Agreements and EBA). We consider each of over 140 countries in the sample as a potential importer. The export success of individual Sub-Saharan African countries is then derived as the exporter-specific effect. We find that one common strategy among SSA and other exporters was to increase sales into third markets. The countries of North Africa used this strategy effectively, as did Madagascar and, to a lesser extent Lesotho, in Sub-Saharan Africa. Other SSA countries, most notably Mauritius and South Africa, suffered reduced sales both in the US/EU market and in third markets globally.<sup>3</sup>

A recent report by Morris et al. (2010) provides an in-depth look at these shifts occurring for firms in Lesotho and Swaziland.<sup>4</sup> The shifts observed at the macro level were not driven by existing firms of Taiwanese origin, but by new investors. Incentives by host governments have led to increased investments by South African firms shifting production from their higher cost operations in South Africa.<sup>5</sup> South African retailers comprise a different value chain from the high volume, low value added products produced for the US market. Products have a shorter run time, and have higher fashion content. The study concludes that "from the perspective of upgrading and future sustainability, ownership patterns, local embeddedness, and market diversification matter."

*SSA exporters are distinguished from their comparators by greater concentration of trade in a few product lines. The greater concentration during this episode is coincident with greater declines in export values.*

Majority of apparel exports from SSA are in a few product lines - T-shirts, pullovers and woven trousers. Within SSA, our findings show that Madagascar and Kenya became more diversified in the range of products produced for export between 2004 and 2008, while Mauritius

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<sup>3</sup> Madagascar benefited from increased investment by Mauritian firms seeking to lower their costs and diversify into other markets, particularly South Africa. Andersson, Anna: "Made in Madagascar-Impact of Rules of Origin On The Textile and Garments Industry."

<sup>4</sup> Morris, Mike, Cornelia Staritz and Justin Barnes, "Value chain dynamics, local embeddedness and upgrading in the clothing sectors of Lesotho and Swaziland". World Bank Working Paper, 2010.

<sup>5</sup>In Lesotho, for example, a new industrial estate was created in Mapoetse in 2005/2006, where most South African firms established Greenfield plants.



became more concentrated. Our findings also indicated that countries that were concentrated in the types of goods produced suffered greater declines in export values.<sup>6</sup>

Rapid growth in the period before quota removal was associated with growth in global export enterprises selling a narrow range of standardized products into the US and EU markets. While an export-processing-zone strategy facilitated this growth prior to 2005, it left the firms with little recourse once the competitive landscape shifted with the removal of quotas. Any future strategy to attract foreign investors may need to include incentives to encourage geographical and product diversification, as private incentives apparently favor greater specialization along these dimensions.

The shock of ATC quota removal in 2005 led to a restructuring of the global value chain in apparel and to a resulting downsizing or closure of foreign-owned apparel enterprises in Sub-Saharan Africa. These enterprises were evidently unable to compete on price terms with the exports from Asia once the quotas were removed. It will be in the interest of Sub-Saharan African governments to investigate establishment of a regional value-chain marketing association (similar to Li & Fung for Asia) to provide a more stable market position for Sub-Saharan African enterprises.

## **2. Negotiating Trade Agreements**

In the short term, the trade preferences provided by the AGOA legislation and the Cotonou Agreement remain very important to Sub-Saharan African success. The recent decimation of Madagascar's apparel production with the removal of AGOA eligibility underlines the importance within the framework of the global value chain that such preferences remain unvarying over time. Preferences for Sub-Saharan African apparel exporters to the US were provided by the AGOA signed in 2000, while the Cotonou Agreement provided reduced-tariff entry to the EU markets. The US preferences were more effective at stimulating Sub-Saharan African exports in large part because of the different "rules of origin" regulation imposed. The Special Rule for Lesser-Developed Countries (AGOA-SR) added to AGOA in 2002 allows tariff-free entry for apparel produced in Sub-Saharan Africa from fabric sourced from third countries, while the EU rules of origin require that the source fabric come either from the EU or the apparel-producing country.<sup>7</sup>

These rules of origin have played a critical role for Sub-Saharan African producers competing for inclusion in the GVC. From a global value chain perspective, third-country sourcing of fabric makes it possible for the GVC to take advantage of tariff-free entry into the US market while still identifying the lowest-cost set of sub-contractors world-wide. Maintenance of these relaxed rules of origin, and of the AGOA preferences in the US will be important for Sub-Saharan African exporters as more firms seek to integrate into the GVC. It will be important for these same exporters that the

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<sup>6</sup> Export diversification is measured by analyzing the evolution of positive entries in exports between 2004 and 2008 at the eight digit product classification level.

<sup>7</sup> The forty recipients of AGOA standing are all in Sub-Saharan Africa, including South Africa. Of these, 12 do not have standing under the Special Rule: Angola, Burundi, Comoros, Congo (ROC), Congo (DRC), Djibouti, Gabon, Guinea, Guinea-Bissau, Liberia, Sao Tome and Principe, Seychelles, and Togo. Source: [http://www.agoa.gov/eligibility/country\\_eligibility.html](http://www.agoa.gov/eligibility/country_eligibility.html)

EU provides comparably relaxed rules of origin (although such a move will face opposition from the North African countries that benefit from the current rules of origin).

### **3. Creating Export Ready Firms**

The evidence from the World Bank Enterprise Surveys attests that there are three classes of apparel enterprises in Sub-Saharan Africa: global exporters, regional exporters, and non-exporters. These differ significantly by size of operation (global largest, then regional, and lastly non-exporter) and by ownership (global is foreign ownership, regional is ownership by residents of more-developed neighbors, and non-exporters is local). The global exporters appear to be established to supply the global value chain (see Staritz, 2010). The regional exporters have exploited a geographic niche, and this has been a stable position during the twin apparel shocks of the 2000s (quota removal, followed in 2008-2009 by recession in the US and EU). Non-exporters are most often small and specialized in niche goods such as school or business uniforms.

The Enterprise Surveys do not provide repeated observations of firms, and so do not inform us on the evolution of the export status of firms. In checking the results of repeated cross-sectional surveys in Madagascar and Mauritius, and in incorporating evidence from case studies by Staritz (2010) and others, we do not find evidence of non-exporters evolving to the “global exporter” category of firms. “Regional exporters”, however exist. We observe them, for instance in Kenya. These are locally owned and managed firms that sell less-standardized products domestically or to a regional market. While they have less employment impact than the global exporters, their position would be more stable in a global market facing the types of shocks we have observed with the removal of quotas or the recession of 2008-2009. Government policy can be targeted at encouraging non-exporters to take this step towards becoming a regional exporter.

The North African exporters of Morocco, Tunisia and Egypt provide an interesting alternative model for government policy-makers. These countries have been able to increase market share in the US and EU despite offering higher wages to their workers than are observed in most Sub-Saharan African countries. Proximity is certainly important, but our study of elements of firm-level costs suggest that the government-level attention to infrastructure, logistics and time-to-clear customs have made their exporters more competitive in the global markets.

### **4. Can SSA Apparel Enterprises Compete in a Post-Quota World?**

*The aggregate decline in exports indicate that SSA firms have not all competed successfully in the short run. We conclude that as a longer-run proposition, nonetheless, SSA firms will remain competitive.*

Exporting firms, wherever located, are nested within a global value chain (GVC) arrangement. The fundamental question we ask is: Can Sub-Saharan African exporters be substituted into an existing GVC arrangement with resulting lower wholesale cost of apparel (for given quality and reliability of delivery) to the retailers?

A recent report in the Wall Street Journal noted shifts in production units away from China:

*“Rising labor costs in China are forcing U.S. apparel and accessories retailers, such as Ann Taylor Stores Corp. and Coach Inc., to consider relocating at least some of their production to countries with cheaper work forces, but the moves will only happen if the quality is there...labor is just one of the costs of production. Others include costs of raw materials like textiles, production facilities, transportation and quality control and training labor typically accounts for between 15 and 22 % of the total cost of a garment, while fabric and logistics can account for as much as 60%.”* Wall Street Journal, June 13 2010

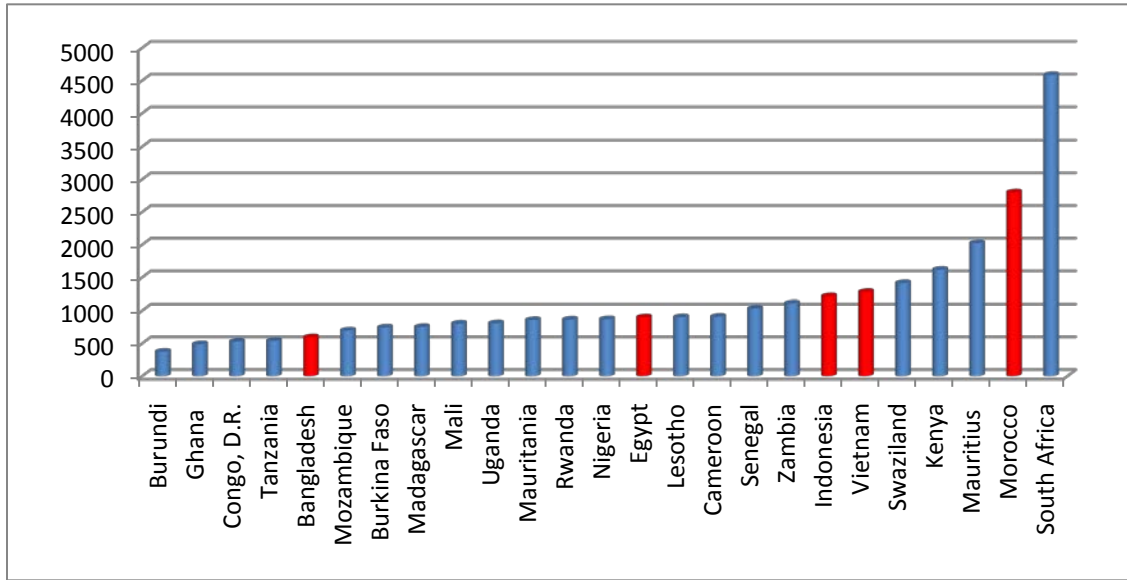
Most of the production units are relocating to lower-wage countries in East- and South Asia such as Bangladesh, Vietnam and India. But, as shown in Figure 0-1 below, several countries in Sub-Saharan Africa have labor costs that are lower or comparable to that of firms in East Asia. Increasing labor costs in East Asian countries will lead to further shifts in production towards lower wage countries. Several countries in SSA can compete on the basis of low labor costs, but other conditions need to be met.

We draw upon cross-country collection of Enterprise Surveys to examine the cost structure of exporters in Sub-Saharan Africa and in a number of comparator countries. We find that there is a great deal of heterogeneity across countries and within each country across firms, in their ability to produce at low cost. Labor costs have less dispersion than other costs, which vary widely across firms within a country. The most productive Sub-Saharan African exporting firms have cost structures quite similar to those in the comparator countries.

*But, external costs (transport and logistics) are much higher in SSA than that for East Asian comparators.*

We also consider transport and logistics costs in SSA countries: given our description of the GVC, it will be equally important to competitiveness of Sub-Saharan African firms that they have access to transport and logistics services that are competitive in cost, quality and time to service. The World Bank’s Logistics Performance Index (LPI), based on a large survey of freight forwarders and transport operators across the globe, uses seven measures of performance (customs, infrastructure, international shipments, logistics competence, tracking and tracing, domestic logistics costs and timeliness) to assess the logistics gap across countries. It ranges from a scale of one to five, with five being the best. Average labor costs per worker across countries are compared to LPI in Figure 0-2 below. Comparing Bangladesh and Vietnam to countries in SSA, we see that labor costs are higher for given logistics performance for Mauritius, Kenya and South Africa. Among African countries, Madagascar, Egypt and Ethiopia reflect most closely the trade-off between logistics and wage costs observed in successful comparators China, Vietnam and Bangladesh.

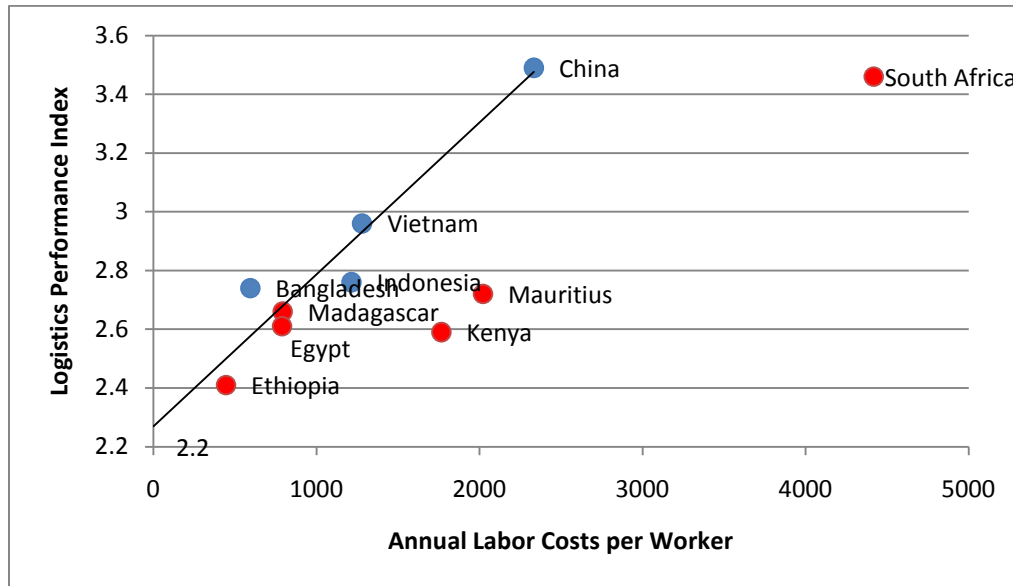
**Figure 0-1: Median Labor Costs per Worker in Garments: SSA countries and Comparators**  
(Constant 2006 US\$)



Source: World Bank Enterprise Surveys-Variou Years; red bars highlight comparators.

*Current exporters in SSA differ widely in their productivity and cost characteristics. The more productive SSA exporters have production cost structures quite similar to those in comparator countries.*

**Figure 0-2: Trading off Logistics and Factory-Floor Costs among Exporting Firms**



Source: World Bank Enterprise Surveys 2006-2010; World Bank Logistics Performance Index, 2010  
Note: Logistics Performance Index was not available for Morocco.

Analysis of the firm-level data leads to a simple conclusion: while there has been a substantial reduction in Sub-Saharan African exports, the most competitive firms in Sub-Saharan Africa share many of the cost characteristics with their comparators overseas. Competitiveness in these plant-floor costs is not sufficient, however, in a world of global value chain (GVC) competition. Relatively higher transport, infrastructure and logistics costs lead to a competitive disadvantage for the Sub-Saharan African plants. China's success in the US and EU markets after removal of quotas in 2005 is closely tied to its ability to offer its products at an average 28 percent price discount. We found that Sub-Saharan African exporter, excluding Madagascar, did not match these price reductions; as a result, their market share was greatly reduced. The inability to offer such reductions was not due to high wages in all countries; we infer from the available Enterprise Survey information that indirect business costs were large and precluded such price competition.

Sub-Saharan African exporters can – and do – compete in the apparel market, but policy interventions can improve upon the number of exporters and the volume of their exports. The logic of Export Processing Zones remains relevant: provision of low-cost production facilities with transport and logistics costs minimized will increase the number of firms able to export.

## 1. INTRODUCTION

1. Apparel has historically been a leading sector in the industrialization and development process for the currently developed and emerging economies.<sup>8</sup> Exporting has played a crucial role in this growth dynamic, with foreign markets providing strong and expanding demand. Recent successes of the export-oriented apparel industry in Asia – larger countries such as China and India, but also smaller economies of East and South Asia such as Bangladesh, Cambodia and Vietnam -- are noteworthy in this regard, and have drawn renewed attention to the role of apparel exports for jump-starting industrial growth in Sub-Saharan Africa.

2. A number of Sub-Saharan African countries did experience rapid growth in apparel exports to the US and EU in the period prior to 2005, and this contributed strongly to economic growth in these countries. However, in 2005 and thereafter the international demand for apparel from Sub-Saharan Africa declined precipitously. This decline was coincident with removal of trade barriers in the US and EU that restrained apparel imports from China and other comparative-advantage exporters.

3. This episode raises an important question: is apparel a viable export product for Sub-Saharan Africa, now and in the future? In this report we analyze the 2005 episode. We conclude that the post-2005 decline was an adverse shock for Sub-Saharan African exporters, but that it is not an indication that Sub-Saharan Africa cannot compete in the international apparel market. Rather, it illustrates that participation in international markets is a risky business. In 2005, and thereafter, most Sub-Saharan African exporters bore the downside of that risk. We will demonstrate that public policy has two roles to play: first, in facilitating exports of export-ready local producers; and second, in encouraging apparel production diversified to reduce the impact of shocks to the global market.

4. We develop our arguments in four steps. In section 2, we describe the competitive environment for Sub-Saharan African exporters in the years prior to 2005. The largest import markets for apparel are the EU (considered as a single entity) and US. Until 2005, these importing countries imposed a system of bilateral quotas (known as the Agreement on Textiles and Clothing, or ATC) on their apparel imports. The elimination of the ATC in 2005 created a heated market competition in which Sub-Saharan African firms fought, sometimes successfully, to retain or expand market share in these markets. Sub-Saharan African exporters had other advantages in these markets through preferential tariff treatment. This preferential treatment (as summarized in the African Growth and Opportunity Act in the US and in the Everything But Arms agreement in the EU) provided Sub-Saharan African exporters with an important advantage in selling products into those markets. The marketplace facing Sub-Saharan African exporters is also shaped by the structure of the global value chain, and we introduce the basic features of that structure.

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<sup>8</sup> Economists and historians (e.g., Farnie (2004), Brown (1995), Hanson (1980), Maddison (1970)) have documented this leading role of the apparel industry in England, the US, Japan and China. Studies of cross-industry linkages in developing countries have demonstrated that these industries generate positive externalities in the form of technology transfer, knowledge accumulation and worker skills development that facilitate broader industrial growth and poverty reduction.

5. The historical record of 2005 and thereafter provides sobering evidence on the export-competitiveness of Sub-Saharan African producers: with the removal of the system of bilateral quotas, the market share of Sub-Saharan African exporters in the US and EU fell precipitously. We provide a country-level analysis of exports into the US and EU markets in Section 3. Sub-Saharan African exporters were not generally subject to the bilateral quotas imposed under the Agreement on Textiles and Clothing. Those quotas had been set by the US and EU governments over the years to limit the growth of imports from high-volume exporters, and the African countries (other than Egypt) had never supplied such high volumes to either market. In fact, the Sub-Saharan African exporters were beneficiaries of these quotas: their low-cost competitors from South and East Asia were constrained in the volume of goods that could be exported to these two large markets, leaving space in the market for exports from smaller, less-well-established, exporters. With the removal of bilateral quotas on apparel imports at the beginning of 2005, the US and the EU ushered in a greatly altered and more competitive market for Sub-Saharan African apparel exporters. As our analysis demonstrates, the Sub-Saharan African exporters did not fare well in general in 2005 and the years following. The successful exporters were those able to lower prices substantially in 2005 and following years, and Sub-Saharan African firms did not do so.

6. In Section 4, we answer the fundamental question – Can Sub-Saharan African exporters compete? – through an analysis of exporters in Sub-Saharan African countries. Exporting firms, wherever located, are nested within a global value chain (GVC) arrangement. Our fundamental question then becomes: Can Sub-Saharan African exporters be substituted into an existing GVC arrangement with resulting lower wholesale cost of apparel (for given quality and reliability of delivery) to the retailers? We draw upon an innovative cross-country collection of Enterprise Surveys to examine the cost structure of exporters in Sub-Saharan Africa and in a number of comparator countries. We discover that there is a great deal of heterogeneity across countries, but that there is also a great deal of heterogeneity of firms within each country, in the ability to produce at low cost. The most productive Sub-Saharan African exporting firms have cost structures quite similar to those in the comparator countries. We also consider transport and logistics costs in Sub-Saharan African countries: given our description of the GVC, it will be equally important to competitiveness of Sub-Saharan African firms that they have access to transport and logistics services that are competitive in cost, quality and time to service. In this dimension, Sub-Saharan African countries prove to be relatively higher cost. Fortunately, this is a shortfall amenable to policy intervention.

7. While the experience in 2005 is not evidence of permanent non-competitiveness of Sub-Saharan African firms, it was indeed costly to the countries in terms of unemployment and unused capacity. We organize this section of our study around “coping” strategies that proved to be successful in limiting the adverse effects of this shock. In section 5 we contrast the performance of Sub-Saharan African exporting countries with that of comparator countries of North Africa, South and East Asia. While the results for Sub-Saharan African exporters are on average poor, we identify the degree of success for individual countries. The 2005 episode represented a trade-based adverse shock. We examine two strategies that countries can follow in a risky global marketplace:

- **Diversification of exports to third-country markets:** can the Sub-Saharan African exporters shift their exports to other importers to make up for market share lost in the US and EU?

- **Diversification of goods exported:** once the Sub-Saharan African exporters identify those goods in which price competition is most intense post-quota, can they shift production to goods in which competition is less intense?

8. We address these questions empirically, using a combination of country-level apparel export data and firm-level data from World Bank Enterprise Surveys to uncover successful (and not so successful) strategies employed to mitigate the adverse effects of increased competition and to profit from the changing competitive landscape. Our analysis is statistical, with a number of variations on the “difference in differences” comparison of Sub-Saharan African exporters with their North African and Asian comparators, both before and after the removal of quotas.

We then provide conclusions, extensions and policy recommendations in section 6.

9. This is an analysis based upon a wealth of evidence. For readability, we have placed the conclusions from analysis in the text but have moved much of the supporting data to a series of appendices. We urge our more data-oriented readers to examine those appendices as well. We will choose comparators from Asia (Bangladesh, China, Vietnam) and North Africa (Morocco, Egypt) as benchmarks for the Sub-Saharan African countries, and will also examine their performance relative to normal world trading patterns and volumes. Our analysis of country-level export performance will include all Sub-Saharan African countries. For firm-level analysis we will restrict our work to four countries (Kenya, Mauritius, Madagascar, Swaziland) which are the largest Sub-Saharan exporters in apparel, and for which we have detailed data from the World Bank Enterprise Surveys.

## 2. THE GLOBAL APPAREL MARKET: A COMPETITIVE MARKET FOR SUB-SAHARAN AFRICAN FIRMS?

10. The global market for apparel in the last two decades has been dominated by two importers – the US and the EU (considered as a whole). An individual exporter in Sub-Saharan Africa faced two sets of “rules of the game” for this market. The first set of rules was laid out in the commercial policy followed by the US and EU, and included not only the set of bilateral quotas but also the tariffs on apparel imports and the modifications of those tariffs defined in trade preferences for Sub-Saharan Africa established within the Generalized System of Preferences. The second set of rules was defined by profitability within the global value chain (GVC): retailers contracted with a coordinating firm, and that firm sub-contracted with suppliers worldwide to meet the retailer’s demand. The coordinating firm (or “coordinator” from here on) sub-contracted with Sub-Saharan African exporters for larger and larger orders prior to 2005 – but then sharply reduced its sub-contracting in 2005 and thereafter.

11. In part A below, we describe the tariff schedule on imports into the US and EU during this period. In part B, we describe the bilateral system of quotas established by the Agreement on Textiles and Clothing (ATC) and removed in a series of steps culminating in 2005. In part C we describe the important role of the GVC. In part D, we present the trade preferences provided to Sub-Saharan Africa by the US and EU; we relate those trade preferences to the GVC through the debate over the importance of “preferential rules of origin”.



## A. The Tariffs on Apparel in the US and EU

12. The US and EU countries have been at the forefront of multilateral tariff reduction within the framework of the General Agreement on Tariffs and Trade (prior to 1994) and the World Trade Organization (WTO) (since 1994). As Table 1 illustrates for a sample of commonly imported cotton apparel products, apparel tariffs range between 10 and 20 percent.<sup>9</sup>

	US	EU
Overcoats, men's (6101200010) or women's (6102200010)	15.9	12
Blazer jacket, men's (6103320000)	13.5	12
Blazer jacket, women's (6104320000)	14.9	12
Knit shirts, men's (6105100010) or women's (6106100010)	19.7	12
Pajamas, men's (6107910030)	8.7	12
T-shirts and tank tops (6109100000)	16.5	12
Woven dress shirts, men's (6205202000)	19.7	12
Dresses, babies' (6209201000)	11.8	10.5

Sources: Harmonized Tariff Schedule of the United States, Revision 2; TARIC database, European Union. The number in parentheses is the harmonized code; the tariff is defined by harmonized code.

13. These are the rates prior to inclusion of any trade preferences by the US or EU. We address the system of trade preferences in part D below.

14. Anti-dumping and countervailing duties imposed by the US and EU represent another potential source of discriminatory tariff protection. While these have become quite commonly used by developed countries to provide targeted protection to domestic producers (in support of this see, e.g., Brown (2010)), they have never been applied to apparel products from Sub-Saharan African countries. When anti-dumping duties on any type of good are considered for the period 1980-2010, the EU has imposed 136 such duties on China and 39 on India, but almost none on African countries: just 10 on Egypt and eight on South Africa. Those on textiles and apparel were only six for China, 16 for India, four for Egypt and none for South Africa.<sup>10</sup> The US imposed 156 anti-dumping duties on Chinese goods and 35 on Indian goods, but only two on Egypt, one on Kenya (for cut flowers) and 25 for South Africa. Of these totals, only six of the Chinese anti-dumping duties were for textiles and apparel; none of the other duties were on these goods.

15. When countervailing duties imposed by the US and EU are considered, there are once again no apparel goods from Sub-Saharan Africa subject to these duties. The EU did not impose these duties on any goods from Africa during this time period; the US imposed one duty apiece on Kenya, Zimbabwe and South Africa, although not in apparel.

<sup>9</sup> Tariff rates on products made of man-made fibers are in general higher than those on cotton fibers in the US Harmonized Tariff Schedule. We illustrate the tariffs on cotton products because this is the type of good most commonly exported from Sub-Saharan Africa.

<sup>10</sup> These statistics and those that follow are derived from the Temporary Trade Barrier Database of the World Bank.

## **B. The system of bilateral quotas on apparel.**

16. In addition to tariffs, the US and the countries of the EU over the years constructed a system of bilateral quotas on apparel imports into those countries. These quota constraints had been in use in some form since the early 1960s.<sup>11</sup> The Multi-Fiber Arrangement (MFA) was the umbrella agreement encompassing these quotas. The phased elimination of the quotas was codified in the Agreement on Textiles and Clothing (ATC) of the World Trade Organization (WTO) during the period 1995-2004. The MFA and subsequently the ATC acted as a form of targeted trade barrier with effects independent of those of the tariff structure. We discuss previous studies of the quota's effects in Appendix A, but can summarize the important learning from that literature in the following items:

- The system of bilateral quotas caused trade diversion, prohibiting imports to the US and EU from the countries with binding quota and causing a spillover of this demand to products from other countries not under binding quota.
- The import price of goods from countries with binding quotas was higher than would otherwise be the case. This wedge is measured as the “export tax equivalent” of the quota. It is most explicit when quota rights are auctioned, but is implicit in all cases of binding quotas.
- The system of quotas led to welfare loss in the US and EU as importing countries. It also created profitable niches for exporters not constrained by binding quota, and a redistribution of the gains from trade toward the non-constrained exporters.
- Low selling price and high quality are not the only factors of importance in import of apparel. There is also an advantage for those firms, and those locations, that can deliver the product quickly. For “fashion” goods, both price and speed to retailer are important determinants.

17. Within the framework of the ATC, the US, the EU and Canada agreed to phase out their use of these bilateral quotas over the period 1995-2005. While in principle the removal of quotas was to be gradual, the countries in practice kept the quota system for the products generating the greatest volume of imports. The final phased removal of quotas on January 1<sup>st</sup>, 2005 thus covered nearly half of the value of textile and apparel imports to the US and EU.<sup>12</sup>

## **C. The global value chain (GVC) in apparel.**

18. A key research discovery of recent years has been the importance of integration in the global value chain for success in exporting apparel. The GVC describes the organization and process of cross-shipment of intermediate goods across countries as the final product is assembled from pieces and processes undertaken in many exporting nations. Figure 1 illustrates the GVC for cotton

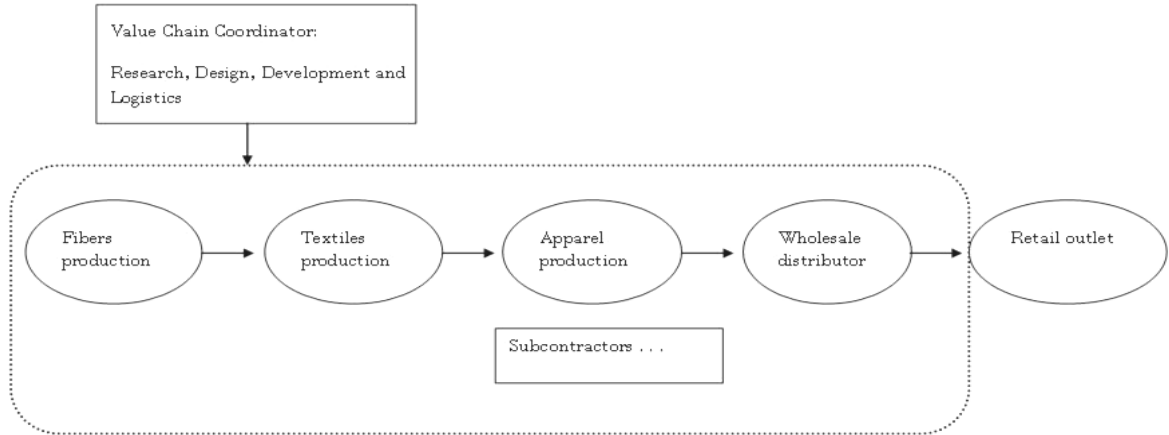
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<sup>11</sup> The Long-Term Arrangement in Cotton Textiles (LTA) in the US was the first incidence of these quotas; they were regularized and extended to other fibers in the Multi-Fiber Arrangement (MFA) from 1974 to 1995. Blokker (1989) provides a careful summary of the early agreements within the GATT.

<sup>12</sup> The phased removal of quotas applied to all exporting countries indiscriminately. However, in mid-2005 the US and EU independently restored quotas on apparel from China. They did so as a response to a “market disruption” from imports as defined in the agreement signed when China entered the WTO. (WTO Press Release 243, 17 September 2001) These additional quotas were removed by the EU in 1997 and by the US in 1998.

apparel. It may be helpful to think of a contract between the coordinator and the retailer for delivery of a quantity of apparel goods of a specified quality at a specified time: the global value chain then describes the set of contracts the coordinator enters to ensure that the product is delivered as promised.

**Figure 1: The Global Value Chain in Apparel**



19. In this GVC, there are four production and distribution “nodes” in delivering the product to the retailer. Each node can be a separate business entity. The coordinator of the GVC may own these productive facilities, or may be choosing separate sub-contractors at each node; it will also be arranging for the transport and logistics associated with each “arrow” between the nodes. The coordinator’s goal is to provide the retailer with the product of given quality on the agreed-upon timetable. Its choices will minimize cost and thus maximize the coordinator’s profit margin. These choices could include sitting each node in a different country.

20. The apparel firms we will consider in Sub-Saharan Africa are business entities competing to fill the “apparel production” node in the GVC. To win this position, it will be necessary for a producer to have low costs on the factory floor. It will also be important, however, that the transport and logistics costs in moving the product from “textile production” node to “apparel production” node, and for moving from “apparel production” node to “wholesale distributor” node, be minimized as well.

21. As Sturgeon and Kawakami (2010) document, apparel (and footwear) is the third-most-important industry as measured by the value of trade in intermediate goods, after electronics and automotive. Gereffi and Frederick (2010) examine the apparel global value chain in the last decade. They highlight two shocks to the value chain – the removal of quotas in 2005, and the economic crisis of 2008-present. These shocks have led to significant adjustment in exporting countries, including upgrading (taking on higher-quality or higher-complexity nodes in the value chain) and the establishment of regional value chains. Staritz (2010) provides an excellent review of apparel production opportunities in low-income countries, with extended attention to a number of African countries (Kenya, South Africa, Lesotho, Swaziland and Mauritius). She builds upon the insights of Gereffi and Frederick (2010) and applies the result to the plight of low-income exporters. Her thesis is that the removal of quotas and the slowdown associated with the financial crisis have together led to a concentration of exports in the leading export countries; this has led, other things

equal, to a marginalization of Sub-Saharan African exporters in the crucial US and EU markets. She roots this concentration in the evolution of the global value chain in apparel; lead firms have become more powerful, the premium that purchasers attach to the supplier's flexibility has risen, and lead times have shrunk. To overcome this inherent disadvantage, she advises that low-income exporters must improve the institutions and infrastructure of export-oriented production.

#### **D. Preferential access to these markets.**

22. Developing-country exports, and in particular those of Sub-Saharan Africa, can within the WTO be given preferential access to the markets of the US and EU. Under the Generalized System of Preferences (GSP) first formulated within the GATT and continued into the WTO, signatory countries can define tariff rates even lower than their "most-favored nation" tariff rates for exporters from developing countries.<sup>13</sup> Countries offering GSP preferences will often as well define product-specific rules of origin (PSRO) requirements for the good, either to preclude transshipment of goods from third countries or to encourage its own exports of intermediate goods.<sup>14</sup>

23. In the EU, apparel imports from developing countries were provided reduced-tariff entry through the GSP. PSRO for such apparel were defined in 1971, and then again in 1993, within that context. These rules of origin were restrictive: apparel imported under these preferences must be manufactured from yarn spun either in that country or in the European importing country. That meant that the yarn must be woven to fabric and then the apparel made from that fabric in either of these two places (bilateral cumulation). In 1999, the newly defined PSRO broadened this definition by allowing an "alternative value content" that could be applied for certain non-knitted apparel. For these goods, fabric from third countries could be used so long as its value did not exceed 40 percent of the final product price of the final-good apparel. Regional cumulation (sourcing from neighboring GSP countries) was not permitted unless the producer and third country were both members of ASEAN, CACM or the Andean Community – thus, not in Africa. In 2001, the EU introduced the Everything But Arms (EBA) initiative for 50 GSP-eligible least-developed countries. This provided duty-free access for those countries, but did not change these PSRO rules for apparel.

24. African nations could also apply for preferential entry to Europe under the Cotonou Agreement of 2000. This extended the Lome Conventions, and applied only to African nations. It allowed regional cumulation from all African countries as well as EU countries. From this perspective, the preferential treatment under the Cotonou Agreement was preferred to the EBA treatment by many African apparel exporters.<sup>15</sup>

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<sup>13</sup> Members can provide two preferential tariffs on each good – one for all developing countries, and a second for the least developed countries. These cannot differ otherwise across partner. The tariff rates in Table 1 are "most-favored nation" tariffs. In the US case, the tariff schedule for countries not designated as "most-favored nations" has much higher tariffs that date from the Smoot-Hawley tariff schedule defined prior to World War II. For example, the Smoot-Hawley tariffs on overcoats and blazer jackets is 50 percent and 90 percent, respectively.

<sup>14</sup> Portugal-Perez (2008) provides an introduction to preferential access in apparel trade that highlights the importance of product-specific rules of origin (PSRO) requirements.

<sup>15</sup> Some countries eligible under the Cotonou agreement were not least-developed countries, and thus were not eligible for EBA status.

25. In the US, GSP preferences for apparel explicitly did not extend to non-handicraft apparel. Preferences for African apparel exporters were provided by the African Growth and Opportunity Act (AGOA) signed in 2000. AGOA offered tariff-free access for apparel to thirty-seven African countries.<sup>16</sup> The PSRO under AGOA stated that all intermediate production stages between yarn and final good must have bilateral cumulation (i.e., take place either in the beneficiary African country or in the US) or limited regional cumulation (i.e., fabric from another beneficiary African country if made from US yarn). AGOA and its successor legislation AGOA II in 2002 also included the Special Rule for Lesser-Developed Countries (AGOA-SR): for these countries (those with per capita income less than US\$1500 in 1998) it allows production from fabric sourced from third countries.<sup>17</sup> This effectively removed the cost of cumulation from the cost of production and made the AGOA rules of origin less restrictive than those of the Cotonou Agreement.

26. These rules of origin play a critical role for Sub-Saharan African producers competing for inclusion in the GVC. From the coordinator's perspective, bilateral cumulation precludes sub-contracting with Sub-Saharan African firms to fill a production node in a value chain including third countries. The Special Rule under AGOA, however, accepts third-country sourcing of fabric. It is thus possible for the GVC to take advantage of tariff-free entry into the US market while still identifying the lowest-cost set of sub-contractors.

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<sup>16</sup> Eligibility for AGOA preferences has fluctuated for some countries in recent years due to the countries "not making continual progress in meeting AGOA requirements" (see, for example, US Presidential Proclamation 8468, 23 December 2009). In January 2009 Mauritania had its eligibility revoked, only to be reinstated in December 2009. In December 2009 the US government removed eligibility for AGOA preferences from Guinea, Madagascar and Niger for the reason given above. This has had massive consequences for the apparel industry in Madagascar, as described in Box 2 on p. xxx.

<sup>17</sup> The forty recipients of AGOA standing are all in Sub-Saharan Africa, including South Africa. Of these, 12 do not have standing under the Special Rule: Angola, Burundi, Comoros, Congo (ROC), Congo (DROC), Djibouti, Gabon, Guinea, Guinea-Bissau, Liberia, Sao Tome and Principe, Seychelles, and Togo. In 2004 (at the time of this table), Mauritius also did not have Special Rule standing. Source: [http://www.agoa.gov/eligibility/country\\_eligibility.html](http://www.agoa.gov/eligibility/country_eligibility.html)

**Table 2: Countries with AGOA-SR Status in 2004, with exports to EU and US markets**

	Exports to the EU in 2004		Exports to the US in 2004	
	(thousands USD)	Share	(thousands USD)	Share
1 Madagascar	\$ 179,732.00	85.77	\$ 323,323.00	23.34
2 Lesotho	\$ 1,049.00	0.5	\$ 455,935.00	32.92
3 Kenya	\$ 3,225.00	1.54	\$ 277,173.00	20.01
4 Swaziland	\$ 1,102.00	0.53	\$ 178,603.00	12.9
5 Namibia	\$ 97.39	0.05	\$ 78,654.00	5.68
6 Botswana	\$ 12,596.00	6.01	\$ 20,252.00	1.46
7 Malawi	\$ 122.66	0.06	\$ 26,775.00	1.93
8 Cape Verde	\$ 5,098.00	2.43	\$ 3,005.00	0.22
9 Ghana	\$ 139.43	0.07	\$ 7,368.00	0.53
10 United Republic of Tanzania	\$ 3,779.00	1.8	\$ 2,546.00	0.18
11 Ethiopia	\$ 708.86	0.34	\$ 3,335.00	0.24
12 Uganda	\$ 4.29	0	\$ 4,009.00	0.29
13 Mozambique	\$ 174.27	0.08	\$ 2,233.00	0.16
14 Sierra Leone	\$ 787.56	0.38	\$ 1,477.00	0.11
15 Cameroon	\$ 353.53	0.17	\$ 230.00	0.02
16 Senegal	\$ 356.48	0.17	\$ 11.00	0
17 Nigeria	\$ 87.12	0.04	\$ 76.00	0.01
18 Mali	\$ 55.24	0.03	\$ 12.00	0
19 Niger	\$ 58.69	0.03	\$ 6.00	0
20 Zambia	\$ 4.94	0	\$ 28.00	0
21 Benin	\$ 18.29	0.01	\$ 2.00	0
22 Rwanda	\$ 4.94	0	\$ 1.00	0
<b>TOTAL</b>	<b>Total</b>	<b>100</b>	<b>\$ 1,385,053.00</b>	<b>100</b>
Source: Portugal-Perez (2008), Table 2.1				

27. The statistics in Table 2 provide a disaggregated look at the performance of AGOA nations in exporting to the US and the EU. There is clearly a predominance of sales into the US market. deMelo and Portugal-Perez (2008) and Portugal-Perez (2008) use this difference to measure the costs of more restrictive rules of origin. They found that Sub-Saharan African exports were increased 300 percent by relaxing the cumulation rule from the form in the Cotonou Agreement to the form in AGOA-SR. Frazer and Van Biesebroeck (2010) use a difference-in-difference-in-difference estimation technique to measure the impact of AGOA on African exports of apparel to the US. They conclude that the value of exports due to AGOA actually went up between 2004 and 2005 even though (as we will observe in a later section) the value of apparel exports from AGOA-certified African countries fell over that period.

### 3. APPAREL IMPORTS INTO THE US AND EU MARKETS.

28. Individual Sub-Saharan African export firms, for reasons of culture, historical ties or differing incentives, have tended to specialize in their export production for either the US or EU market. Thus, it is important to examine the evolution of these two markets separately. We begin below with the US market, then turn to the EU market, and finally draw conclusions based upon the two together.

29. The US and EU have different preferred classification systems when identifying imports by product categories. The US uses the North American Industrial Classification System (NAICS) while the EU reports results by the CN system. For purposes of comparison, we have created a joint classification for this section. The concordance from NAICS and CN to this classification is presented in Appendix B, Table B1, as is a short description of the goods included in the classification.

#### A. US Apparel Imports, 2002-2009.

30. The US has been the largest single-country market for apparel imports over the years, and by 2002, the total annual value of imports was in excess of US\$62 billion. This value rose to nearly US\$80 billion by 2007, but turned down thereafter with the impact of the US recession. By 2009, the value of US apparel imports was about US\$67 billion. Figure 2 illustrates this evolution. The end of the ATC quotas did not lead to a discontinuous jump in apparel imports in value terms: there was a discontinuous jump in the quantities imported, but an accompanying reduction in unit value that we will document in a later section. It was also the case that the growth in exports into the US by South and East Asian exporters was offset in large part by reductions in exports from other locations – including the countries of Sub-Saharan Africa.

31. We will find it important to disaggregate these exports into subcategories to understand the adjustments made by exporters to the changing competitive landscape. Figure 3 describes the breakdown of US apparel imports in 2004 and in 2009 by goods classification. As is evident there, classifications do not represent equal shares of trade. Women’s outerwear (classification 2) alone represents about 20 percent of total imports, while women’s blouses (classification 6) represent over 15 percent.<sup>18</sup> Men’s shirts (classification 5) are the third most-important classification, with about 13 percent of total imports, while the other classifications represent lesser shares. There are not major shifts in demand from 2004 to 2009, although women’s outerwear declines in share while women’s blouses rise in share. Similarly, women’s dresses (classification 4) rose in share. In all these cases, the change in share is less than 2 percentage points – although in a market as large as the US, small percentage-point changes can lead to large changes in value exploitable by exporters.

32. Africa’s exports to the US market show similar specialization to that of US demand overall. Figure 4 illustrates exports from AGOA African countries by goods classification to the US as a share of total apparel exports by that group of countries.<sup>19</sup> The five classifications with largest

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<sup>18</sup> In the discussion that follows, I will use “women’s” as the shorthand for “girls’ and women’s” and “men’s” as the shorthand for “boys’ and men’s”. The phrases inclusive of “girls” or “boys” are the ones reported in the database.

<sup>19</sup> We will refer to two country groupings in Africa. The first is AGOA Africa, representing those countries eligible for preferential tariffs under the African Growth and Opportunity Act first enacted in 2000 and renewed periodically

share in 2004 are the same as those in US imports overall: women's outerwear, women's blouses, men's shirts, women's dresses and men's outerwear (classification 1). The shares of AGOA African exports in those classifications are much larger than in US imports overall. Women's outerwear is more than 30 percent of total AGOA African exports in 2004, rising to nearly 37 percent in 2009; the corresponding shares of total US imports in that classification are close to 20 percent. Women's blouses are nearly 20 percent of AGOA African exports in 2004 as compared to 15 percent of US imports from all sources. Men's shirts are also nearly 20 percent in 2004 for AGOA Africa, but only 13 percent in US imports from all sources. This concentration of AGOA Africa exports in a few goods classifications reflects the overall less-pronounced diversification of exports. There is also a much larger swing in AGOA African shares between 2004 and 2009 than in US demand for imports overall: the share of women's outerwear jumps by nearly 7 percentage points, while the share of women's blouses drops by about 7 percentage points.

33. It is important to keep the evolution of Sub-Saharan African exports in context. In the top panel of Table 3, we report the share of the US import market for men's jackets (classification 3) served by three country 'groupings': Africa, AGOA Africa, and China.<sup>20</sup> China's market share increases slightly over 2002-2004, followed by much larger jumps beginning in 2005 with the removal of quota.<sup>21</sup> AGOA Africa experiences growth in market share during the period 2002-2004, but with continual reduction thereafter. Other Africa (mostly North African nations Morocco, Tunisia and Egypt), by contrast, has steady growth in market share throughout the period, albeit from a low initial value.

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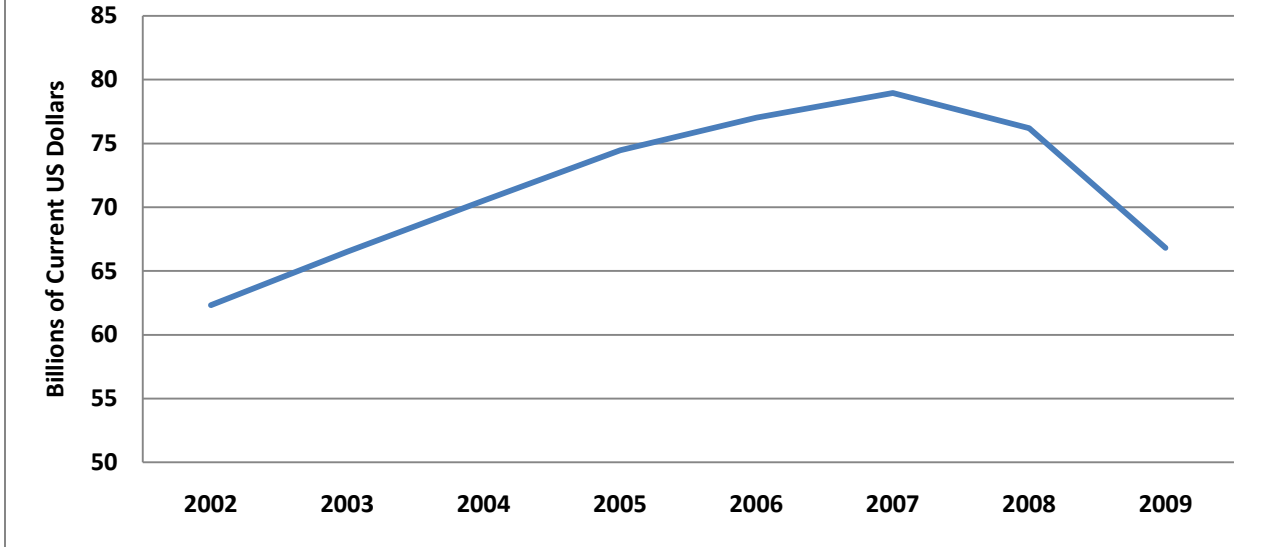
thereafter. The second grouping will be entitled "Africa": it is larger than AGOA Africa because it includes Sub-Saharan African countries ineligible for AGOA preferences (e.g., Côte d'Ivoire and Zimbabwe) and North African countries Egypt, Morocco and Tunisia. The evolution of exports from the two groups will diverge somewhat: that will be the subject of a later section.

<sup>20</sup> In Table 3, we examine for simplicity just the exports in classification 3. We report analogous shares data for all product classifications in Appendix B, Tables B2 and B3. The narrative is quite similar for each classification.

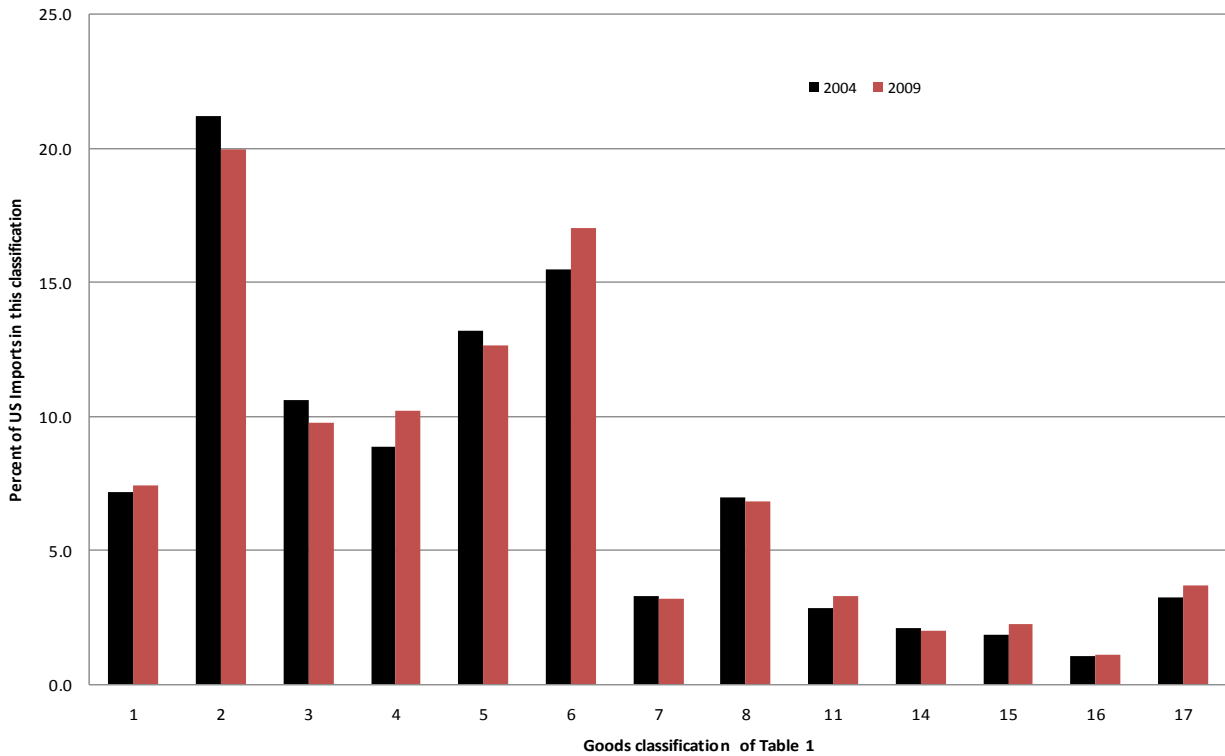
<sup>21</sup> This isn't observed in every classification because for some goods the relevant quotas were removed in 2002 or before. In classifications 11 and 14, for example, China's share is already on a rapid increase during the years 2002-2004 due to the removal of quotas on 1 January 2002.



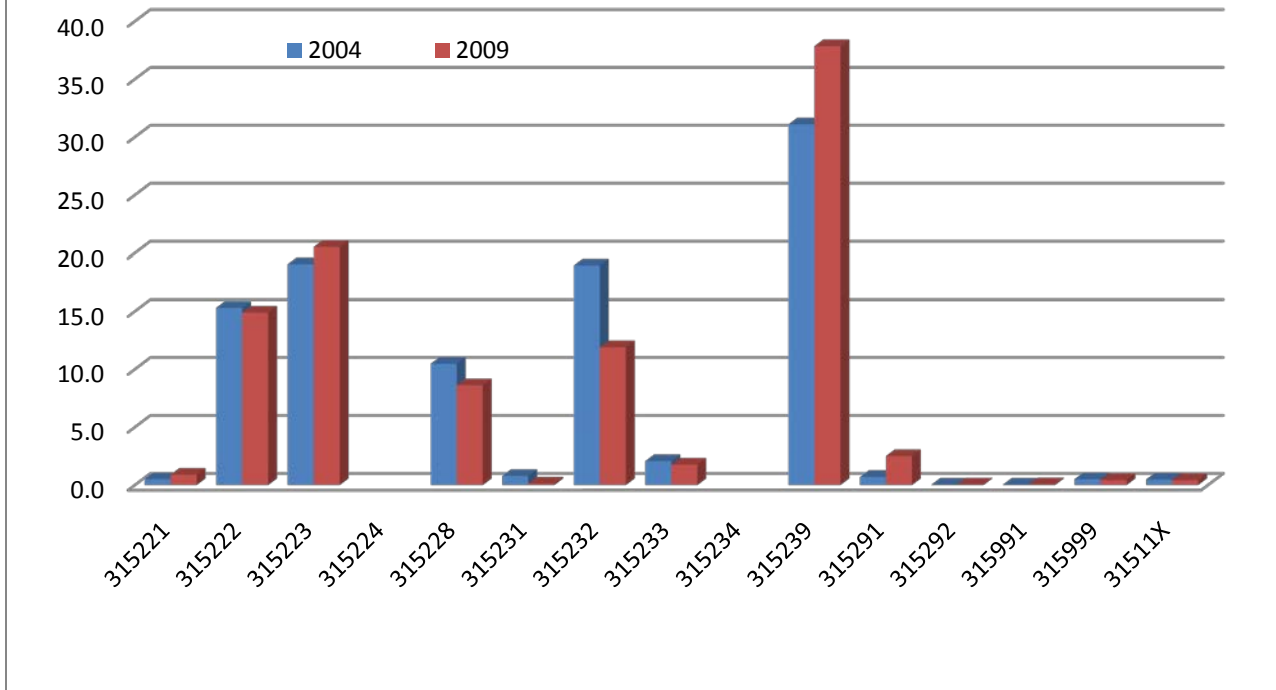
**Figure 2: The Value of Total Apparel Imports into the US**



**Figure 3: Total US Apparel Imports by Goods Classification**



**Figure 4: AGOA Africa's Exports to the US as a Share of Total US Imports**



**B. EU Apparel Imports, 2002-2009.**

34. We use the 15-member European Union as our definition of the EU for this analysis. Apparel imports into the EU grew from 37 billion Euros in 2002 to nearly 50 billion Euros in 2008, as Figure 5 illustrates. The total value declined slightly in 2009. Africa was the source for a significant fraction of these imports, but the source countries were predominantly those of North Africa (Egypt, Tunisia and Morocco). Figure 6 reports the share of total EU apparel imports supplied by North Africa, the rest of Africa (Other Africa, nearly identical to the AGOA Africa grouping above), and China. While the shares of North Africa and China were similar at the beginning of the period, by 2009 China's market share was nearly 40 percent while North Africa's was under 10 percent. As expected, we observe a rapid increase in China's market share in 2005: for previous years, the year-over-year growth in market share is less and roughly the same while for post-2005 years the growth is quite rapid. Other Africa supplied only a small and declining percentage of EU apparel imports.

**Table 3: African and Chinese Shares in the US and EU Apparel Markets (Classification 3)**

	2002	2003	2004	2005	2006	2007	2008	2009
<b>US</b>								
Other Africa	1.03	1.15	1.16	1.24	1.9	1.26	2.83	3.44
AGOAF Africa	2.51	3.16	3.60	3.19	2.85	2.51	2.31	2.11
China	5.08	5.94	7.52	11.76	14.04	16.72	18.21	23.07
<b>EU</b>								
Africa	21.12	19.90	18.81	18.06	16.42	17.07	16.59	14.94
China	7.19	8.22	9.38	17.39	18.08	23.96	26.16	28.87

Source: Tables B2 and B3 in Appendix B

35. Not all products are equally demanded in the EU. As Figure 7 illustrates, the largest import classification by value in 2004 is women's dresses (classification 4), with nearly 20 percent of total import value in 2004, followed by men's suits and trousers (classification 3) with 14 percent, pullovers (classification 10) with 13 percent and T-shirts (classification 9) with 11 percent. These percentages remain quite stable between 2004 and 2009. When the imports from Africa are examined in isolation, those four classifications there also have the greatest weight: in 2004 women's dresses represents nearly 25 percent of African exports, men's suits and trousers over 20 percent, T-shirts about 12 percent and pullovers about 9 percent. Figure 8 illustrates this distribution, indicating both the relatively greater concentration of African exports in these four categories and the relatively less stable shares from 2004 to 2009.

36. Table 3 reports the evolution of Africa and China shares in EU imports of apparel for goods classification 3.<sup>22</sup> (The analogous shares for all goods classifications are reported in Appendix B, Table B3; the pattern observed in Table 3 is similar throughout.) In 2002, with quotas in place, Africa supplied a relatively larger share of men's jackets to the EU market than did China. The quota held China to relatively small growth in market share for the period 2002-2004, but the removal of quota for part of 2005 led to a spurt in Chinese exports. Growth in market share continued in the years after 2005. For Africa, by contrast, there was a gradual loss of market share from 2002 to 2006. After that time the Africa share in total imports of these goods remained relatively constant, then declining again in 2009. Sub-Saharan Africa is not identified separately in the table, as it contributes relatively little to the competitive position of Africa in the EU during this period. When all classifications are considered (in Appendix B, Table B3) the shares of the African exporters in the EU market were larger prior to 2005 than the combined African shares in the US

<sup>22</sup> We expect a priori that the shares of imports of apparel will be similar between the US and EU markets. While there are substantive reasons why this might not be true, there is a classification difference in these data that leads to large differences in import shares. The US classification system does not in practice identify T-shirts and pullovers in a separate category, as the EU does. In the NAICS categories, both T-shirts and pullovers should be classified 315191. The reports of historical imports from the US International Trade Commission do not report any imports in this category. These products seem to be included in outerwear (classifications 1 and 2, for pullovers) and men's shirts (classification 5) in the US case.

market. With the removal of ATC quotas in 2005 those shares dropped but then stabilized at a lower level. This relative strength in the EU market may be due to the preferences of the Cotonou Agreement; also likely, the preferences under the Euro-Mediterranean Association Agreements play an important role.

### C. Selling into the combined US/EU market.

37. When the two markets are combined (using the average USD/Euro exchange rate for the year to convert Euros to US dollars), they represent a demand for apparel of US\$130 billion in 2004 and US\$172 billion in 2008. Table 4 reports a summary of the concentration of that combined market. The entries in Table 4 are the percentages of the total market supplied by the top-1, top-5, top-10 and top-20 export countries in each year.<sup>23</sup> In 2004, the top exporter (China) supplied 18.4 percent of the total value of the combined market. The top five exporters (China, Turkey, Mexico, Bangladesh, Hong Kong) served 41.2 percent of the market. The top-10 and top-20 exporters represented 56.6 and 75.1 percent, respectively.<sup>24</sup> The remaining 205 export countries, including all the Sub-Saharan African nations, then served the remaining 25 percent of the combined market. By 2008, the combined market had become much more concentrated. China alone served 35.7 percent of the combined market, and the top 5 (China, Turkey, Bangladesh, India, Vietnam) served 53.0 percent. The top-10 and top-20 countries supplied 70.0 and 84.8 percent of the combined market, leaving only 15 percent of the market to be supplied by the remaining 205 countries.

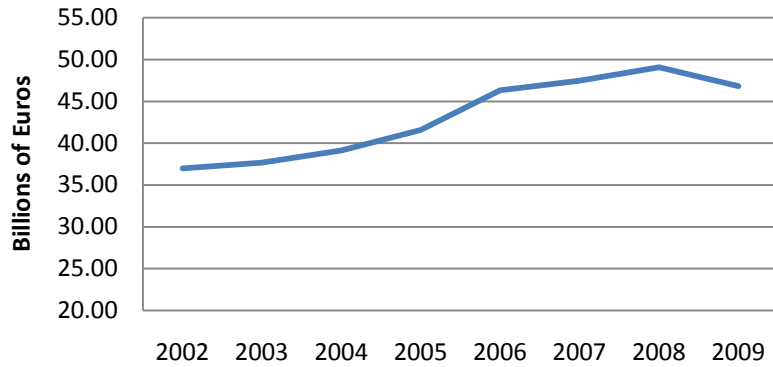
38. The apparel markets in the US and the EU are both quite large, but many exporters have chosen to specialize in selling into one over the other. Table 5 aggregates the sales of each exporting country into the two markets for 2004 and 2008. It reports the top 20 exporters in terms of total exports to the two markets, as well as the exports of 27 additional African exporters. The “rank” provided is the ranking of the country from among the 225 nations for which data are available in that year. The “US share” percentage indicates the percent of total exports represented by exports to the US.

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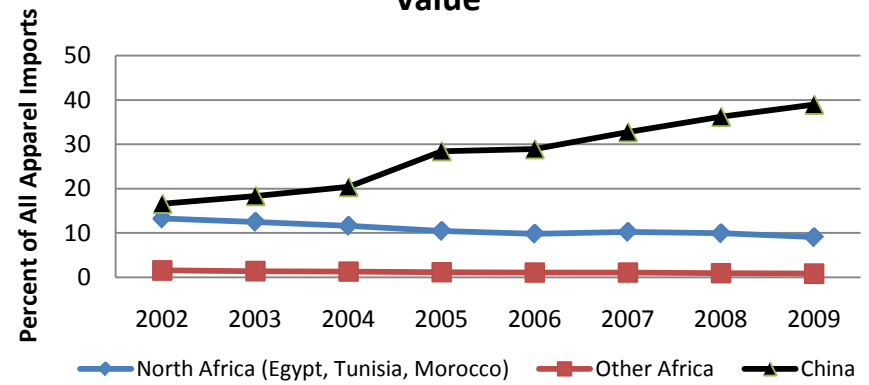
<sup>23</sup> These are not the same countries in 2004 and 2008; the summation is taken over the highest-ranked in each year.

<sup>24</sup> The countries in the top-10 and top-20 groups are listed in Table 10 by their ranking.

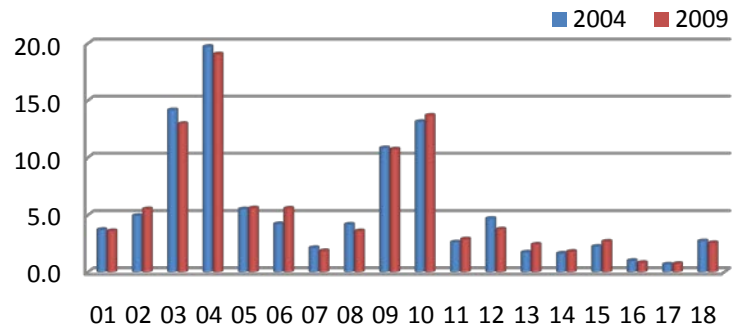
**Figure 5: The Value of EU-15 Apparel Imports**



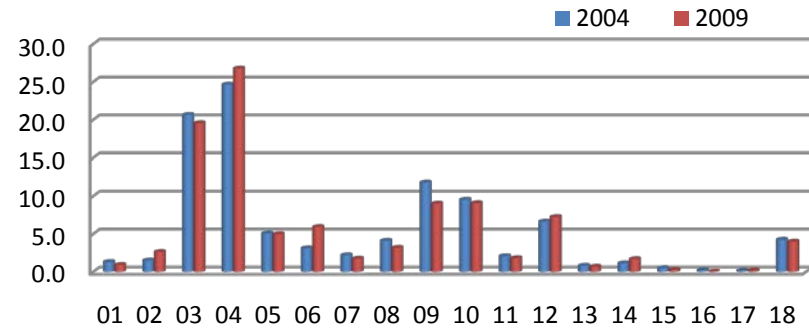
**Figure 6: Shares of EU Apparel Imports, by Value**



**Figure 7: Distribution of EU Apparel Imports by Goods Classification**



**Figure 8: African Apparel Exports to EU by Goods Classification**



				2004	2008
Top 1				18.4	35.7
Top 5				41.2	53.0
Top 10				56.6	70.0
Top 20				75.1	84.8
Source: Authors' calculations from USITC Dataweb and Eurostat COMEXT					
Calculations for trade in goods in HS 61 and HS 62 classifications.					

39. In terms of value of exports, China stands alone at the top of the list. It was already first in 2004, but amassed more than twice as large an export market by 2008. Turkey, Mexico, Bangladesh and Hong Kong round out the top five in 2004. While the “US Share” statistic tells us that China and Hong Kong sell into the two markets in roughly proportional fashion, Turkey and Bangladesh have specialized in the EU market and Mexico has specialized in the US market. These five represent 44 percent of the total market in 2004, and 53 percent of the market in 2008. The countries in the top 20 that sell into the two markets roughly equally are China, India, Hong Kong, Pakistan, Indonesia, Thailand, Cambodia and Sri Lanka.<sup>25</sup> Those that specialized in the US market in 2004 were Mexico, Vietnam, Korea, Honduras, Philippines, Dominican Republic and Guatemala.<sup>26</sup> Those specializing in the EU market were Turkey, Bangladesh, Romania, Tunisia and Morocco. These patterns of specialization reflect the geographic propinquity of the exporter to one market.<sup>27</sup>

<sup>25</sup> Hong Kong is an interesting case in these statistics. Hong Kong had rigorous rules of origin that required transformation of imported intermediates. During the ATC quota system, this added cost may have been borne to supplement the export of Chinese apparel limited by quotas. The drop of Hong Kong’s exports to the combined US/EU market in 2008 suggests that this was indeed happening. The fall in US\$3.5 billion in Hong Kong’s exports, though, is only a small fraction of the US\$45.13 billion increase in Chinese exports.

<sup>26</sup> The EU was not treated as a unit for export purposes. Even though Italy’s trade within the EU was not counted as export, it ranked in the top 20 in 2004 solely for its exports to the US. The “US Share” of 100 percent is then an artifact of that accounting approach. Italy did not rank in the top 20 in 2008 – for that reason, the line under 2008 exports is left blank.

<sup>27</sup> Bangladesh is an apparent exception in the EU-supplier category. Its focus on EU sales is due to its EBA status and its ability to meet the rules-of-origin requirements since there are competitive Bangladeshi yarn suppliers.

**Table 5: Major Apparel Exporters to the US and EU in 2004 and 2008.**

The top 20 exporters to the combined market, plus the Sub-Saharan African countries with at least \$10 million in combined exports.							
	2004	2004	2004		2008	2008	2008
	Exports	Rank	US		Exports	Rank	US
	(billions USD)		Share		(billions USD)		Share
China	24.10	1	44.5		61.71	1	38.9
Turkey	10.28	2	11.4		12.23	2	3.3
Mexico	6.90	3	99.2		4.22	7	97.8
Bangladesh	6.35	4	29.5		10.60	3	31.7
Hong Kong	6.20	5	62.5		2.77	15	56.3
India	5.23	6	43.5		9.06	4	34.5
Romania	4.56	7	2.0		3.53	10	3.2
Indonesia	4.00	8	60.0		5.76	6	70.1
Vietnam	3.25	9	77.2		7.02	5	73.4
Tunisia	3.19	10	1.4		4.08	8	1.7
Morocco	3.01	11	2.5		3.81	9	2.4
Thailand	2.87	12	63.4		2.88	13	58.9
Honduras	2.77	13	98.9		2.73	16	98.0
Sri Lanka	2.53	14	61.3		3.22	12	46.3
Korea	2.53	15	71.5				
Pakistan	2.25	16	51.0		2.85	14	52.9
Philippines	2.16	17	81.8		1.59	19	85.9
Cambodia	2.05	18	69.3		3.23	11	73.4
Dominican Rep	2.05	19	99.5				
Guatemala	1.95	20	99.7				
Poland					2.01	17	1.9
Bulgaria					1.66	18	2.9
El Salvador					1.57	20	97.5
Mauritius	0.85	32	26.7		0.75	35	13.5
Egypt	0.83	33	50.7		1.48	22	50.1
Madagascar	0.52	42	62.7		0.62	38	45.3
Lesotho	0.46	46	99.8		0.34	47	99.2
Kenya	0.28	54	98.9		0.25	52	99.4
South Africa	0.21	62	67.2		0.04	76	46.6
Swaziland	0.18	65	99.4		0.12	62	100.0
Namibia	0.08	81	99.8				
Botswana	0.03	90	62.2		0.03	81	59.0
Malawi	0.03	91	99.6		0.01	92	99.9
Zimbabwe	0.01	100	27.0				
Cape Verde	0.01	111	37.6		0.01	97	0.2
Ghana	0.01	113	98.2				
Tanzania	0.01	117	40.8				
Ethiopia					0.01	93	81.8

Rank: Of the 225 countries for which we have bilateral trade values, the rank in terms of joint export revenue.  
US Share: The percent of the total export revenue made up of sales in the US market.

Source: USITC, Eurostat

40. The countries making up the top 20 were fairly stable from 2004 to 2008: Only Korea, Dominican Republic and Guatemala fell from the group, to be replaced by Poland, Bulgaria and El Salvador. There were at the same time large shifts in ranking among the top 20. Among those falling in rank (and having smaller values of total exports) were Mexico and Romania. Hong Kong, Korea, Dominican Republic and Guatemala also fell in the rankings. Those making large gains in rank and in value exported were Bangladesh, India, Indonesia, Vietnam, Sri Lanka, Tunisia, Morocco, as well as Poland, Bulgaria and El Salvador.<sup>28</sup> China and Turkey maintained their rankings at the top of the list, but also had large gains in total value exported.

41. Among African countries, Morocco and Tunisia were very successful in specializing for the EU market. The African countries outside the top 20 but with at least US\$.1 billion in total exports in 2004 were Egypt, Mauritius, Madagascar, Lesotho, South Africa, Kenya and Swaziland. Of these, Egypt, Madagascar and South Africa had roughly balanced sales to the two markets, while Mauritius specialized for the EU market and Lesotho, Kenya and Swaziland specialized almost completely in the US market. By 2008, only Egypt and Madagascar (in addition to Morocco and Tunisia) had experienced growth in total exports and a rise in rank; the others had their export position and rank deteriorate with the removal of the ATC quotas. For the smaller African exporters (i.e., with total exports in 2004 between US\$.1 billion and US\$.01 billion) only Ethiopia experienced a rise in total value exported.

42. These are the largest African exporters, but there are many others with at least some apparel exports to the US and EU markets. Table 6 provides a listing of 49 African countries with reported exports to these two markets during the period 2004-2008. The “short-term impact” column reports the change in the US dollar value of exports from 2004 to 2005, while the “medium-term impact” column reports the change in the US dollar value of exports between 2004 and 2008. For the majority of countries in the listing, the medium-term impact is very small. There are only six with an improvement over those four years of at least US\$1 million: Tunisia, Morocco, Egypt, Madagascar, Ethiopia and Eritrea. Interestingly, Tunisia, Morocco and Madagascar experienced large losses in the short term followed by these larger medium gains. There are 15 countries with losses of at least US\$1 million: South Africa, Lesotho, Mauritius, Namibia, Swaziland, Kenya, Malawi, Zimbabwe, Ghana, Botswana, Uganda, Tanzania, Mozambique, Sierra Leone and Côte d’Ivoire. Nearly all of these countries experienced losses as well in the short term.

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<sup>28</sup> The US dollar depreciated against the Euro between 2004 and 2008, with exchange rate of US\$1.21 per Euro in 2004 and US\$1.56 per Euro in 2008. This alone will contribute to a rise in ranking for those exporters specializing in sales into the EU market.





43. The Sub-Saharan African apparel exporters that will be considered in Section 4 Figure prominently in this listing. Kenya, Swaziland, Lesotho and Mauritius are among the countries experiencing the greatest losses, while Madagascar is among the larger gainers. Our North African comparators, Egypt and Morocco, both registered as gainers in the medium term. Vietnam, Indonesia and Bangladesh all gained in the medium-term, as shown in Table 5. We have, thus, set a daunting set of comparators – five countries that have expanded their market share in the US and EU markets during this period of quota elimination. We will derive our lessons for Sub-Saharan African competitiveness by comparing with the success of firms in these countries.

#### **D. Price competition in the US and EU markets.**

44. The fundamental prediction of international economics with regard to removal of quotas is the trade creation prediction due to Viner (1950). Removal of bilateral quotas will allow the country under binding quota to sell an expanded quantity at a lower average price (trade creation); exporters wishing to maintain market share must compete on price terms with the countries no longer under quota. Table 7 illustrates the large adjustments in apparel value imported into the US and EU between 2004 (pre-removal of quotas) and 2008 (after a transition to quota-less trade). The “Not Africa” group, including all countries facing quotas in 2004, increased its sales and market share in both US and EU markets. Sub-Saharan Africa lost sales revenue, and market share, in both markets. North Africa attained the same sales in the EU as in 2004, although with loss in market share, and increased its sales into the US. The question remains: what led to this massive re-adjustment?

<b>Table 7: Export Revenue from Sales into the EU and US Apparel Markets</b>				
	Not Africa	Sub-Saharan Africa	North Africa	Total
Export Revenues from Sales into the EU Apparel Market (Billions of Euros)				
2004	34.62	0.70	4.24	39.56
2008	41.46	0.59	4.24	46.29
Export Revenues from Sales into the US Apparel Market (Billions of US Dollars)				
2004	50.78	1.72	0.51	53.02
2008	57.47	1.12	0.85	59.44
Sources: Eurostat COMEXT database, US ITC Dataweb				

45. We do not observe the pricing rules of the exporters we consider here, but we can obtain an indicator of these rules by examining the unit value of export goods by country of origin. The unit value is obtained by dividing the customs value of the good by the quantity exported. This is only possible when the export data are disaggregated enough to provide consistent and appropriate

quantities for the goods considered. In this section, we disaggregate by the quota categories created by the US and EU to keep track of countries' compliance with bilateral quotas. The definitions of the quota classifications in the two markets are complex and mutually inconsistent, but separating transactions by quota category provides a clear picture of the evolution of quantities exported and price competition during the adjustment to quota removal. For this section, we consider the US and EU markets separately. We also define 2004 as the benchmark for our analysis, and we consider short-term (2005) and medium-term (2008) horizons for analysis. We consider only goods in those quota categories for which ATC quotas were removed in 2005.

46. We provide a detailed description of price adjustment with the elimination of the quota system for both the US and EU in Appendix E. We can summarize those results simply:

- There are large differences in pricing across the three groups considered: China, North Africa and Sub-Saharan Africa. The prices of Chinese exports to the US and EU fell by forty to fifty percent when 2005 is compared to 2004. The prices of comparable (i.e., same quota category) goods from Sub-Saharan Africa fell, but not by the same amount. The prices of comparable goods from North Africa showed no trend, either up or down.
- By 2008, the price competition had moderated somewhat, but the pattern was the same. We observe a large drop in the price of Chinese goods, with only smaller drops in the prices of comparable goods from Sub-Saharan Africa and no systematic difference in prices of comparable goods from North Africa.
- There is a common tendency to observe the price-quantity tradeoff forecast by theory. There is an expansion of quantity imported of the lower-priced goods and a reduction in quantity imported of the higher-priced goods.

47. We illustrate these results in a simple difference-in-difference regression reported in Table 8. The dependent variables are the logarithmic differences in prices and quantities of imports into the US. The right-hand side variables pick up any systematic differences between China, North Africa and Sub-Saharan Africa in pricing or quantity sold. (The behavior of "Other" countries is reflected in the intercept, and the coefficients reported are measures of deviation from the "Other" behavior.) The logarithmic change from 2004 to 2005 in prices and quantities are defined  $\ln(sr_{uv})$  and  $\ln(sr_q)$ , and the logarithmic changes from 2004 to 2008 are  $\ln(mr_{uv})$  and  $\ln(mr_q)$  respectively. The group-specific variables are  $d_{chn}$  for China,  $d_{na}$  for North Africa and  $d_{ssa}$  for Sub-Saharan Africa. Quota categories in which China has a binding quota are indicated by  $dbind$ .<sup>29</sup>

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<sup>29</sup> There were no binding quotas observed for North Africa or Sub-Saharan Africa. There were binding quotas for some of the countries in the "other" category, but these bound only one or two of the hundreds of countries. We thus treated "other" as under non-binding quota (or no quota at all) throughout.

Table 8: Country-specific differences in price and quantity responses							
Dependent variable:		ln(sruv)	ln(srj)	ln(srj)	ln(mruv)	ln(mrq)	ln(mrq)
Regressors:							
Intercept		-0.05 (0.04)	0.12 (0.10)	0.07 (0.10)	0.01 (0.05)	0.06 (0.19)	0.08 (0.18)
ln(sruv)				<b>-0.78</b> (0.19)			
ln(mruv)							<b>-1.06</b> (0.27)
dchn		<b>-0.41</b> (0.06)	<b>1.41</b> (0.14)	<b>1.08</b> (0.16)	<b>-0.33</b> (0.08)	<b>1.70</b> (0.27)	<b>1.36</b> (0.28)
dna		0.06 (0.06)	-0.20 (0.16)	-0.16 (0.15)	0.03 (0.08)	0.36 (0.30)	0.39 (0.28)
dssa		-0.06 (0.06)	<b>-0.42</b> (0.15)	<b>-0.46</b> (0.14)	-0.11 (0.08)	-1.08 (0.28)	<b>-1.19</b> (0.27)
dbind		-0.21 (0.11)	0.17 (0.26)	0.01 (0.25)	-0.03 (0.14)	0.39 (0.49)	0.36 (0.47)
N		159	159	159	159	159	159
F		<b>23.17</b>	<b>50.34</b>	<b>48.05</b>	<b>6.96</b>	<b>27.42</b>	<b>26.97</b>
R2		0.38	0.57	0.61	0.15	0.42	0.47

48. The first three columns of results describe short-run changes: that is, from 2004 to 2005 with the elimination of quotas. The prices for the “other” countries fell insignificantly, as indicated by the intercept, but prices on Chinese goods fell by 34 percent relative to “other”.<sup>30</sup> North African prices rose by 6 percent and Sub-Saharan African prices fell by 6 percent, both insignificantly different relative to “other”. The prices on Chinese products under binding quotas in 2004 fell by an additional 12 percent, but that was not significantly different from the change observed for Chinese goods in general. The second column indicates the growth in quantities sold: while “other” apparel grew slightly and insignificantly, Chinese quantities grew 310 percent and Sub-Saharan African quantities fell 34 percent. Chinese products under binding quota grew somewhat more quickly than under non-binding quota, but not significantly so. The third column introduces a measure of the price elasticity of demand for these products by including ln(sruv) as regressor; as is evident there, the observed correlation between quantity and price is significantly negative at -0.78 as expected.<sup>31</sup>

49. The results for the medium-term (i.e., the change from 2004 to 2008) tell a similar story. There is no significant change in either price or quantity sold by the “other” countries. China’s pricing represents a 28 percent drop on average from 2004; this is a smaller drop than observed in

<sup>30</sup> The percentage change in the left-hand side variable for a unit change in the right-hand side variable is  $\exp(\beta)-1$ , where  $\beta$  is the coefficient in the table.

<sup>31</sup> It is not appropriate to interpret this coefficient as the price elasticity of demand; we have not been able to introduce a structural estimation of supply and demand sides of the market to allow such an interpretation. To the extent that the global supply environment for exports to the US is unchanging from 2004 to 2005 aside from pricing changes made possible by removal of the quotas, then this interpretation of the coefficient on ln(sruv) and ln(mruv) will be valid.

the short term, but still significantly different from that of the other countries. Sub-Saharan African exporters reduced price relative to that of other countries, but not significantly so. Those products with binding quotas in 2004 no longer show much of a difference from Chinese products in aggregate. On the quantity side, the pattern begun in the short term intensifies in the medium term: China expands its quantities sold and Sub-Saharan Africa further reduces its quantities sold. North Africa provides a conundrum: while it has not competed on price in the US market, it has expanded its quantity sold on average.<sup>32</sup>

50. There are more details from this analysis in Appendix E, but we can summarize as follows. As noted in the earlier section, trade preferences under AGOA provided Sub-Saharan African countries with a price advantage equal in percentage terms to the tariff charged on other country's apparel but waived for AGOA countries. This differed by product, but was in the range of 10 to 20 percent. China's price competition in 2005 represented a price reduction of on average 34 percent, and this reduction continued: it is observed at 28 percent on average in 2008 relative to 2004. This gave China the price advantage, leading to large percent increases in quantity sold in 2005 and even larger increases in 2008. Other countries on average increased quantities sold modestly. Sub-Saharan African countries, however, experienced precipitous declines in quantities sold.

#### **E. Stylized facts: African trade in apparel in 2002-2009**

51. The statistics of the previous sections provide us with a number of conclusions about African participation in apparel trade during the period just before and just after the removal of ATC bilateral quotas:

- The apparel industry was a growth industry in many Sub-Saharan African countries in the decade leading up to 2005.
- Sub-Saharan African exporters taken as a group have lost market share in the US and the EU – the two largest import markets for apparel products – during this period. In the EU the loss of market share was continuous from the beginning of the period in 2002, while in the US Sub-Saharan African exports made small gains through 2004 but then suffered larger losses in market share after the final removal of quotas (on everyone but China) in 2005.
- Sub-Saharan African exporters are not alone in this. When the period prior to removal of quotas (2004) is compared to the period after removal of quotas (2008), the supply of apparel to the US and EU has become more heavily concentrated in 20 major suppliers. Only two of those (Morocco and Tunisia) are African exporters, and none come from Sub-Saharan Africa.
- While Sub-Saharan African exporters have been supplying the goods (or goods classifications) that are in demand in the US and EU, their exports are more heavily concentrated in a few classifications than are imports into these countries more generally.

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<sup>32</sup> We conjecture that this is due to the introduction of the US-Morocco free trade area, but we have not demonstrated that in this analysis.

- This tendency toward loss of market share is true for Sub-Saharan African exporters in all goods classifications, but there are differences in the severity of losses across classifications.
- During the period 2005-2008, apparel imports from China into the US and EU under quota until 2005 evidenced a large (roughly 40 percent) initial drop in unit value, with unit values rising somewhat but staying significantly lower than the 2004 benchmark through 2008. Comparable apparel exports from Sub-Saharan African countries exhibited smaller reductions. There was coincidentally a large increase in the quantity exported from China to the US and EU, and a large percentage reduction in quantities exported from Sub-Saharan Africa to the US and EU.

#### 4. CAN SUB-SAHARAN AFRICAN FIRMS COMPETE?

52. The negative record for Sub-Saharan African countries in the period since 2004 raises an important question: can Sub-Saharan African exporters compete in the global marketplace now that the trade restrictions inherent in the quota system no longer provide them protection?<sup>33</sup> While country-level data is suggestive, this is a question that must be answered at the firm level.

53. For this, we examine firm-level data on apparel production from a subset of Sub-Saharan African countries (Kenya, Mauritius, Madagascar, Swaziland, Lesotho) that together comprise more than three quarters of total apparel exports from Sub-Saharan Africa in 2004. The surveys were World Bank Enterprise Surveys conducted between 2004 and 2008.<sup>34</sup> We will choose comparators from Asia (Bangladesh, China) and North Africa (Morocco, Egypt) to contrast with the Sub-Saharan African countries.

54. We begin with a short summary of the apparel sector in these countries. We then turn to evidence of cost differentials among exporting firms. While we find that there are sizeable differences among countries in median cost characteristics, we also find that there is sizeable heterogeneity among firms within each country as well. Those Sub-Saharan African firms with lowest cost do not appear different from export performers in the comparator countries.

##### A. Comparing Apparel producers

55. In contrast to countries in Asia and North Africa, exporting countries in Sub-Saharan Africa are small economies with only a small share of their labor force employed in the formal sector. Table 9 illustrates this, with Sub-Saharan countries in the top panel and North African and Asian comparators in the bottom panel. The textiles/apparel sector constitutes a large part of industry, but a relatively small part of total employment: 210,000 out of over 29 million in the labor force of the five Sub-Saharan African countries, and 10.3 million out of 270 million in the labor force of the five comparator countries.

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<sup>33</sup> This is not a new question for World Bank analysis. See the discussion in Appendix A of prior analyses, including especially Yoshino (2008), Brenton, Hoppe and Newfarmer (2008), and Eifert et al. (2008).

<sup>34</sup> A shorter instrument (called an Indicator Survey) was used to survey firms in Lesotho. It did not ask firms to provide details on input costs or capital stock. It is dropped from our econometric analysis.

**Table 9: Macroeconomic Characteristics of the Apparel Exporters**

	Total Population	Labor Force	% in Industry	Number in Industry	Workers in Textile &Apparel	Number of firms
Kenya	38,765,312	18,173,412	19.5	3,543,815	32,095	55
Lesotho	2,049,000	918,896	15.2	139,672	47,040	41
Madagascar	19,110,941	9,354,356	3.4	318,048	64,000	301
Mauritius	1,268,854	572,174	32.3	184,812	57,564	>100
Swaziland	1,167,834	444,596	13.5	60,020	11,500	25
Vietnam	86,210,781	45,606,689	17.3	7,889,957	2,100,000	>1000
Morocco	31,605,616	11,793,738	20.3	2,394,129	200,000	1600
Egypt	81,527,172	26,315,732	22	5,789,461	1,000,000	QIZ 1500
Bangladesh	160,000,128	76,765,040	14.5	11,130,931	3,500,000	3500
Indonesia	227,345,082	112,803,754	18.7	21,094,302	3,500,000	

Source: World Development Indicators. Data on Textile and Apparel industry from various country and online sources.

56. The World Bank Enterprise Surveys for various countries provide us with a snapshot of the distribution of firms in the apparel industry by country and year. In Table 10, we provide summary statistics from those surveys for all manufacturing firms and for the apparel sub-sector.<sup>35</sup>

The Sub-Saharan African countries considered are Madagascar, Mauritius, Kenya and Swaziland; Egypt and Morocco are the North African comparator countries considered; Bangladesh, Indonesia and Vietnam are the Asian comparators.<sup>36</sup> All currency values are stated in constant-value 2006 US dollars.

57. Consideration of the mean “value added per worker” panel of the table provides a number of stylized facts about apparel production in all the countries. First, apparel production generates less value added per worker than does manufacturing on average in every country. Labor cost per worker in Table 10 exhibits similar variation. Apparel workers are paid less than manufacturing workers in general, although the difference is not as great as was observed in value-added per worker. Apparel production is labor- intensive -- firms in this sector have lower capital per worker compared to manufacturing on average. Unit labor costs, measured as the ratio of labor costs per worker to value added per worker, are higher in the apparel sector compared to manufacturing. This reflects the labor intensity of production in this sector.

<sup>35</sup> Surveys in each of these countries were conducted between 2006 and 2009. To make the accounting data comparable across years, we convert values to 2006 prices using the GDP deflator, and then use the average exchange rate for 2006 to convert them to constant USD. Survey details, including sample characteristics and cleaning rules are presented in Appendix B.

<sup>36</sup> The comparator countries were chosen from among countries internationally with similar income per capita to that of Sub-Saharan African countries under consideration and with similar focus upon apparel export. We were limited to the group of countries for which comparable World Bank Enterprise Surveys have been administered.

**Table 10: Value added, Costs and Capital Intensity: Manufacturing and Apparel Sector**  
**Manufacturing**

Country	N	Value Added per Worker		Labor Costs per Worker		Capital Labor Ratio		Unit Labor Costs	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
Bangladesh 2006	1124	2386.89	1320.66	616.18	528.02	3292.59	2010.36	43%	42%
Egypt 2007	689	5058.95	3171.89	1110.16	932.6	3043.7	1784.92	36%	32%
Indonesia 2008	817	3911.02	1659.17	953.01	829.58	1986.23	829.58	47%	47%
Kenya 2006	371	8521.98	6275.6	1853.51	1664.36	6688.07	5815.59	36%	30%
Madagascar 2007	138	3170.23	2021.29	744.84	668.67	2403.53	1326.01	44%	37%
Mauritius 2007	96	9228.97	7006.65	2440.84	2246.4	5597.23	4811.35	39%	35%
Morocco 2005	405	9172.94	6670.91	2892.51	2936.28	4237.92	2884.38	48%	48%
Swaziland 2005	55	7780.54	6043.04	2104.3	1860.12	3678.81	2832.67	42%	37%
Vietnam 2008	618	5903.42	3563.63	1395.04	1186.68	3384.49	1977.8	41%	38%
<b>Apparel</b>									
Bangladesh 2006	278	1675.09	1273.06	574.03	530.25	1711.98	807.37	45%	43%
Egypt 2007	110	3097.2	1814.41	777.79	713.97	1988.92	1169.63	39%	37%
Indonesia 2008	104	3069.05	1724.09	946.04	886.47	918.16	431.03	49%	49%
Kenya 2006	90	6636	4390.6	1701.81	1603.36	6106.06	4539.37	40%	38%
Madagascar 2007	31	2111.35	2153.47	650.11	637.34	1116.7	490.33	43%	34%
Mauritius 2007	19	4251.8	3342.14	1876.8	1654.91	1186.29	799.24	41%	37%
Morocco 2005	99	5306.52	3936.3	2564.22	2647.22	2777.16	1613.72	58%	63%
Swaziland 2005	16	7286.31	5279.5	1837.3	1605.18	5376.89	3147.42	56%	65%
Vietnam 2008	93	3068.21	2014.75	1261.44	1095.4	1299.11	791.12	54%	55%

Source: World Bank Enterprise Surveys, various years and countries.

58. The comparison of means and medians in Table 10 demonstrates that firms in all these countries are not distributed normally by any of these indicators. This is also true for firms within the apparel sector. Table 11 highlights the main features of this heterogeneity held in common between Sub-Saharan African countries and comparator countries. The comparator countries are listed at the top of the table, and the Sub-Saharan African countries are given at the bottom.

**Table 11: Number of Workers in Exporters versus Non-Exporters of Apparel**

Country	Percent of Firms	Non-Exporters		Exporters		N
		Mean	Median	Mean	Median	
Morocco 2005	88%	53	41	243	182	110
Egypt 2007	32%	35	20	482	306	112
Indonesia 2008	28%	50	11	612	340	144
Vietnam 2008	72%	45	30	961	354	116
Bangladesh 2006	88%	98	33	649	426	296
Lesotho 2008	88%	6	6	5495	763	16
Madagascar 2007	60%	89	20	348	152	53
Mauritius 2007	48%	21	10	81	41	29
Kenya 2006	25%	26	12	462	175	92
Swaziland 2005	41%	11	2	683	445	27

Source: World Bank Enterprise Surveys



59. It is important to note the features common across comparator and Sub-Saharan African countries. First, in nearly all entries, mean employment is greater than median employment. This is an indication that each distribution of firms is characterized by a small number of large-employment firms and a larger number of small-employment firms: the large firms pull up the mean by much more than the median. Second, the exporter firms are much larger on average (or at the median) than the non-exporters in every country. Third, there is no apparent difference in the distribution of mean or median employment for Sub-Saharan African countries and comparator countries when exporters are compared with exporters or non-exporters with non-exporters. The percentage of exporting firms also has a similar dispersion. In statistical term, the “between variation” characterizing the difference on average between Sub-Saharan African exporters and comparator exporters is smaller than the “within variation” of the distribution of firms within each group around its own average values. The major difference between Sub-Saharan African and comparator characteristics is in the number of apparel firms sampled: the Sub-Saharan African nations have smaller numbers of firms. For all countries in our sample, Governments provided a whole host of incentives for export oriented firms, creating a sector where most of the employment and value added is generated by firms that export the majority of their output.<sup>37</sup>

60. Mean and median value added per worker, labor cost per worker, capital intensity and labor cost share are presented in Table 12. It is important to first note what we do not observe – there is no clear distinction at the mean or median of any of these measures between the Sub-Saharan African nations and the comparator nations. There is once again a great deal of variation within each group, but variation between the averages for the two groups is not as evident. Sub-Saharan African firms and comparator firms could have been drawn from the same (large variance) distribution.

61. Except for Kenya<sup>38</sup>, we see that value-added per worker is much higher for exporters than for non-exporters; labor cost per worker is also higher. The capital-labor ratio is an indicator of choice of technology at the firm level, with higher values indicating greater capital intensity. Firms serving the domestic market in Kenya are more capital intensive than exporters, and this is also true for firms in Morocco. In all other countries, capital intensity is higher for exporters than non-exporters, both at the mean and median.<sup>39</sup> The last two columns in Table 12 present mean and median labor-cost share of value added for non-exporters and exporters. Comparing the medians of the comparator firms, the labor-cost share in Morocco is larger for exporters than for non-exporters, while in Bangladesh the reverse holds; for the other countries they are similar. Among the Sub-Saharan African nations, the labor-cost share is higher for exporters than for non-exporters in all countries except Madagascar.

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<sup>37</sup> Detailed discussion of export incentives for each country in our sample is presented in Jausch & Traub-Merz (2006).

<sup>38</sup> Kenya’s domestic apparel industry included many producers manufacturing staff uniforms, military outfits and other products with an inelastic demand. Several other firms were custom tailors.

<sup>39</sup> Capital is measured as the current market sales value of machinery and equipment. Enterprises were asked the question, “Hypothetically, if this establishment were to purchase machinery, vehicles and equipment it uses now, in their current condition, how much would they cost?”. This question was not included in the Bangladesh Survey. We use book value of plant and equipment in that case as a proxy for sales value.

62. We can summarize our introduction of the firm-level information as follows:

- There is a striking amount of heterogeneity among apparel producers within each exporting country: this is true for Sub-Saharan African countries as well as for the comparators.

**Table 12: Value Added, Costs and Capital Intensity: Apparel exporters versus Non-Exporters**

Country	N	Value Added per Worker		Labor Costs per Worker		Capital Labor Ratio		Labor Cost Share	
		Mean	Median	Mean	Median	Mean	Median	Mean	Median
<b>Non-Exporters</b>									
Morocco2005	12	5237.63	2925.83	2302.99	2238.04	3367.63	2845.92	47%	42%
Egypt2007	75	2981.18	1971.35	730.79	598.42	2053.21	1216.43	39%	37%
Indonesia2008	74	2595.22	1643.11	817.84	796.4	868.41	380.23	47%	49%
Vietnam2008	28	3296.42	2215.72	1261.42	1116.87	1358.8	647.28	53%	52%
Bangladesh2006	25	875.96	736.98	392.39	377.19	972.47	512.6	48%	50%
Kenya2006	67	7486.3	5127.44	1699.9	1595.01	6232.63	6066.45	39%	35%
Madagascar2007	11	1750.84	1237.91	556.89	614.08	461.43	437.67	42%	50%
Mauritius2007	8	3166.36	2344.45	2117.01	1971.47	999.99	799.24	38%	37%
Swaziland2005	10	6914.86	4718.76	1733.35	1589.44	1993.36	1993.36	50%	55%
<b>Exporters</b>									
Morocco2005	87	5315.43	4202.07	2597.29	2695.04	2711.56	1584.38	59%	63%
Egypt2007	35	3339.49	1795.32	885.43	785.35	1846.68	1118.85	40%	36%
Indonesia2008	30	4202.85	2348.23	1233.4	1124.33	1008.6	553.5	52%	49%
Vietnam2008	65	2961.71	1932.19	1261.45	1093.57	1275.89	839.15	54%	55%
Bangladesh2006	253	1755.97	1343.2	592.49	547.77	1788.81	855.04	44%	42%
Kenya2006	23	4123.74	3362.64	1707.28	1603.36	5758	3527.41	42%	44%
Madagascar2007	20	2259.79	2158.72	704.07	646.88	1466.18	666.87	43%	26%
Mauritius2007	11	4942.54	3883	1716.66	1654.91	1349.3	1203.62	44%	47%
Swaziland2005	6	7905.39	6217.63	2045.21	1987.84	6730.3	9548.34	66%	67%

Source: World Bank Enterprise Surveys

- One important source of that heterogeneity is the distinction between exporting firms and non-exporting firms. Exporting firms tend to be larger in terms of employment and sales revenue than non-exporting firms. However, on other measures of median performance (for example, value added per worker or capital-labor ratio) the distinction is not so clear-cut. Exporting and non-exporting firms in the same country have similar values, although differences in averages across countries remain large for either exporters or non-exporters.
- There are relatively small numbers of apparel firms in the Sub-Saharan African economies relative to the numbers in the comparator countries; this will make statistical comparison difficult.

- There is a significant difference in competitiveness among African countries. In this section, we have examined the differential success of North African and Sub-Saharan African (or AGOA African) countries in selling into the US and EU markets. The North African countries (specifically Egypt, Morocco and Tunisia) have been more effective at establishing and sustaining market share. This is certainly true in the EU, where its propinquity and trade preferences give them an advantage. It is also true in the US, in part because of bilateral Free Trade Areas established among these countries. In following sections, we will examine differences among Sub-Saharan African countries to determine if there is a similar disparity in successes among them.
- There is a small group of African countries with exports to the combined US and EU markets in excess of US\$100 million in 2004: Egypt, Lesotho, Kenya, Madagascar, Mauritius, Morocco, South Africa, Swaziland and Tunisia. Of these, Tunisia, Morocco, Egypt, and Madagascar registered improvements in export position between 2004 and 2008. We will examine firm-level performance from among these nine countries to identify possible explanations for the relative success of these four.

63. These results are suggestive, but they do not depend solely on the removal of ATC quotas. During this time, we have also observed changes in tariff protection and rules of origin restrictions from the AGOA Act in the US and the Everything but Arms initiative in Europe. Some African countries were also transitioning to free-trade areas with the EU through their Euro-Mediterranean Association Agreements; for example, Tunisia completed this process in 2008.<sup>40</sup> For its part, the US has established a Free Trade Area with Morocco. Third-country agreements (e.g., renewed China quotas in 2006-2008 in the US and 2006-2007 in the EU) have also played a role in African competitiveness.

## **B. Evidence on price competition from Enterprise Surveys**

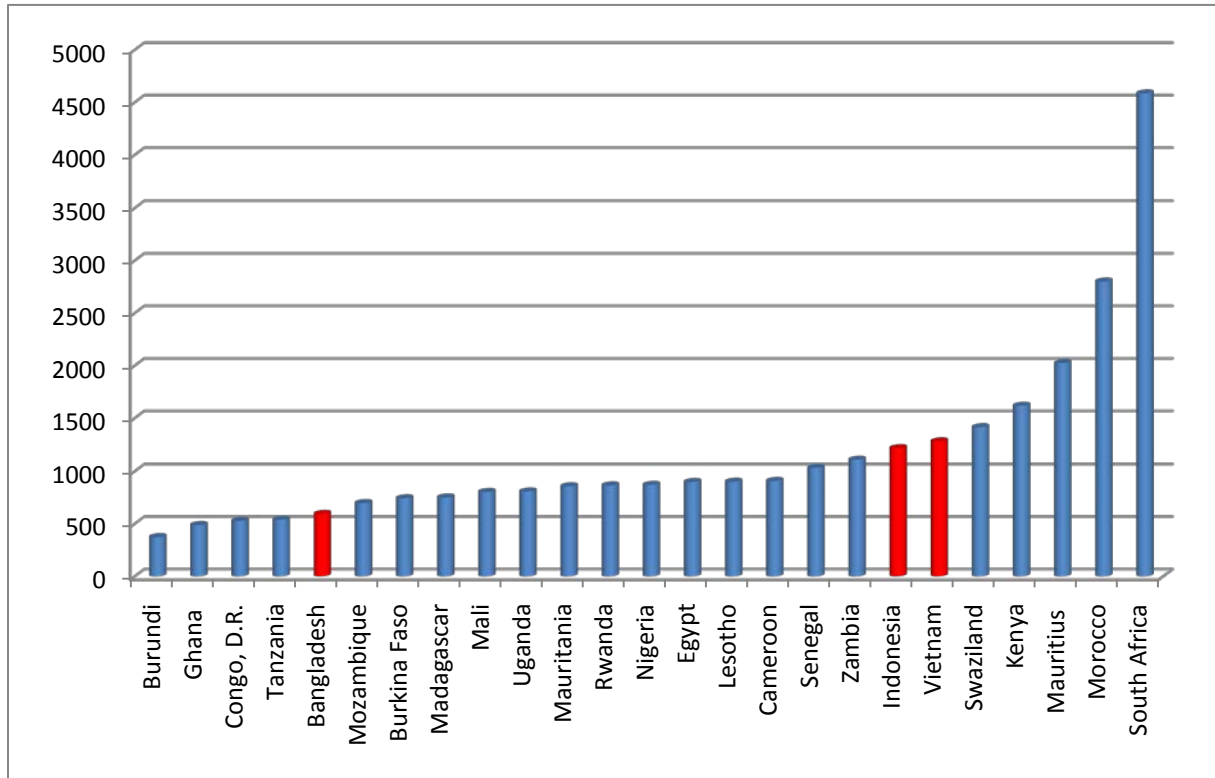
64. Existing literature on the competitiveness of the apparel industry focuses on differences in labor costs, and the move of production towards low-cost countries, particularly for the low value-added segments of clothing production. (Staritz, 2010; USITC, 2009; Jausch and Traub-Merz, 2006; Fukunishi, 2008). The argument presented in this literature is that labor costs are a large part (between 30 and 50 percent) of total costs in apparel production. Since the tasks are labor-intensive and require low skills, firms will locate in countries which have low labor costs. This argument is used to explain the rapid rise in apparel exporting from countries such as Bangladesh and Vietnam. Figure 9 illustrates that average wages per hour in some countries in Sub-Saharan Africa (e.g., Madagascar and Kenya) are as low, or lower, than other successful exporters. For other Sub-Saharan African countries (e.g., Swaziland and Mauritius) the hourly wage is strikingly higher. However, as shown in previous sections, it is not only the low-cost competitors such as Bangladesh and Vietnam that have performed well after 2005. Egypt and Morocco have also seen expanding

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<sup>40</sup> This transition is also known as the Barcelona Process, and began with the Barcelona Conference in 1995. The countries of North Africa (Egypt, Tunisia, Morocco, and Algeria) are participating in this Association process. For background, consult [http://europa.eu/legislation\\_summaries/external\\_relations/relations\\_with\\_third\\_countries/mediterranean\\_partner\\_countries/r15001\\_en.htm](http://europa.eu/legislation_summaries/external_relations/relations_with_third_countries/mediterranean_partner_countries/r15001_en.htm)

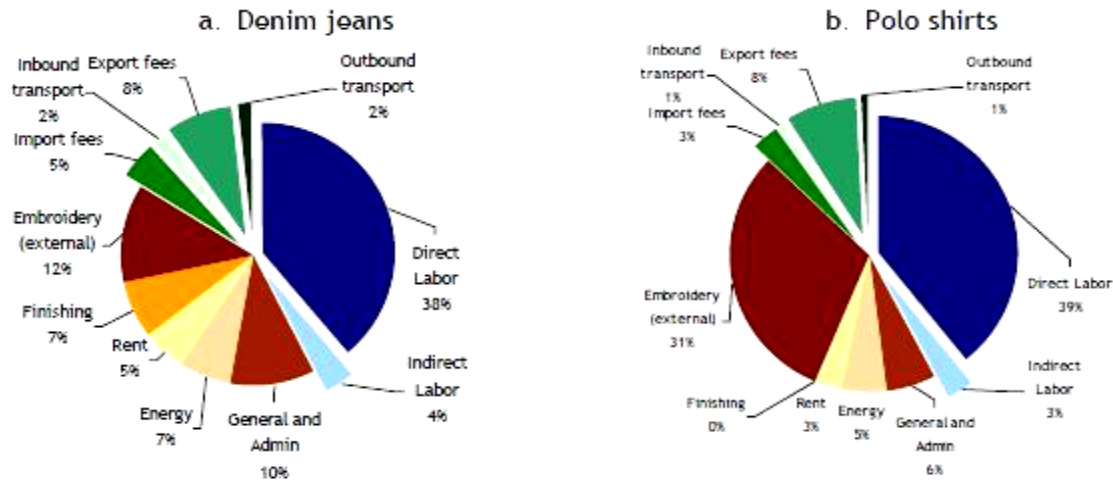
market shares despite their higher labor costs, while Kenya and Lesotho have seen rapid declines, despite their low wage costs.

**Figure 9: Annual Labor Costs per Worker in Apparel : Select SSA Countries and Comparators** (Constant 2006 US\$)



Source: World Bank Enterprise Surveys 2006-2009; Bars in red represent countries used in our firm level analysis.  
 Note: Labor costs are reported by management and reflect wages and allowances. They include production and non-production workers.

Figure 10: Standard Cut, Make, Trim, Trade and Transport Costs



Source: USAID 2007

65. Country comparisons are important, but the critical decisions are made at the firm level. Under what conditions will an exporter be profitable? We define a number of useful indicators below.

$$\pi_{it} = P_{it}Q_{it} - w_{it}L_{it} - s_{it}M_{it} - v_{it} \quad (1)$$

$$\pi_{it}/(P_{it}Q_{it}) = 1 - w_{it}L_{it}/(P_{it}Q_{it}) - s_{it}M_{it}/(P_{it}Q_{it}) - v_{it}/(P_{it}Q_{it}) \quad (2)$$

$$VA_{it}/L_{it} = P_{it}Q_{it}/L_{it} - s_{it}M_{it}/L_{it} = \pi_{it}/L_{it} + w_{it} + v_{it}/L_{it} \quad (3)$$

$$NVA_{it}/L_{it} = P_{it}Q_{it}/L_{it} - s_{it}M_{it}/L_{it} - w_{it} = \pi_{it}/L_{it} + v_{it}/L_{it} \quad (4)$$

$$VA_{it}/w_{it}L_{it} = 1 + \pi_{it}/w_{it}L_{it} + v_{it}/w_{it}L_{it} \quad (5)$$

66. The profits of firm  $i$  in time  $t$  are denoted  $\pi_{it}$ . The direct costs are those related to labor ( $w_{it}L_{it}$ ) and to purchase of energy, raw materials and intermediate inputs ( $s_{it}M_{it}$ ). There are indirect costs ( $v_{it}$ ) as well; these might be bribes, or the borrowing costs associated with delays in customs and logistics, or overhead costs of production. Equation (1) defines the total profits of the firm, while (2) defines profits as a percent of sales revenue. To be competitive, the firm must have  $\pi_{it}$  (or  $\pi_{it}/(P_{it}Q_{it})$ ) greater than zero. A low wage is an advantage in this regard, but is only one factor. Also important will be the value of sales, the cost of raw materials and intermediate inputs, and the level of indirect costs. Figure 10 illustrates a more disaggregated decomposition of the elements of equation (2) for two apparel products. “Direct labor” corresponds to our measure  $w_{it}L_{it}/(P_{it}Q_{it})$  and is the single most important cost in these two examples. In each case, though, it is not even half of total costs: inputs and finishing ( $s_{it}M_{it}/(P_{it}Q_{it})$ ), overhead, administration, rent, transport and tariffs ( $v_{it}/(P_{it}Q_{it})$ ) are all significant factors. Equation (3) converts the values of (1) to per-worker terms, and defines the concept of value-added per worker ( $VA_{it}/L_{it}$ ). It differs in this paper from the standard definition of value-added because of the inclusion of indirect costs ( $v_{it}/L_{it}$ ): these costs

will prove to be quite important for individual Sub-Saharan African firms, and as they rise they reduce profitability and competitiveness. The expression  $(NVA_{it}/L_{it})$  in equation (4) subtracts labor cost from value-added per worker to obtain a measure that includes profits, returns to capital and otherwise unmeasured indirect costs. Finally, the value-added/wage bill ratio provides a mark-up that should be invariant to the greatly differing wage across countries in the sample.

67. In Table 13, we present two sets of results. Columns (1) and (2) are based on Equation (4) above to examine differences in net value added per worker. The regressions of columns (3) and (4) examine differences in value added per worker after controlling for differences in capital input use. The regressions pool firm-level observations over the eight comparator countries, adding fixed-effect coefficients to identify country-specific differences and allowing for country-specific differences in variability through country-level clustering of the standard errors. These results use only the surveys from the post-quota period.

68. The regression results in column (2) summarize nicely what we observe. As our definition of net value added per worker makes clear, we expect it to include profits (a return to capital owners and to entrepreneurs) and indirect costs not measured elsewhere. The positive and significant coefficient (0.28) on the capital/labor ratio indicates that this variable is increasing as expected with the capital intensity of the firm. Foreign-owned firms are more profitable, even controlling for capital intensity, as the coefficient 0.31 indicates. The country-specific effects are measured relative to Bangladesh (the excluded country). All other comparators have fixed effects significantly larger than that of Bangladesh. In increasing order they are Vietnam (0.10), Indonesia (0.21), Madagascar (0.26), Mauritius (0.30), Morocco (0.40), Kenya (0.41) and Egypt (0.43). Given that this is a sample of exporting firms, and that we have controlled for the “normal” return to capital, the size of this fixed effect must reflect either supernormal profits or indirect costs. For the Sub-Saharan African countries, we interpret these coefficients, high relative to the Asian producers Bangladesh, Vietnam and Indonesia, as an indication of the higher indirect costs in producing in that region.<sup>41</sup> We report a similar clustered regression for value-added per worker of equation (3). We include capital and labor as regressors to control for the normal contributions of capital and labor: the coefficients estimated suggest that a constant-returns-to-scale Cobb-Douglas technology with capital weight of 0.18 is consistent with the evidence of these surveys. Capacity utilization and foreign ownership have positive but insignificant coefficients. The country-specific fixed effects should once again include supernormal returns to capital and indirect costs but will also include supernormal payments to labor. Bangladesh here also has the lowest value, followed in increasing order by Madagascar (0.41), Vietnam (0.43), Egypt (0.57), Kenya (0.69), Indonesia (0.74), Mauritius (0.78) and Morocco (0.96). The re-ordering in this ranking reflects the differences in average wages in the countries (cf. Figure 9): those with lower average wages (Madagascar and Kenya) move lower in the rankings, while those with high average wages (Mauritius and Morocco) move up the rankings.

69. Comparing results from both approaches, we see that the competitive advantage of Madagascar in Sub-Saharan Africa arises from its significantly lower payments to labor compared to countries like Kenya and Mauritius, along with comparable indirect costs relative to Mauritius, and lower than that of firms in Kenya.

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<sup>41</sup> The large values for Egypt and Morocco are surprising to us, but are perhaps in line with the conundrum noted in the earlier section of Morocco’s success in exporting despite high unit values relative to the Asian exporters.

70. We cannot unfortunately use the results of the previous regressions to address the question of price competition: there are no panels of surveys for the same firms in different years. For Madagascar and Mauritius, however, we have a pre-2005 survey and a post-2005 survey. While the firms are not necessarily the same, we can use the comparison of the change in net value added per worker as an indication of the downward price pressure. Table 14 reports those results. For Mauritius, the coefficients suggest that net value added is reduced by about 8 percent ( $0.29/(3.62+0.29)$ ) from pre- to post-quota; for Madagascar, the reduction is about 5 percent ( $0.19/(3.94+0.19)$ ). Both reductions are significantly different from zero, and both represent a much smaller reduction than is observed on average for China.

### **C. Evidence from a structural model of bilateral trade in apparel**

71. The evidence of prior sections reinforces the importance of including firm-level heterogeneity explicitly in any analysis of export competitiveness. It is also important to control for other differences across firms, and countries: while the removal of quotas is one “shock” observed in 2005, there could be others as well. Our results for the US and EU as importers also raise an important question: can the loss of market share in the US and EU be offset by gains in market share in other importing countries? We address each of these through the structural model of bilateral export and import decisions presented in Conway and Fugazza (2010). Through this model, we control for various size- and location-related factors that influence international trade; we also control for the direct impact of quota removal and the existence of preferential trading agreements (such as AGOA and the EU’s Association Agreements and Everything but Arms). We consider each of over 140 countries in the sample as a potential importer. The export success of individual Sub-Saharan African countries is then derived as the country-specific effect.

**Table 13: Clustered Regression analysis of Value-Added (VA/L) and Net Value Added (NVA/L) per worker.**

Dependent Variable: Log(Net Value Added per Worker)		Dependent variable: Log(Value Added per Worker)		
	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model	Model 2
<b>Intercept</b>	4.76*** (0.249)	4.75*** (0.234)	6.2*** (0.429)	6.25*** (0.430)
<b>Log(Capital per Worker)</b>	0.28*** (0.036)	0.28*** (0.034)		
<b>Log(Capital)</b>			0.18*** (0.038)	0.18*** (0.038)
<b>Log (Labor)</b>			-0.17*** (0.026)	-0.17*** (0.026)
<b>Capacity Utilization</b>			0.62 (0.426)	0.60 (0.430)
<b>Foreign Owned</b>		0.31*** (0.135)		0.07 (0.062)
<b>Mauritius</b>	0.29*** (0.018)	0.3*** (0.017)	0.78*** (0.091)	0.78*** (0.092)
<b>Madagascar</b>	0.45*** (0.011)	0.26*** (0.081)	0.45*** (0.058)	0.41*** (0.073)
<b>Egypt</b>	0.46*** (0.010)	0.43*** (0.017)	0.58*** (0.035)	0.57*** (0.038)
<b>Morocco</b>	0.45*** (0.011)	0.4*** (0.022)	0.97*** (0.075)	0.96*** (0.081)
<b>Kenya</b>	0.48*** (0.058)	0.41*** (0.067)	0.71*** (0.096)	0.69*** (0.104)
<b>Vietnam</b>	0.18*** (0.006)	0.1*** (0.037)	0.45*** (0.009)	0.43*** (0.022)
<b>Indonesia</b>	0.34*** (0.020)	0.21*** (0.059)	0.77*** (0.067)	0.74*** (0.068)
<b>F Value</b>	9.87		19.01	16.83
<b>Pr &gt; F</b>	<.0001		<.0001	<.0001
<b>N</b>	352	352	355	355
<b>Adj. Rsq</b>	0.19	0.20	0.34	0.31

\*\*\* Denotes significance at 1%; \*\* at 5% and \* at 10%

Excluded country is Bangladesh.

Standard errors are clustered by country.



**Table 14: Clustered Regression analysis of Net Value Added (NVA/L) per worker.**

<b>Log(Capital per Worker)</b>	0.47*** (0.19)
<b>Mauritius</b>	3.63*** (1.44)
<b>Madagascar</b>	3.94*** (1.28)
<b>Mauritius * pre-quota</b>	0.29*** (0.08)
<b>Madagascar * pre-quota</b>	0.19*** (0.05)
<b>N</b>	35
<b>Clusters</b>	4
<b>R<sup>2</sup></b>	0.98

\*\*\* Denotes significance at 1%; \*\* at 5% and \* at 10%  
Standard errors are clustered by country.

72. The estimation strategy in Conway and Fugazza (2010) follows three steps. The first step identifies country-specific quality and cost differences through an analysis of “initial conditions” in 1994, one year before the system of phased quota removal under ATC was introduced. The second step predicts the probability that bilateral trade between specific exporter and specific importer will exist: it is based upon a model of heterogeneous firms similar to the one introduced by Helpman, Melitz and Rubenstein (2007). The third step provides an estimation of the determinants of the value of trade given that bilateral trade is observed. The results from this estimation strategy are laid out in detail in Appendix D; we summarize here the conclusions from this analysis.

- Firm heterogeneity plays a significant role in explaining the bilateral trade observed globally in apparel. The implied estimated distribution of firms in this analysis has the same features as those observed in Sub-Saharan African countries: a small number of high-output, low-cost producers with a relatively larger number of low-output, high-cost producers.
- Import tariffs are significant determinants of the average value of trade and of the number of countries selling into the market: as the import tariff falls, the average value of trade from each exporter rises and the number of countries exporting to that importer rises as well.
- When distance is used as a proxy for transport costs, we find a curious result: as distance rises, the average value of exports to a given importer rises as well. This is the “China effect”, and illustrates an important point about transport and logistics costs – there are economies of scale.
- Countries with exports bound by quotas in the ATC period experienced a significant increase in the average value of apparel exports in 2005-2006, and those not bound by quota experienced a significant reduction in the average value of exports. At the same time, exporters not previously bound by quota exported to a larger number of import markets on average.

- Among Sub-Saharan African countries, Mauritius experienced both a fall in number of trading partners and a fall in average value of exports per trading partner relative to the sample average. Kenya and Madagascar (as well as Morocco and Egypt) had both a rise in the number of trading partners and a fall in average value of exports per trading partner relative to the sample average. Smaller exporters like Malawi and Tunisia experienced rise in both number of trading partners and average value of exports per trading partner in 2005-2006.

73. This analysis uses the Melitz (2003) model of firms heterogeneous in costs, and as our discussion of firm-level characteristics in Sub-Saharan Africa makes clear this is an apt description for these countries. Just as in that model, exporters can be created by a fall in production costs across the board – if every firm’s costs fall, then a share of them at the margin will become exporters. If we extend that model to consider the adjacent links in the global value chain as well, reductions in transport, logistics and indirect business costs will also bring about the inclusion of Sub-Saharan African firms at the nodes of the global value chain.

#### **D. Evidence from the Global Value Chain.**

74. A detailed study of the role of the global value chain is beyond the scope of our report. Staritz (2010) is a recent and very detailed analysis of the role of the global value chain in Sub-Saharan African apparel production, and we refer those interested to that source.

75. The evidence of the Enterprise Surveys allows us to elaborate on the degree to which Sub-Saharan African exporters and comparators are integrated into the global value chain (GVC). As Table 15 illustrates (in column one), exporters from Lesotho, Madagascar and Mauritius are just as likely as their comparator counterparts to use imported raw materials in production. This strategy, made possible by the PSRO under the preferential trade agreements, allows the Sub-Saharan African firms to participate in the global value chain as assembly platforms.<sup>42</sup> The average share of imported raw materials (in column two) also reflects the similarity of exporters in Sub-Saharan Africa with those elsewhere. The ownership of exporting firms (in column three) illustrates an important difference with comparators in the GVC: while some exporting firms are foreign-owned in the comparator countries, firms in Sub-Saharan Africa are almost completely foreign-owned. This foreign owner may be the GVC coordinator, or simply a sub-contractor with production in many locales, but this foreign and multi-country perspective will make it more likely that he will respond to a shock or change in incentives by relocating production. This provides a “footloose” quality to production.

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<sup>42</sup> This is true as well of the “global exporters” in Kenya and Swaziland; the “regional exporters” use fewer imported raw materials and thus bring down the average.

**Table 15: Exporter Characteristics**

	Pct of Firms using Imported Raw Materials	Average Share of Imported Raw Materials	Pct of Firms with Foreign Ownership	Of which: Firms with Asian owners	Of which: Firms with European/American owners
Kenya	77%	62.88	53%	36%	1%
Lesotho	93%	61.47	83%	81%	0%
Madagascar	90%	99.28	91%	13%	55%
Mauritius	95%	80.25	40%	27%	2%
Swaziland	45%	66.10	79%	44%	27%
Bangladesh	99%	87.69	6%		
Indonesia	97%	81.20	66%		
Vietnam	96%	92.93	33%		
Egypt	100%	93.39	14%		
Morocco	92%	76.35	41%		

Source: World Bank Enterprise Surveys 2006-2009

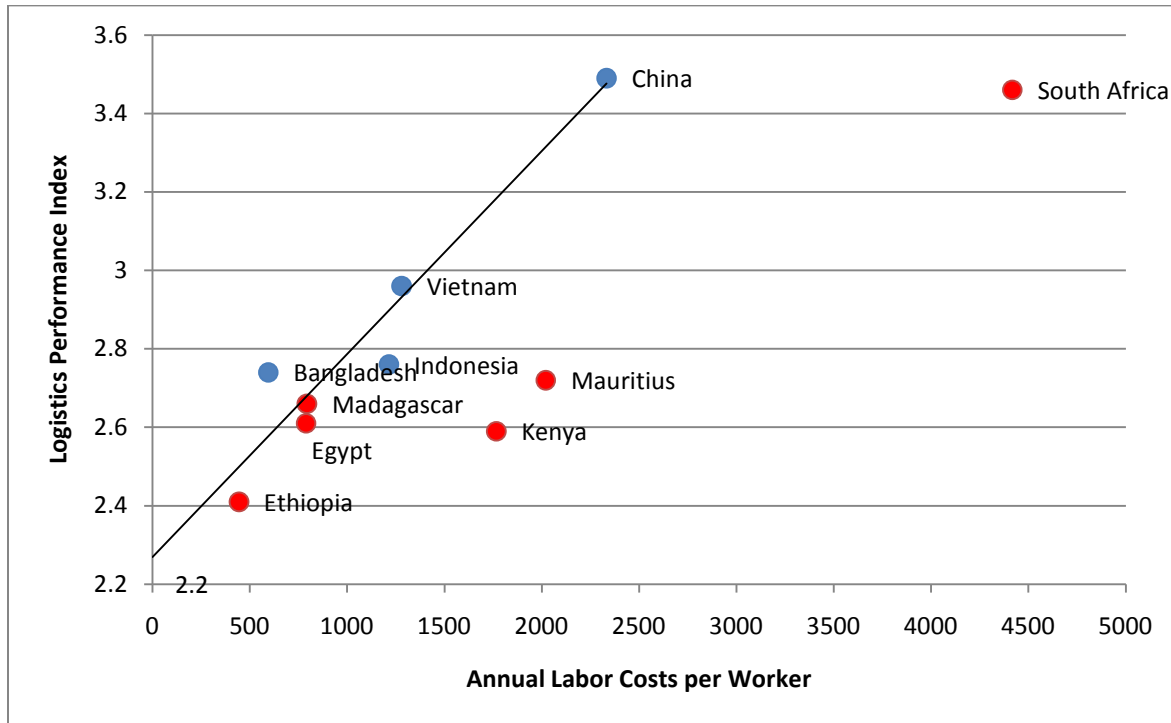
76. The final two columns divide the share of foreign ownership by nationality. The fourth column indicates the share of total ownership that is Asian, while the fifth column indicates the share that is European or American.<sup>43</sup> We conjecture that the Asian, European and American owners are most likely to integrate their plants as production platforms into a multi-country value chain. It is also possible that these foreign owners will be more likely to move productive operations from one country to the next in search of cost advantages: there is no evidence of this in the surveys, but in Appendix F we present examples of this from case studies for Swaziland, Kenya and Madagascar.

77. Our discussion of the GVC in the previous sections has highlighted the importance of both factory-floor costs and transport/logistics costs in the siting of firms at nodes in the GVC. In Figure 11, we provide an illustration of the trade-off between these two. Annual labor costs per worker are our proxy for factory-floor costs, while the logistics performance index (ranging between one and five, with five being the highest) is inversely related to logistics costs.

78. We see many of the external comparators distributed around the trend line in the figure, with Madagascar also in that distribution. Other Sub-Saharan African firms (South Africa, Kenya, Mauritius) exhibit higher wages for the given level of logistics performance: this makes competition on a global scale more difficult.

<sup>43</sup> The last category – other nationalities – is not reported separately.

**Figure 11: Trading off Logistics and Factory-Floor Costs among Exporting Firms**



Source: World Bank Enterprise Surveys, World Bank Trade Logistics Database  
 Note: LPI index was not available for Morocco.

**E. Conclusions.**

79. The record of price competition among exporters into the EU and US apparel markets suggests strongly why Sub-Saharan African nations as a whole were unable to maintain or expand market share in the wake of the removal of ATC quotas. Put simply: the products of competitors (with China being our example here) were available at a discount of 40 percent or more once quotas were removed, and African exporters did not match that reduction in prices. In the short term, this led to reduced exports for most African countries. In the medium term the exports of North Africa expanded, while those of Sub-Saharan Africa in aggregate continued to fall. Examination of the Enterprise Surveys provides one possible explanation for why the Sub-Saharan African nations did not respond more aggressively: indirect business costs, measured here as a component of net value added, are significantly higher in all Sub-Saharan African countries compared to firms in successful exporting countries like Vietnam and Bangladesh. This makes it difficult for GVC coordinators to integrate Sub-Saharan African firms into the value chain in the absence of quota protection in the import markets.

80. The arithmetic of GVC price competition is inexorable: if China could sustain its 40-percent price reduction on apparel exports permanently, the advantage of a 10-percent tariff-reduction trade preference for Sub-Saharan Africa will count for little. Our interpretation of the

evidence suggests, however, that the 40-percent reduction was a temporary phenomenon. Table 8 provides the first evidence of that: while the China price reduction was 34 percent in the short run, it was 28 percent in the medium run. Over that same period, Sub-Saharan African exporters reduced prices by 6 percent in the short run and 10 percent in the medium run. Using these point estimates, the percentage price differential closed from 28 percent in the short run to 18 percent in the medium run – approaching the value of the trade preference provided under the AGOA-SR or EBA agreements. We also note the arithmetic of rising wages in China reported in the popular press; to the extent that these rising wages translate into rising product prices, the competitive advantage that China demonstrated in 2005 will be eroded.<sup>44</sup>

81. Sub-Saharan African exporters can – and do – compete in the apparel market, but policy interventions can improve upon the number of exporters and the volume of their exports. The logic of Export Processing Zones remains relevant: provision of low-cost production facilities with transport and logistics costs minimized will increase the number of firms able to export. We suggest that this concept be augmented to address explicitly the concerns of global value chain coordinators: if risk-averse coordinators hesitate to add Sub-Saharan African producers to the GVC due to risks of late or low-quality product, the national government could provide limited insurance to those coordinators against such events, or could take on the responsibility of a regional GVC coordinator in selling African products directly to retailers.

82. The logic of competitiveness above was based in part on the continuation of trade preferences for Sub-Saharan African producers. This continuation is not assured: national governments must re-authorize such preferences periodically, and they can be removed (as occurred in Madagascar in 2009) when exporter-government policies violate principles laid down by the importer government. These preferences could also be eliminated by future multilateral negotiations within the WTO framework. It is important that exporter governments recognize these possibilities for volatility, just as they recognize the possibility for volatility in international demand and supply of apparel.

## 5. COPING STRATEGIES: AFRICAN APPAREL EXPORTS TO OTHER MARKETS.

83. While the US and EU markets represent the largest export markets for apparel, they are only two of a worldwide network of markets. An apparel exporter anywhere in the world will prefer to sell into the up-to-now lucrative US and EU markets, but will also be aware that every country in the world is a potential importer of her product. In this section, we illustrate this web of opportunity by examining the trade in woven apparel for the years 2004 and 2005.<sup>45</sup>

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<sup>44</sup> E.g., David Barboza: “As China’s Wages Rise, Export Prices Could Follow”, 7 June 2010, New York Times.

<sup>45</sup> For this section we use a slightly different classification system. We compile total bilateral exports to each importer in the SITC classifications 841 (MEN'S OR BOYS' COATS, JACKETS, SUITS, TROUSERS, SHIRTS, UNDERWEAR ETC. OF WOVEN TEXTILE FABRICS) and 842 (WOMEN'S OR GIRLS' COATS, CAPES, JACKETS, SUITS, TROUSERS, DRESSES, SKIRTS, UNDERWEAR, ETC. OF WOVEN TEXTILES). This excludes knit apparel, and thus will have slightly different country rankings than were observed in the previous sections.

## **A. The Risk of Non-diversification: a country comparison.**

84. Sub-Saharan African countries had become reliant to differing degrees by 2004 upon apparel exports to the US and EU. In the second column of Table 16, we report the ratio of exports of apparel to the US and EU divided by total exports (of all goods to all destinations) for the Sub-Saharan and North African countries.<sup>46</sup>

85. Five countries had chosen to take a very concentrated position in their export strategy: Mauritius, Madagascar and Lesotho among the Sub-Saharan African countries and Tunisia and Morocco among the North African countries. Egypt, Kenya and Swaziland had taken significant, but less concentrated, positions. The third column indicates the role of exports in each economy: there we see that Mauritius, Swaziland and Lesotho were in addition heavily invested in an export-led growth strategy.

86. Removing the quota system created winners and losers. In a well-diversified economy, these gains and losses will be moderated. A country with a heavily concentrated export sector, however, is placing a large gamble on successful continuation of the status quo. Risk is not necessarily a bad thing in this instance: heightened risk indicates simply that there is a greater potential for large swings in exports, and thus economic growth, in the exporting country. That swing could be positive, leading to more rapid growth, or negative. Such concentration will magnify gains and/or losses incurred with the removal of the quota system.

87. A concentrated position indicates that the country stands to either benefit or lose relatively more than those countries with less concentrated positions. The results of Table 6 (already discussed) indicate that the “high risk” countries from Table 16 are at the top and the bottom of performers in Table 6. Tunisia, Morocco, Egypt and Madagascar are among those countries to have largest increases in apparel exports to the US and EU in the medium term once quotas were removed. Mauritius, Lesotho, Swaziland, Kenya and Malawi are among the countries with the largest losses (measured in US dollars). Table 6 indicated the big winners and losers in terms of value of trade, but Table 15 reinforced that these “high risk” countries will have magnified effects on their GDP from these changes in the value of trade.

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<sup>46</sup> Countries for which the first column rounded to 0.0 were excluded from the table.

Table 16: African Strategic Concentration on Apparel Exports to US and EU		
	Apparel Exports Percentage	Exports/GDP
Mauritius	75.2	56.9
Tunisia	66.8	47.3
Madagascar	64.5	32.4
Lesotho	64.2	60.4
Morocco	61.3	29.2
Egypt	16.4	33.6
Kenya	10.6	26.6
Swaziland	9.3	90.1
Malawi	5.6	18.4
Zimbabwe	1.3	40.0
Botswana	1.3	45.5
Tanzania	0.8	23.1
Sierra Leone	0.7	20.1
Ethiopia	0.7	16.8
Burundi	0.6	9.6
South Africa	0.6	26.8
Comoros	0.6	5.2
Uganda	0.5	14.2
Ghana	0.3	38.4
Mozambique	0.2	30.9
Mauritania	0.2	28.1
Cen African Rep	0.1	9.9
Gambia	0.1	45.5
Sources: US ITC Dataweb, Eurostat, UN Comtrade database, World Databank of African Development Indicators		

## B. The Pattern of Diversification by Trading Partner.

88. Countries that are home to successful exporting firms typically have many trading partners. In Appendix B, Table B4, we examine world bilateral trade in cotton apparel products. From these bilateral trade flows, we calculate the number of trading partner countries for each exporting country. The EU is treated as a single “country” for this purpose, and with that amendment there are 116 countries included.<sup>47</sup> The EU producers exhibit the most diverse export pattern. In 2004, exporters from the EU-15 had positive exports to 111 of the 115 possible trading partners; by 2005, the number of trading partners had dropped slightly to 108.<sup>48</sup> China ranked second in terms of breadth of trade in 2004 with 102 trading partners, and that number stayed constant in 2005. Also

<sup>47</sup> These are UN COMTRADE data, and allow symmetric measurement of each country’s exports to each other country’s market. The smaller number of countries (116 rather than the 225 observed in the US analysis above) is used to limit the sample to those countries for which descriptive regressors will be available. These will be brought into the analysis in a following section.

<sup>48</sup> This (and similar results for the US) is an illustration of intra-industry trade. These are the largest import markets for apparel, but are also among the top sources of exports (at least in terms of diversity of trading partners) in the sample.

among the top five in 2004 were India, Hong Kong and the USA. Table 17 reports the top 20 countries in terms of their breadth of export markets (in italics) and then lists in order of rank the African countries in the sample.

89. Morocco is the sole African country in the top 20 in 2004, followed by Tunisia, Mauritius, Egypt, South Africa, Madagascar and Kenya. These exporters reach many fewer export markets than the EU-15 or China: Morocco has 58 export markets in 2004, Mauritius has 48, Kenya has 21, and most Sub-Saharan African countries have 10 or less. This is a sign of geographical specialization: the US and EU will be among their export markets, but the number of additional markets will be limited when compared to that of China or India.

90. We identify two competing strategies among exporters in the transition from 2004 to 2005 (and removal of quotas). The first strategy is one of expanding the number of export markets. Thailand, Turkey, Taiwan and Vietnam among the top 20 illustrate this pattern. Among the Sub-Saharan African countries, Madagascar and Kenya exhibit this strategy. The second strategy is one of consolidation (marked in the table by a red font), or a shrinking number of export markets. Hong Kong, Indonesia and Philippines exhibit this among the top 20 countries. Among the large Sub-Saharan African exporters, only Mauritius indicates such a retrenchment. The other exporters have held their original number of markets: China and India exhibit this in the top 20, while Morocco and Tunisia do so among the North African countries.

91. When quotas are removed, we should expect to observe the US and EU importing more from those exporters formerly under binding quota. Other countries could see their exports contract or expand: there are income and substitution effects at work that lead to ambiguous prediction. A simple Vinerian theory doesn't predict, however, what will happen to trade from these exporters to other countries. Static analysis suggests that the exporters expanding sales to the US and EU will reduce sales to other countries, and that the exporters reducing sales to the US and EU may expand sales in other countries.<sup>49</sup>

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<sup>49</sup> This logic is evident in the concept of trade deflection of Bown and Crowley (2007).



**Table 17: Exports in the Short Term: Changing Patterns of Trading Partners**

	Ranking by 2004		Exports to US and EU			Exports to all other countries		
	Exports to US and EU		2004	2005	Value Ratio	2004	2005	Value Ratio
<i>CHN</i>	1		4354786	6215895	1.43	5518132	6111181	1.11
<i>TUR</i>	2		1360204	1358931	1.00	128367	152412	1.19
<i>HKG</i>	<b>3</b>		<b>1162891</b>	<b>783640</b>	<b>0.67</b>	<b>365327</b>	<b>311503</b>	<b>0.85</b>
<i>IND</i>	4		967348	1371584	1.42	160359	232918	1.45
<i>MEX</i>	5		791561	623479	0.79	23925	24669	1.03
<i>IDN</i>	6		720920	712024	0.99	71290	73114	1.03
<i>BGD</i>	<b>7</b>		<b>665911</b>	<b>616790</b>	<b>0.93</b>	<b>78058</b>	<b>68859</b>	<b>0.88</b>
<i>MAR</i>	8		657668	596677	0.91	31877	48253	1.51
<i>VNM</i>	9		493622	504882	1.02	84916	98822	1.16
<i>LKA</i>	<b>10</b>		<b>474714</b>	<b>438295</b>	<b>0.92</b>	<b>22255</b>	<b>20146</b>	<b>0.91</b>
<i>TUN</i>	12		414907	371295	0.89	19240	25287	1.31
<i>EGY</i>	28		94709	84064	0.89	4265	4787	1.12
<i>KEN</i>	33		73118	73754	1.01	1213	783	0.65
<i>MDG</i>	35		62184	51139	0.82	1558	2389	1.53
<i>MUS</i>	<b>41</b>		<b>45712</b>	<b>19640</b>	<b>0.43</b>	<b>2382</b>	<b>1077</b>	<b>0.45</b>
<i>LSO</i>	46		37901	25928	0.68	823	1007	1.22
<i>ZAF</i>	<b>58</b>		<b>14475</b>	<b>4267</b>	<b>0.29</b>	<b>3440</b>	<b>2276</b>	<b>0.66</b>
<i>MWI</i>	70		1966	736	0.37	328	1287	3.92
<i>GHA</i>	<b>84</b>		<b>270</b>	<b>67</b>	<b>0.25</b>	<b>65</b>	<b>55</b>	<b>0.85</b>
<i>MOZ</i>	88		193	337	1.75	12	14	1.11
<i>TZA</i>	<b>89</b>		<b>167</b>	<b>27</b>	<b>0.16</b>	<b>31</b>	<b>11</b>	<b>0.34</b>
<i>CMR</i>	<b>90</b>		<b>162</b>	<b>99</b>	<b>0.61</b>	<b>115</b>	<b>34</b>	<b>0.30</b>
<i>CIV</i>	93		117	37	0.32	2	21	9.63
<i>UGA</i>	94		111	7	0.06	11	48	4.29
<i>MRT</i>	96		72	95	1.32	133	33	0.25
<i>SEN</i>	98		38	58	1.53	5	27	5.71
<i>TGO</i>	99		37	7	0.18	43	275	6.41
<i>MLI</i>	100		28	124	4.38	1	2	2.20
<i>ZMB</i>	102		22	1	0.03	1	2	3.45
<i>DZA</i>	103		19	28	1.47	5	34	6.59
<i>BDI</i>	104		10	0	0.00	0	5	**
<i>SDN</i>	106		6	6	1.01	26	5	0.21
<i>BFA</i>	107		6	5	0.83	2	4	1.56
<i>GAB</i>	108		4	11	2.65	0	0	**
<i>BEN</i>	109		4	4	1.16	0	2	9.72
<i>NER</i>	110		3	1	0.27	0	0	1.67
<i>CAF</i>	113		1	0	0.52	0	9	27.19
<i>SYC</i>	116		0	54	**	0	14	**

Source: UN COMTRADE database, SITC categories 841 and 842.

92. A more dynamic analysis with sufficiently strong economies of scale suggests that those countries expanding sales in the US and EU will also compete more effectively in other markets as well, while those losing market sales in the US and EU will also find it more difficult to compete in other markets. Table 17 presents the changing values of exports by exporters from 2004 to 2005.

93. Total Exports by each exporting country are broken down into exports to the US and EU and exports to all other countries. The countries are ranked (in the second column) by the relative value of their exports to the US and EU in 2004; the top 10 are listed in the table along with all the African countries. The third and fourth columns describe the results on exports to the US and EU in 2004 and 2005, while the fifth column reports the ratio of the 2005 value to the 2004 value. When this “value ratio” is greater than one, the country expanded the value of its exports with the removal of quotas. The sixth through eighth columns report the exporting country’s value of exports to all countries in the sample other than the US and EU. The “value ratio” in the eighth column is derived for these other countries. North African countries appear in the rankings at eight (Morocco), 12 (Tunisia), and 28 (Egypt). Sub-Saharan African countries enter at 33 (Kenya), 35 (Madagascar), 41 (Mauritius) and 46 (Lesotho). They also populate the bottom of the rankings: 13 of the bottom 19 countries are from Sub-Saharan Africa.

94. The static explanation of increased sales in the markets removing quotas and reduced sales elsewhere is not evident in the top 10 on the list: those countries facing binding quotas in 2004 expanded sales revenue in the US and EU simultaneously with increased sales to other countries. China and India illustrate this pattern, with large value ratios (1.43 and 1.42, respectively) in the US and EU, but value ratios greater than one (1.11 and 1.45, respectively) for the other countries as well. For a number of exporter countries, reductions in sales in the US and EU markets corresponded with reductions in sales in other countries as well. These are marked in red in the table, and among the top 10 they include Hong Kong, Bangladesh and Sri Lanka.

95. The export-diversification strategy is observed in the top 10 as well – a value ratio less than 1 in exporting to the US and EU coupled with a value ratio greater than 1 in trade with the rest of the world. Mexico and Indonesia exhibit this among the large exporters. The North African exporters (Morocco, Tunisia, Egypt) also followed this strategy along with Madagascar and Lesotho among the Sub-Saharan African nations. In each of these countries, a short-term reduction in value of exports to the US and EU is coupled with an increase in value of exports to other countries. Mauritius and South Africa, by contrast, exhibit reductions in the value of trade both in the US/EU market and in the markets of other countries as well. The experience of the countries at the bottom of the table spans the four possibilities, but is based on such small values of trade in 2004 that it is difficult to interpret the changes in 2005 as systematic responses to changing market conditions rather than idiosyncratic changes in demand for their products.

### **C. Regional Exporters vs. Global Exporters**

96. The absolute size of the US and EU markets and the tariff-free entry offered under AGOA and the Cotonou Agreement made them preferred export destinations for Sub-Saharan African exporters. The evidence of the World Bank Enterprise Surveys attests that there are exporters to regional (i.e., Sub-Saharan African) markets as well. This regional export strategy represents a

different competitive model; we examine data on exporters from the Enterprise Surveys in Kenya and Swaziland to determine the distinguishing features of the global and regional export groups.<sup>50</sup>

We have two general findings to highlight:

- The choice between regional and global markets is almost perfectly correlated with the ownership of the firm. Foreign owners (e.g., Indians or Taiwanese) will operate their enterprises as part of a global value-chain network to serve global markets. Local owners will operate their enterprises to serve a regional market.
- The choice of product is also highly correlated with the export market chosen. Those enterprises serving regional markets specialize in individualized products with regional demand – for example, school uniforms. Those enterprises serving the global export markets produce standardized apparel – for example, women’s jeans -- for those markets.

We provide supporting evidence for those findings in the country-specific discussions in Appendix F.

#### **D. Diversification of exporters across product lines**

97. The previous section demonstrate that some Sub-Saharan African countries had followed a non-diversified export strategy prior to 2005 with great reliance upon apparel exports to the US and EU markets. In this section, we show that these countries were also more highly specialized in the export of specific products. We do this in two ways. First, we examine the record of imports into the US and EU-15 by 10-digit HS classification in the years 2002 through 2006 from the COMTRADE database (as provided by WITS). We demonstrate that Sub-Saharan African countries were more reliant upon a narrow range of products than were comparator countries. Second, we examine the concentration of exports by quota categories into the US and EU. We demonstrate the same characteristic in this category as well.

98. For each exporter, we aggregate exports by 10-digit HS classification and then create a four-product concentration ratio for each in each year. The higher the ratio, the more concentrated the exporter’s sales are in those four products. In Table 18, we report the ratios for nine countries: Mauritius, Madagascar, Morocco, Egypt, Tunisia, Kenya, Lesotho, Swaziland and China. These ratios are calculated for the exporter’s sales into the EU and US markets; they are then calculated separately for the exporter’s sales to all other importers. The final row in the table reports the ratio of the total value of exporter’s sales in the US and EU markets divided by the sales to all other destinations in 2006.

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<sup>50</sup> The survey administered in these two countries included detailed questions about the goods exported and the destination of exports. Unfortunately, these questions were not included in the surveys of the other countries we consider.

Table 18: Evidence of Export Diversification										
Four-product Concentration Ratios: The Share of Top 4 10-digit HS lines in Exports to Indicated Destination										
		Mauritius	Madagascar	Morocco	Egypt	Tunisia	Kenya	Lesotho	Swaziland	China
Exports to US and EU										
	2002	0.35	0.17	0.24	0.26	0.22	0.38	0.37	0.47	0.09
	2003	0.40	0.24	0.23	0.25	0.23	0.31	0.35	0.35	0.10
	2004	0.48	0.26	0.25	0.27	0.24	0.43	0.37	0.34	0.12
	2005	0.54	0.24	0.28	0.29	0.26	0.43	0.44	0.34	0.10
	2006	0.61	0.19	0.21	0.22	0.26	0.32	0.34	0.32	0.08
Products										
		61091	61102	62034	61091	62034	62046	61102	61102	62029
		61051	61091	61091	62046	62046	62034	62034	62046	62019
		62052	62046	62046	61102				61103	62046
					61082					61112
Exports to all other destinations										
	2002	0.32	0.49	0.23	0.36	0.31	0.31	0.38	0.80	0.17
	2003	0.28	0.29	0.17	0.21	0.13	0.39	0.44	0.90	0.14
	2004	0.34	0.24	0.14	0.27	0.27	0.34	0.50	0.49	0.11
	2005	0.41	0.25	0.20	0.29	0.27	0.31	0.48	0.43	0.08
	2006	0.45	0.27	0.13	0.23	0.19	0.27	0.43	0.39	0.07
Products										
		61091	62046	61091	61091	62034	62034	61102	62046	61103
		62052	61102	62040	62046	62046	61091	62034	61091	62034
		61102	61101	62046	62071		62046	62046	61142	61091
			61091	61142			61142			61102
Export ratio 2006										
		11.66	30.51	12.58	18.96	16.05	33.7	39.71	209.99	0.85
Source: WITS database.										
Products										
	61051	Cotton knit shirts			62019	Men's woven overcoats				
	61082	Women's cotton briefs			62029	Women's woven overcoats				
	61091	Cotton T-shirts			62034	Men's cotton woven trousers				
	61102	Cotton knit pullovers			62046	Women's cotton woven trousers				
	61103	Knit pullovers, man-made fiber			62052	Men's cotton woven shirts				
	61112	Cotton babies' garments			62071	Men's cotton briefs				
	61142	Other knit cotton garments								

Source: UN COMTRADE database, accessed through wits.worldbank.org.

99. We examine first the exports to the US and EU markets. China provides a benchmark: the four-product concentration ratio there is below 0.12 in all years. The African nations are uniformly above that, but there is a clear difference between North African and Sub-Saharan African countries: The North African countries have yearly concentration ratios between 0.15 and 0.30, while the Sub-Saharan African countries have ratios from 0.30 to 0.61. Madagascar is the sole exception to this rule; its concentration ratios are in fact closest among all North African and Sub-Saharan African countries to those of China. The major four exported products are summarized in the “Products” rows at the five-digit classification, with short descriptions at the bottom of the table. The Sub-Saharan African countries are in competition with one another to sell very similar cotton products: T-shirts, pullovers, woven trousers. China’s top four products do not overlap for the most part, but that is little consolation – even though the products are lower-ranked in China’s list, China exports more in value in each of these categories to the US and EU than any of the African countries.

100. In markets other than the EU and US, China’s top four products become identical to those of the African countries. In these other countries as well, the African exporters face direct competition with these Chinese products – and in those other countries there were no quotas in place to limit the degree of competition. China’s concentration ratios were low and falling in these markets as well, indicating a great degree of diversification. For the African nations, the concentration ratios for non-US/EU markets are quite similar to those for the US and EU; the African exporters make the same products for sale on the two sets of markets. The North African countries are more diversified, but not so much as China. The Sub-Saharan African nations are the least diversified of all reported in the table.

101. The “Export ratio 2006” reports the ratio of the value of the exporter’s sales in the US and EU markets to the value of sales in all other markets. China’s ratio is a benchmark of sorts: China sold a larger value of apparel outside the US and EU markets than it did within those markets in 2006. For the North African countries, the ratios are much higher: for Morocco, for example, the 12.58 ratio indicates that its US/EU sales are over 12 times those to other markets. Mauritius, among Sub-Saharan African exporters, has a comparable ratio to this at 11.66. The other Sub-Saharan African countries have much larger ratios: from Madagascar (30.51) to Swaziland (209.99), there is evidence that these countries have targeted only the US and EU markets. This result is measured after the ATC quotas were removed; the ratios are even larger in pre-quota calculations.

## **E. Diversification across quota categories**

102. We examine this question of diversification as well using the trade data separated by quota category, the classification used in Section 5. Did exporters into the US and EU markets respond to greater competition by greater specialization in terms of goods sold? Table 19 reports three-category concentration ratios for 2004 and 2008 for both the US and EU: these are the percent of total apparel imports from each region that come from the three quota categories with the largest value of exports. When we examine US imports from the three regions in 2004, North Africa is the most specialized at 62.5 percent. Sub-Saharan Africa is more diversified at 50.6 percent, and “Not Africa” is most diversified at 32.3 percent. In 2008, the ranking stays the same, but the difference between North Africa and Sub-Saharan Africa has almost disappeared: both have concentration ratios of about 58 percent. In the EU, concentration ratios are generally

higher; Sub-Saharan Africa is most concentrated at 74.9 percent, followed by North Africa (62.3 percent) and “Not Africa” (54.2 percent). The ranking is the same in 2008, although North Africa has diversified in this market to almost match “Not Africa”. Sub-Saharan Africa by contrast has become less diversified.

**Table 19: Three-Category Concentration Ratios for Apparel Sales into the US and EU**

		<b>Not Africa</b>	<b>Sub-Saharan Africa</b>	<b>North Africa</b>
US	2004	32.3	50.6	62.5
	2008	34.9	57.2	58.8
EU	2004	54.2	74.9	62.3
	2008	55.2	75.7	55.5

Sources: Eurostat COMEXT database; US ITC Dataweb

## **F. Changing the mix of goods: are some products more competitive than others?**

103. We do not have access to information on the same firms over time in the World Bank Enterprise Surveys, and thus cannot track any decisions on the part of managers to diversify or to switch products in response to international competition. We can, however, examine two pieces of evidence from these surveys in this regard. The first is the change in the goods in which exporters specialize in comparing pre-2005 and post-2005 surveys in Mauritius and Madagascar. The second is a correlation of the employment growth in exporting firms in Kenya, Madagascar and Mauritius from before 2005 to after 2005 with the degree of global price competition in the good exported.

### **1) Changes in the choice of major product by firms**

104. One response to increased international competition will be for the enterprise to switch production from highly contested products to less-contested products. Our surveys do not allow a direct investigation of this behavior. For many Sub-Saharan countries, there is a single survey and thus no measure of changing behavior over time. For Madagascar and Mauritius, we have two surveys apiece (with responses for 2004 and 2007) but with no way to link specific firms in either country’s surveys.

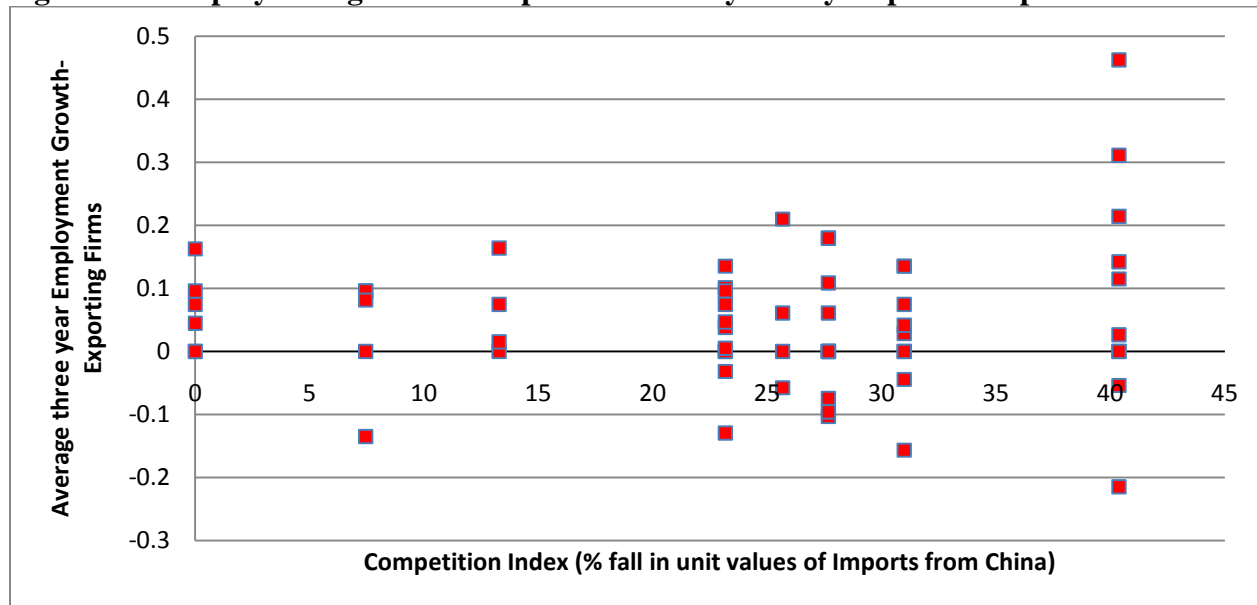
105. There is suggestive evidence, however, in examining the product mix for exporters in the two countries in 2004 and then again in 2007. While in 2004 the exports were almost totally from 315223 (men’s shirts) and 315239 (women’s outerwear), by 2007 the mix of products had shifted toward 315228 (men’s outerwear) and 315233 (women’s dresses). In Mauritius, we note a less pronounced evolution of trade by product. In 2004, the dominant products were 315223 (men’s shirts) and 315228 (men’s outerwear). In 2007, the 315223 (men’s shirts) remained the dominant export but was joined by 315233 (women’s dresses) and 315224 (men’s trousers).

## 2) Changes in employment by import competition index

106. The firms in the World Bank Enterprise Surveys do report annual employment growth, and this provides an important indicator of enterprise expansion. In this section, we investigate the correlation (if any) between the international competition within a product category and the employment growth of the firm in the years after the bilateral quotas were removed. Our hypothesis is that firms facing greater international price competition will expand significantly less rapidly than those facing less price competition. We use the percent reduction in unit values for Chinese goods in 2005 as our product-specific indicator of price competition. We consider exporting firms from Kenya, Madagascar and Mauritius, and divide firms into groups by six-digit NAICS category for this purpose. For Kenya, the growth is from 2003 to 2006; for Madagascar and Mauritius, the growth is from 2004 to 2007.

107. Our illustration of this effect can be found in Figure 11. The percent growth in employment in the three years up to and including 2006 (for Kenya) or 2007 (for Madagascar and Mauritius) is recorded on the vertical axis, while the degree of competition is increasing along the horizontal axis. Inspection of the graph (and associated regression results) tells us the same thing: there is no linear effect from competition to employment growth. The most surprising results are found at the 40 percent competition index (observed for NAICS category 315223, men's shirts); plants in Madagascar and Mauritius reported substantial employment growth even as international competition for the US and EU markets grew more intense.<sup>51</sup>

**Figure 12: Employment growth over previous three years by Import Competition Index**



Source: World Bank Enterprise Surveys (2004-2009)

<sup>51</sup> It is the case that there were firms facing high import competition indices that reported themselves “non-exporters”; it is unclear whether for these the non-export status was a choice or a condition forced on them. Including these does not make the price-competition effect significant here, either visually or in regression analysis.

## **G. Conclusions on diversification as a strategy**

108. The countries of Sub-Saharan Africa have been characterized by greater concentration of exports in a few product lines than was true for China or for North Africa. During the period 2004-2008, this concentration became more pronounced in both the US and EU markets. The one Sub-Saharan African country for which this greater concentration is not observed is Madagascar; Madagascar is also the country experiencing the greatest export success in this more competitive period.

### **6. CONCLUSIONS.**

109. Apparel exports of Sub-Saharan Africa have contracted sharply in aggregate in recent years. Our research began with two questions posed by that record. The first is “Can Sub-Saharan African exporters compete in the global market for apparel?” The second is “Given the inherent volatility of international trade, how can Sub-Saharan African countries reduce the adverse effects of negative shocks?” We have addressed both through analysis of country-level disaggregated trade data and firm-level data from World Bank Enterprise Surveys.

110. Sub-Saharan Africa did well in the years prior to 2005 in capturing market share in the US and EU markets. While the shares were relatively small in the context of the US and EU markets for apparel imports, they were expanding steadily. This was especially evident in the US, where the combination of “zero-tariff” trade preferences embodied in the AGOA legislation and the constraints on Asian exports caused by the system of ATC quotas created a growing demand for Sub-Saharan African apparel. With the removal of the quota system in 2005 and the abrupt fall in price of products formerly under binding quota, however, the sales of Sub-Saharan African products in both markets fell off sharply. When all markets are combined, only Madagascar among the Sub-Saharan African countries experiences a net gain in exports after the ATC quota removal.

111. Analysis of the firm-level data leads to a simple conclusion: while there has been a wrenching reduction in Sub-Saharan African exports, the most-competitive firms in Sub-Saharan Africa share many of the cost characteristics with their comparators overseas. Competitiveness in these plant-floor costs is not sufficient, however, in a world of global value chain (GVC) competition. Relatively higher transport, infrastructure and logistics costs lead to a competitive disadvantage for the Sub-Saharan African plants. China’s success in the US and EU markets after removal of quotas in 2005 is closely tied to its ability to offer its products at an average 34 percent price discount. We found that Sub-Saharan African exporter, excluding Madagascar, did not match these price reductions; as a result, their market share was greatly reduced. The inability to offer such reductions was not due to high wages; we infer from the available Enterprise Survey information that indirect business costs were large and precluded such price competition.

112. We address the second question through an optic of diversification. Facing a loss in markets in the US and EU, the Sub-Saharan African exporters could either switch their attention to third markets or simply accept the reduction in market size. Evidence from trade data indicates that Madagascar, Lesotho and Malawi were able to increase exports to other countries to offset to some extent the lost markets in the US and EU. Mauritius, by contrast, experienced



loss of market value both in the US and EU and in third markets taken together. The export strategy of North African countries and Sub-Saharan African countries like Mauritius was apparently to concentrate export efforts on apparel to the US and EU. This is a strategy that can either have magnified gains, or magnified losses; the evidence for Sub-Saharan Africa is that countries other than Madagascar experienced losses. The sales strategy for most Sub-Saharan African firms seems to have been to specialize in a small number of products for the US and EU market. The most successful country over this period, Madagascar, was also the one that was most diversified with regard to the products sold on the US and EU markets.

113. Finally, we identified the role of global value chains in this volatility. The large exporter firms in Sub-Saharan Africa were for the most part foreign-owned and used imported inputs (thread, cloth) in assembling their apparel. This is a characteristic of firms serving as assembly platforms for the global value chains. We provide some anecdotal evidence that these firms have been “footloose” in moving from country to country in response to changing incentives – whether in the form of government subsidy or in the changing of US trade preferences.

114. We believe that we provide an informational contribution by identifying the heterogeneity of apparel firms. In Sub-Saharan Africa, as in all the comparator countries, exporting firms have significantly different characteristics. Exporters are larger firms (in terms both of sales and employment), they are predominantly foreign-owned, and they specialize in a small number of standardized products for sale on the global market. Non-exporters tend to be much smaller, to have local owners, and to produce more idiosyncratic products for a local market. We do not see any evidence in our surveys of non-exporters that have joined this “global exporter” category of firms. “Regional exporters” exist, however; we observe them in Kenya, and conjecture that we would find them in other countries as well. These are locally owned and managed, and they sell less-standardized products domestically or to a regional market. While they have less employment impact than the global exporters, their position would be more stable in a global market facing the types of shocks we have observed with the removal of quotas or the recession of 2008-2009. Government policy can be targeted at encouraging non-exporters to make this step to regional exporter.

115. The North African exporters of Morocco, Tunisia and Egypt provide an interesting alternative model for government policy-makers. These countries have been able to increase market share in the US and EU despite offering higher wages to their workers than are observed in Sub-Saharan Africa. Proximity is certainly important, but our study of elements of firm-level costs suggest that the government-level attention to infrastructure, logistics and time-to-clear customs have made their exporters more competitive in the global markets.

116. The consistency and reliability of trade preferences offered by the US and EU will be critical in sustaining “global exporters” in Sub-Saharan Africa. Given the nature of ownership and decision-making in the global value chain, changes in those preferences lead to rapid reallocation of production and employment across countries. Madagascar provides an object lesson in this – successful throughout the period 2005-2009, its apparel industry was decimated by removal of AGOA preferences in December 2009.

117. Our focus has by design been upon the adjustment in Sub-Saharan Africa to the change in market landscape caused by the removal of ATC quotas in the US and EU in 2005. It is important to recognize, however, that exporters faced a second shock in the period 2008 to the

present with the recession in the US and EU countries. Demand for apparel has fallen in those two key markets. We provide some documentation of this in Appendix H. This fall in demand in two large markets has made more critical the consideration of strategies that diversify export markets, and the evidence reported in this report can be very useful in considering such diversification.

This analysis leads to a number of important policy recommendations. We find:

- Apparel firms are quite heterogeneous within each country. Exporting firms are larger than non-exporting firms, are more likely to have foreign ownership, make standardized products for a global market, and face different indirect production costs. Policy should be designed to target the bottlenecks and indirect costs specific to the firms to be assisted (specific examples below).
- The rarest type of firm is not the “global exporter” or the “non-exporter”, but the “regional exporter”. While it will be very difficult for non-exporters to make the transition to “global exporter” directly; policy initiatives could beneficially target locally owned regional exporters with marketing and distributional assistance with a long-term goal of transitioning to a locally owned global exporter.
- Rapid growth in the period before quota removal was associated with growth in global export enterprises selling a narrow range of standardized products into the US and EU markets. While an export-processing-zone strategy facilitated this growth prior to 2005, it left the firms with little recourse once the competitive landscape shifted with the removal of quotas. Any such strategy should include incentives to geographical and product diversification, as private incentives apparently favor greater specialization along these dimensions.
- The shock of ATC quota removal in 2005 led to a restructuring of the global value chain in apparel and to a resulting downsizing or closure of foreign-owned apparel enterprises in Sub-Saharan Africa. These enterprises were evidently unable to compete on price terms with the exports from Asia once the quotas were removed. It will be in the interest of Sub-Saharan African governments to investigate establishment of a regional value-chain “coordinator” as defined in the text to provide a more stable market position for “global exporters” among Sub-Saharan African enterprises having difficulty maintaining their niches in the global value chain.
- The firms of North Africa provide a successful model for continuing success in the global competition for apparel exports. They faced a downturn in 2005 with the removal of quotas, but then experienced an upturn in exports by 2008. The firm-level labor costs are equal to or higher in some cases than those in Sub-Saharan Africa, but the exporters of North Africa have apparently remained competitive through relatively low indirect costs – transport, logistics and infrastructure among them.
- The trade preferences provided by the US and EU remain very important to Sub-Saharan African success. The recent decimation of Madagascar’s apparel production with the removal of AGOA eligibility underlines the importance within the framework of the global value chain that such preferences remain unvarying over time.

## APPENDIX A: LITERATURE REVIEW

1. On January 1<sup>st</sup>, 2005, the United States (US), Canada and the European Union (EU) eliminated a system of bilateral quotas on imports of apparel. This study details the success (or lack thereof) of African producers in selling apparel on these markets, and more generally in other world markets, after the removal of the quotas. As such, it stands at the nexus of three strands of the literature on trade and development: trade diversion, value-chain analysis, and country-specific measures of competitiveness of African manufacturers. We will provide some background on each of these in what follows.

### **A. Trade diversion**

2. “Trade diversion” is our shorthand phrase for the voluminous literature that has grown up around the seminal contribution of Viner (1950) in identifying the impact of formation of a customs union on the pattern and volume of trade. The bilateral quotas in place in apparel imports into the US and EU reduced trade in apparel from some countries but not others, and correspond to the difference in import tariffs resulting from the creation of a customs union. The exporter with binding quota is then like the lower-cost producer facing a tariff, and the exporter without binding quota is then like the higher-cost producer within the customs union. The system of bilateral quotas, when binding, then diverted imports from the lower-cost exporters to the higher-cost exporters. Trade diversion characterized the pattern of trade when quotas were binding; this served as a potential export-led growth stimulus for the exporters not under binding quotas. There was also the potential for “trade deflection” and “trade destruction”, as Bown and Crowley (2007) predict: countries facing a binding quota from these areas will then either deflect their products to third countries or reduce their imports from third countries by substituting in domestic production.

3. Viner would have straightforward predictions for trade patterns and volumes in the quota-levying countries once these quotas were removed: exporter status would be determined by comparative advantage, and larger-volume imports on average would be observed from the same or fewer exporters. To the extent that quota liberalization increased world demand for the products, “world” prices would rise while the liberalized prices in the quota-levying countries would fall. This rise in “world price” would cause supply and demand adjustments throughout the world trading economies.

#### **1.) Studies of the effects of binding quotas on the pattern of trade in apparel**

4. These quota constraints had been in use in some form since the early 1960s.<sup>52</sup> The phased elimination of the quotas was codified in the Agreement on Textiles and Clothing (ATC) of the World Trade Organization (WTO) during the period 1995-2004. The ATC and its predecessor Multi-Fiber Arrangement (MFA) have prompted academic research in the past that can be reported in terms of impact on importing countries and on exporting countries.

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<sup>52</sup> The Long-Term Arrangement in Cotton Textiles (LTA) in the US was the first incidence of these quotas; they were regularized and extended to other fibers in the Multi-Fiber Arrangement (MFA) from 1974 to 1995. Blokker (1989) provides a careful summary of the early agreements within the GATT.

5. Many studies have measured the quantitative impact of these restraints on welfare in the importing (and quota-imposing) countries. For the US, Cline (1987), de Melo and Tarr (1990), and more recently US ITC (2002) all document the large costs to consumers associated with the restraints.

6. For the EU, François and Woerz (2007) reports estimates of export tax equivalents for the quotas observed under the ATC. They use a data panel on bilateral trade from the UN's COMTRADE and TRAINS databases in a gravity-like framework to derive a non-linear estimate of export tax equivalents for quotas on Chinese and Indian textiles and apparel exports (for example). The results are unsurprising – the export tax equivalent for Chinese and for Indian exports to the US and EU rose substantially from 2000 to 2004. The obvious implication: liberalization leads to the elimination of the quota and to lower export prices for these countries. François et al. (2007) examines the evolution of disaggregated consumer and producer prices in the EU in response to quota removal. While the pass through from import prices to consumer and producer prices is not immediate, there is a significant link. On average, 60 percent of the fall in import prices is passed through in lower consumer prices. National competition policies and market concentration lead to systematic differences in this pass through across countries.

7. These restraints have quantitative effects on the exporting nations as well. A number of authors have used computable general-equilibrium models to estimate the impact of the MFA system (and its removal) on developing countries. Trela and Whalley (1990) found that the aggregated system imposed welfare losses upon the developing-country exporters, and calculated a new general-equilibrium outcome for the post-system world economy. Yang et al. (1997) examined the relative growth of textiles exports to the US across developing-country exporters as the system of restraints is discontinued. All regions were forecast to increase textile exports, although Hong Kong, Taiwan and Korea were expected to face reduced demand for apparel as other developing countries expanded market share. Nordås (2004) used a computable general equilibrium model to estimate the shares of US and EU markets to be served by various exporters. Using export tax equivalents for the effect of binding quotas, she concludes that China's (including Hong Kong) share of the US apparel market will rise from 25 percent to 56 percent with the removal of quotas; China's share of the EU market would rise from 24 percent to 35 percent. India's share of the EU market rises slightly (to 10 percent) while remaining the same in the US. Other exporters absorb a reduction in market share to accommodate China's expansion.

8. Other researchers targeted the behavior of specific exporters. Dean (1990) examines aggregate imports of textiles and clothing products from eight Asian countries during the period 1975-1984, and concludes that the MFA restraints were successful in restraining exports from the targeted countries: in her words, "a controlled country's import share grew, on average, 56 percent more slowly than the share of an uncontrolled country." (Dean, 1990, p. 69). Dean (1995) examined the incidence of restraint agreements under the MFA in order to determine the determinants of negotiated restraints. The MFA, and after that the ATC, called for restraints to be negotiated on categories of textiles and apparel imported into the US if a country's exports caused or threatened to cause market disruption in the US. Dean concluded that in the early years of the MFA (1974-1977) this was in fact the case – exporters individually responsible for large shares of US imports were targeted with these restrictions. In the later years of the MFA (1978-1985), the restraints were introduced upon countries representing much smaller shares of

total US imports. These, according to Dean, may have been designed to target the threat of disruption rather than an actual disruption.<sup>53</sup>

In more recent analyses of the impact of the quota, those exporters with binding quotas are compared statistically to the group with non-binding quotas as a “control” group.

- Harrigan and Barrows (2006) updated Dean’s results through careful examination of disaggregated prices pre- and post-quota in a difference-in-difference framework for the top 20 exporters to the US: there is the time difference, from 2004 to 2005, and the categorical difference in quota-constrained vs. unconstrained imports.<sup>54</sup> The authors first measure the average adjustment in price and quality for each country in the sample; they find a substantial downward average adjustment in price for quota-constrained imports and a much smaller downward adjustment in quality. There are no such downward adjustments for unconstrained imports. The authors then test across countries to determine whether the adjustments in price and quality from 2004 to 2005 are on average significantly different for constrained than for unconstrained categories. The downward price adjustments are statistically significant for all exporters at the 95 percent level of confidence, for China alone and for the non-China exporters. The downward quality adjustments are significant for China alone and for all exporters at the 90 percent level of confidence. This work is done at a quite detailed level of disaggregation, and signals the expected impact of quota removal on both price and quality. It treats the observation of a binding quota as an exogenous event, however – and this can introduce bias.
- Brambilla, Khandelwal and Schott (2007) focus their attention on exporters of textiles and apparel to the US. They work with 10-digit HS classifications of imports from these countries into the US, and they also categorize the imports as being quota-constrained vs. unconstrained using the US quota classifications. They analyze carefully the impact of the quota, and then contrast that with behavior after quota removal: they are careful to distinguish the four stages of sequential quota elimination under the ATC, and to connect the changes in quantity and price with the appropriate stage of quota removal. They find both an increase in quantity and a reduction in price for Chinese goods that is significantly different from that observed in other quota-constrained exporters. They do not calculate quality as in Harrigan and Barrows (2006), and thus cannot draw conclusions on the impacts of price vs. quality. They also treat the quota-constrained period as an exogenous event.
- Evans and Harrigan (2003) investigated the sourcing of apparel imports into the US under the constraints of the MFA. They used a simple model of import sourcing with three determinants: a country-specific effect, a “trade frictions” variable dependent upon tariffs and transport costs, and an interactive term of distance and a replenishment coefficient. Their central hypothesis relates to the hypothesis of “lean retailing” from Abernathy et al. (1999) – that retailers will source rapid-replenishment goods in closer locations to ensure quick availability – and they estimated this in a model that admits the impact of quota restrictions. They separated apparel imports into categories, and identify

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<sup>53</sup> It’s also the case that restraints, once introduced, have not been removed. Thus, the “second wave” of restraints would have to be on smaller exporters, even if the policy goal is to restrain the largest exporters remaining unrestrained.

<sup>54</sup> The unit for imports is the HS 10 classification. Each classification is designated as either “constrained” or “unconstrained” depending upon whether that classification is part of a quota category binding for that exporter in that year.

each category either as “rapid replenishment” or not. They concluded that import growth in rapid-replenishment goods was significantly larger in local suppliers, thus supporting the lean retailing hypothesis.

- Martin (2004) analyzes the impact of quota removal on Pakistan through calculation of export tax equivalents (ETEs) for quota-bound exporters. Pakistan is expected to benefit through increased textiles exports, but to face a reduction in apparel exports. He also calculates the indirect effects through third-country responses using the GTAP model.
- In related research, Iacovone et al. (2010) examine the impacts on production in a third country (Mexico) in response to the price competition of Chinese exports. The authors use a plant-level panel database for 1994-2004 to examine the ways that individual Mexican firms responded to competition. They highlight a dichotomy between small and large firms: small firms exit, while large firms expand. Apparel is not considered separately; this was the period of binding quotas in the US on Chinese apparel, and so there is presumably a trade-diversion effect favoring Mexican producers in that industry.

## 2.) The importance of preferential trading arrangements

9. While the imposition and removal of bilateral quotas introduced a major shift in the pattern and value of trade in apparel, its effect for developing countries is confounded with other preferential trading schemes. The important schemes for African nations include the Generalized System of Preferences (GSP) within the GATT framework, the Everything but Arms (EBA) initiative of the EU, the Cotonou Agreement of African nations with the EU, the Euro-Mediterranean Association Agreement of the EU for North Africa, the African Growth and Opportunity Act (AGOA) of the US and the bilateral free trade area established between Morocco and the US. The details of these preferential trading arrangements are presented in a later section. These agreements have led to econometric work estimating their impact on Africa’s trade with the US and EU.

- Frazer and Van Biesebroeck (2010) use a difference-in-difference-in-difference estimation technique to measure the impact of AGOA on African exports of apparel to the US. They conclude that the value of exports due to AGOA actually went up between 2004 and 2005 even though (as we will observe in a later section) the value of apparel exports from AGOA-certified African countries fell over that period. The key to this result is in the difference-in-difference structure. The estimation finds an even larger decline in apparel exports by non-AGOA exporters: thus, the effect of AGOA preferences can be positive while AGOA exports are falling.
- The effectiveness of trade preferences such as AGOA and the Cotonou Agreement hinge critically on the technical details of product-specific rules of origin (PSRO) for the exported apparel. The US and EU introduced important differences in the PSRO for apparel under AGOA (precisely, the Special Rule for Least-Developed Countries under AGOA) and under the Cotonou Agreement. Portugal-Perez (2008) and de Melo and Portugal-Perez (2008) test the impact of these differences in PSRO, and find that the more flexible PSRO under AGOA increased apparel exports from the top seven African exporters by about 300 percent compared to exports under the Cotonou Agreement.

### **3.) Trade concentration and diversification**

10. The ATC system of bilateral quotas built a trade structure in which some small exporters were nearly completely specialized in sales to one market – either the US or the EU. This specialization will have payoffs when the markets are growing rapidly. Specialization will also have costs when demand drops off. The crisis for apparel exporters in 2008-2010 highlighted by Gereffi and Frederick (2010) represents just such a cost: while the rest of the world economy is growing more rapidly, the US and EU are stuck in a low-growth episode.

11. Cadot et al. (2010) examine the concentration of trade with OECD countries from the importer perspective. There has been a geographic diversification over time, as OECD markets become increasingly contestable for non-OECD suppliers. This diversification is reversed in recent years (i.e., since 1998), and it is shown that this is due to the increased importance of China as a dominant exporter. This pattern is also evident in the following section in the apparel industry when considered alone. The converse question is of interest as well – have specific apparel exporters in Africa diversified their trading partners? We will address this in a later section.

#### **B. The importance of the global value chain to African competitiveness.**

12. A key research discovery of recent years has been the importance of integration in the global value chain for success in exporting apparel. The global value chain describes the cross-shipment of intermediate goods across countries as the final product is assembled from pieces and processes undertaken in many exporting nations. As Sturgeon and Kawakami (2010) document, apparel (and footwear) is the third-most-important industry as measured by the value of trade in intermediate goods, after electronics and automotive. Gereffi and Frederick (2010) examine the apparel global value chain in the last decade. They highlight two shocks to the value chain – the removal of quotas in 2005, and the economic crisis of 2008-present. These shocks have led to significant adjustment in exporting countries, including upgrading (taking on higher-quality or higher-complexity nodes in the value chain) and the establishment of regional value chains. Staritz (2010) provides an excellent review of apparel production opportunities in low-income countries, with extended attention to a number of African countries (Kenya, South Africa, Lesotho, Swaziland and Mauritius). Her thesis is that the removal of quotas and the slowdown associated with the financial crisis have together led to a concentration of exports in the leading export countries; this has led, other things equal, to a marginalization of Sub-Saharan African exporters in the crucial US and EU markets. She roots this concentration in the evolution of the global value chain in apparel; lead firms have become more powerful, the premium that purchasers attach to the supplier's flexibility has risen, and lead times have shrunk. To overcome this inherent disadvantage, she advises that low-income exporters must improve the institutions and infrastructure of export-oriented production. She builds upon the insights of Gereffi and Frederick (2010) and applies the result to the plight of low-income exporters.

#### **C. Determinants of African manufacturing competitiveness**

13. Our examination of the evolution of apparel exports of African nations provides one window on a larger question: what are the determinants of African competitiveness? (or,

alternatively, what keeps African manufacturers from being competitive?) This has been an issue of continuing importance within the World Bank. In the 1980s the World Bank published a trio of influential studies on Sub-Saharan Africa. World Bank (1981) proposes an export-led growth strategy for Sub-Saharan Africa, although in that instance the focus was on agricultural exports.<sup>55</sup> World Bank (1984) counsels that increased reliance on incentives and market prices will be necessary, especially when allocating investment. World Bank (1986) couched development in terms of resource gaps: while domestic policy reform was necessary (for example, correcting overvaluation of the real exchange rate or providing farmers with correct price incentives on crops), external resource flows were of critical importance. In the 1980s, then competitiveness in manufacturing was of secondary importance to improving resource allocations in agriculture.

14. World Bank (1994, p. 11) advised that African countries should “put exporters first” by “remov[ing] unnecessary policy impediments – by providing automatic access to foreign exchange, eliminating export monopolies, and facilitating access to intermediate inputs and capital goods.” Elsewhere in the report, in the section entitled “Unleashing Markets”, the report spoke of “Africa’s Harsh Climate for Business”: “overzealous administrative procedures can ruin profitable businesses and destroy the incentive to invest” (World Bank (1994, p. 90)).

15. Yoshino (2008) analyzes the decision of African manufacturers to serve more than one export market. Using ICA firm-level data, he concludes that the decision to diversify geographically is positively correlated with median productivity of the firm and with the degree to which the firm diversifies in terms of products. There is a significant difference between regional diversification (i.e., within Africa) and global diversification (i.e., to multiple markets outside Africa). Infrastructural bottlenecks tend to penalize those that diversify regionally while not having as large an effect on those that diversify globally.

16. Brenton, Hoppe and Newfarmer (2008) return to the issue of export competitiveness through the lens of the EU’s preferential trade agreements with African nations. The Cotonou Agreement was to expire in 2008, and the EU pressed the signatories to agree to economic partnership agreements including reciprocal tariff reductions so as to be WTO-consistent. The authors conclude that tariff reductions alone will not be sufficient to define mutually beneficial trade between the African nations and the EU. They make three broad recommendations: (1) improve incentive regimes; (2) lower the cost of backbone services; and (3) proactive policies to support trade. They translate the first into phased tariff reduction. The second includes all trade-related services, from electricity generation to export credits, and is a special concern. Indeed, they state “The costs of institutional obstacles, informal barriers and sub-optimal regulatory scales are often high, and unlike tariffs, do not generate revenues but simply waste economic resources and dampen productivity.” (p. 17) The third recommendation will include export and investment promotion, but also will include safety nets for workers losing jobs from increased international competition.

17. Eifert et al. (2008) addresses the question “Why are African firms not competitive on world markets?” The authors draw two conclusions. First, Purchasing Power Parity (PPP) data, they conclude that African producers face surprisingly high production costs when compared to Asian competitors. Second, using firm-level ICA data, they conclude that African firms are

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<sup>55</sup> “In most of Africa, four out of every five people work in agriculture”. World Bank (1981, p. 5).



competitive on direct costs; however, high indirect costs and infrastructure-related losses lead to the observed relative lack of competitiveness.

18. Johnson et al. (2007) undertake a simple benchmarking exercise for countries with weak institutions that are able to maintain sustained economic growth. Their view is global, and they identify 12 countries with the requisite growth profile. Ten of these are characterized by manufacturing export-led growth (with Chile and Egypt as the other two). When African countries today are compared with these benchmarking countries, the level of institutional development is quite similar, while ethnic fractionalization is greater. Manufactured exports, however, are on a sharply lower expansion path in Africa than they were in the sustained-growth countries. Costs of exporting and importing are also sharply higher for the African countries than for the sustained-growth comparators. Fofack (2008) raises a related reason for slower African growth – a low-level technology trap. Using a simple economic growth model, he demonstrates the significant separation between technology development, on the one hand, and per capita income growth, on the other hand, between Sub-Saharan Africa and the OECD. This lack of technological innovation constrains Africa to a poverty trap while the OECD countries steadily increase the divergence between the two groups. Rajan and Subramanian (2010) posit another reason for relatively slower manufacturing growth that would apply in Africa: foreign aid has a Dutch-Disease effect on the real exchange rate and leads to “deindustrialization”. They test this hypothesis using data from 1980-1999 using 47 developing countries in the 1980s and 34 developing countries in the 1990s. (Of the 47, 18 are African; of the 34, 10 are African. The African countries on average have higher aid/GDP ratios than the non-African countries.) The effect is quantitatively large – a one percentage point increase in the aid/GDP ratio is associated with 0.5 percentage point slower manufacturing growth, and a one percentage point slower growth in apparel and footwear.

19. Cadot et al. (2010) examine transactions-level exports from five Sub-Saharan African countries to determine the causes for persistence in shipments of a specific product from a specific firm to a specific destination. This is a novel exercise, and draws two novel conclusions. First, there is a type of economies of scope in exporting: the more varieties a firm ships to a specific destination, the more likely any single product will persist as an export. Second, the more firms from a single country ship the same product to a destination, the more likely it is that any one will persist. These results suggest an externality in exporting that governments may wish to “internalize” through export promotion.

20. A number of African country studies are also germane. Frankel (2010) sings the praises of Mauritius over the last two decades. Despite the downturn since 2004, its performance by 2010 is still much higher than the African average. Frankel attributes this to good policies (e.g., Export Processing Zones) and good institutions. He also thinks that being small and an island helps. FIAS (2006) addresses the anticipated difficulties of Lesotho’s reliance upon sales into the US under the AGOA preferences. The authors focus upon the benefits from diversification, with South Africa and other regional partners seen as viable alternative importers.

APPENDIX B: DETAILED INFORMATION ON THE SHIFT IN EXPORT PATTERNS TO THE US AND EU IN 2005.

1. Concordance of traded apparel products in section 4 of the text.

\* These categories are not broken out separately in the reported US data. The NAICS

<b>Table B1: Description of the Goods Classification Categories used in this section</b>			
<b>Classification in this report</b>	<b>Description</b>	<b>US NAICS code</b>	<b>European HS code</b>
01	Men's or boys' outerwear	315228	6101, 6201
02	Women's or girls' outerwear	315239	6102, 6202
03	Men's and boys' suits, ensembles, jackets	315222,	6103, 6203
04	Women's and girls' suits, ensembles, jackets	315233,	6104, 6204
05	Men's and boys' shirts	315223	6105, 6205
06	Women's and girls' blouses and shirts	315232	6106, 6206
07	Men's and boys' underwear	315221	6107, 6207
08	Women's and girls' slips, lingerie and	315231	6108, 6208
09*	T-shirts, singlets and other vests		6109
10*	Jerseys, pullovers and cardigans		6110
11	Babies' garments	315291	6111, 6211
12	Track suits, skisuits and swimwear	315299	6112, 6212
13	Rubberized, plasticized or otherwise coated		6113, 6210
14	Special garments, including ties, shawls, scarves	315991,	6114,
15	Stockings, socks, tights and pantyhose	31511X	6115
16	Gloves, mittens and mitts	315992	6116, 6216
17	Made-up clothing accessories	315999	6117, 6217
18*	Brassieres, girdles, corsets, braces, suspenders,		6118

classifications should be 315191 and 315192, but there is no report of imports under that code from any exporter.

## 2. Share of Country Groupings in US and EU apparel markets

**Table B2: Share of Country Groupings in US Apparel Market, by Goods Classification and Year**

Share	Goods classification from Table 1	2002	2003	2004	2005	2006	2007
Africa	1	3.99	4.63	4.99	4.25	3.63	3.74
AGOA Africa		2.69	3.36	3.63	2.81	1.94	1.91
China		11.01	11.26	12.07	26.34	29.42	34.98
Africa	2	3.39	4.46	4.86	4.00	3.98	4.09
AGOA Africa		2.28	3.39	3.66	2.97	2.68	2.64
China		12.03	13.27	15.48	25.97	29.71	34.04
Africa	3	3.54	4.31	4.76	4.43	4.75	4.77
AGOA Africa		2.51	3.16	3.60	3.19	2.85	2.51
China		5.08	5.94	7.52	11.76	14.04	16.72
Africa	4	0.95	1.11	0.90	0.72	0.66	0.60
AGOA Africa		0.53	0.70	0.58	0.34	0.29	0.23
China		19.97	20.78	22.95	38.40	46.40	51.10
Africa	5	3.31	3.80	4.45	3.61	3.88	4.13
AGOA Africa		2.53	3.00	3.60	2.80	2.52	2.72
China		6.14	6.35	6.88	9.46	10.85	15.18
Africa	6	2.92	3.09	3.55	2.53	2.17	2.18
AGOA Africa		2.40	2.61	3.05	2.11	1.65	1.60
China		14.21	14.29	15.98	21.61	24.64	28.53
Africa	7	0.50	0.86	0.76	0.98	1.08	1.44
AGOA Africa		0.24	0.55	0.39	0.60	0.34	0.33
China		3.56	3.51	3.32	8.09	11.38	17.04
Africa	8	1.14	1.10	0.85	0.79	0.84	0.40
AGOA Africa		0.29	0.41	0.28	0.14	0.06	0.06
China		13.66	18.33	18.35	26.87	30.04	37.18
Africa	11	1.03	1.25	1.41	1.99	2.19	1.91
AGOA Africa		0.50	0.60	0.61	0.92	0.78	0.88
China		26.26	44.41	54.95	59.86	61.33	62.01
Africa	14	0.13	0.09	0.06	0.07	0.05	0.07
AGOA Africa		0.12	0.09	0.06	0.06	0.05	0.07
China		37.03	49.33	51.02	60.62	65.85	66.52
Africa	15	0.08	0.45	0.67	0.50	0.67	0.48
AGOA Africa		0.06	0.43	0.64	0.48	0.66	0.48
China		3.29	9.62	19.29	17.04	19.15	27.66
Africa	16	0.10	0.00	0.01	0.01	0.02	0.01
AGOA Africa		0.00	0.00	0.00	0.00	0.00	0.00
China		51.69	57.41	58.53	61.21	62.82	62.86
Africa	17	0.43	0.46	0.49	0.43	0.41	0.42
AGOA Africa		0.31	0.34	0.39	0.25	0.25	0.30
China		46.07	49.87	55.52	58.70	61.50	63.65

Source: US International Trade Commission Dataweb, 6 September 2010.

**Table B3: African and Chinese Shares in EU Apparel Market, by year and goods classification**

	HS Classification	2002	2003	2004	2005	2006	2007	2008	2009
Africa	01	6.35	5.24	4.57	4.42	3.97	3.64	3.16	2.56
China		36.44	47.38	53.33	56.92	57.26	60.23	61.09	61.72
Africa	02	5.47	4.65	3.96	4.21	3.91	4.57	4.48	4.73
China		37.11	47.71	52.14	57.87	61.69	62.15	62.33	63.49
Africa	03	21.12	19.90	18.81	18.06	16.42	17.07	16.59	14.94
China		7.19	8.22	9.38	17.39	18.08	23.96	26.16	28.87
Africa	04	18.27	17.50	16.13	14.39	13.68	14.33	14.70	13.90
China		14.06	15.07	16.83	25.15	27.19	31.53	34.00	36.77
Africa	05	12.78	12.45	11.93	10.82	9.80	10.38	10.07	8.83
China		6.51	6.08	7.59	14.70	17.84	22.52	23.21	23.89
Africa	06	10.99	10.02	9.54	8.04	10.00	11.64	11.73	10.51
China		10.09	11.28	12.58	18.10	16.96	19.09	22.98	25.92
Africa	07	13.60	14.18	13.39	10.48	10.50	11.07	11.02	9.36
China		27.05	26.05	26.86	36.18	38.08	41.77	40.91	42.85
Africa	08	14.54	14.05	12.72	11.82	10.67	11.09	10.09	8.77
China		24.87	26.69	29.66	36.44	38.82	41.24	41.66	43.78
Africa	09	17.49	16.36	14.07	11.96	11.19	10.22	9.10	8.32
China		5.94	4.75	6.04	12.11	10.07	15.71	17.83	18.81
Africa	10	11.39	10.21	9.37	8.40	8.45	8.22	7.37	6.57
China		8.10	8.31	9.62	23.83	18.36	25.23	39.94	46.48
Africa	11	13.81	12.28	10.26	7.91	7.35	6.72	6.91	6.22
China		44.02	49.41	56.21	61.72	64.43	65.15	64.30	63.82
Africa	12	19.57	17.39	18.23	17.61	16.69	19.64	20.48	19.07
China		32.48	37.05	42.14	45.16	48.60	48.70	47.29	46.75
Africa	13	7.03	8.23	6.14	4.90	4.00	3.63	3.43	2.84
China		50.09	50.03	54.29	67.73	71.88	71.98	73.53	73.20
Africa	14	10.45	10.24	9.03	8.82	7.64	8.52	6.09	9.35
China		32.52	32.82	37.29	42.08	46.03	45.80	44.05	40.88
Africa	15	3.64	3.01	2.96	2.94	2.61	2.21	1.45	1.04
China		2.46	2.40	3.72	15.36	20.86	23.03	24.95	27.84
Africa	16	3.47	3.19	3.02	2.77	1.80	1.33	0.57	0.71
China		45.09	46.17	44.73	48.65	49.60	46.49	50.42	55.85
Africa	17	10.29	4.35	3.21	2.53	3.05	3.24	3.21	2.85
China		37.42	43.58	50.03	57.33	57.52	54.46	57.18	60.21
Africa	18	20.39	21.35	20.12	18.49	18.28	18.38	17.54	15.46
China		19.63	21.47	22.13	28.67	26.48	35.25	37.70	44.31

Source: Eurostat database, downloaded 7 September 2010

**Table B4: The Global Pattern of Trade in the Short Term**

Exporter	Rank	Number of Importers 2005	Number of Importers 2004	Difference	Exporter	Rank	Number of Importers 2005	Number of Importers 2004	Difference
<b>EUR</b>	<b>1</b>	<b>108</b>	<b>111</b>	<b>-3</b>	ZAF	42	41	38	3
CHN	2	102	102	0	MDG	47	39	33	6
IND	3	96	96	0	KEN	70	26	21	5
<b>HKG</b>	<b>4</b>	<b>89</b>	<b>94</b>	<b>-5</b>	CMR	76	17	16	1
USA	5	96	94	2	GHA	80	17	13	4
<b>IDN</b>	<b>6</b>	<b>87</b>	<b>91</b>	<b>-4</b>	MRT	82	18	13	5
THA	7	96	91	5	LSO	86	14	10	4
TUR	8	83	77	6	<b>TGO</b>	<b>87</b>	<b>9</b>	<b>10</b>	<b>-1</b>
TWN	9	83	77	6	TZA	89	13	10	3
<b>CAN</b>	<b>10</b>	<b>70</b>	<b>73</b>	<b>-3</b>	CIV	92	13	8	5
JPN	11	71	70	1	<b>BFA</b>	<b>93</b>	<b>5</b>	<b>7</b>	<b>-2</b>
KOR	12	74	70	4	<b>DZA</b>	<b>94</b>	<b>5</b>	<b>7</b>	<b>-2</b>
PAK	13	77	69	8	MLI	95	8	7	1
<b>PHL</b>	<b>14</b>	<b>64</b>	<b>69</b>	<b>-5</b>	SEN	96	15	7	8
LKA	15	69	63	6	MOZ	102	7	6	1
VNM	16	70	63	7	BEN	103	5	5	0
MYS	17	67	61	6	UGA	106	10	5	5
<b>BGR</b>	<b>18</b>	<b>56</b>	<b>58</b>	<b>-2</b>	MWI	108	7	4	3
BRA	19	60	58	2	<b>NER</b>	<b>110</b>	<b>2</b>	<b>3</b>	<b>-1</b>
MAR	20	58	58	0	ZMB	111	5	3	2
TUN	23	56	56	0	CAF	112	3	2	1
<b>MUS</b>	<b>27</b>	<b>47</b>	<b>48</b>	<b>-1</b>	GAB	113	2	2	0
EGY	29	61	46	15	SDN	114	5	2	3
					BDI	115	1	1	0
					SYC	116	4	0	4

Total number of possible trading partners: 115  
 The EU-15 is treated as a single market.  
 The highest-ranked 20 are included, as well as African exporters. Others are excluded.  
 Rank refers to the ranking of the 116 countries by number of trading partners in 2004.  
 Source: UN COMTRADE database, SITC categories 841 and 842 combined.

## APPENDIX C: SURVEY METHODOLOGY AND SAMPLE SIZE

1. The World Bank Enterprise Surveys provide a representative sample of an economy's private sector. The surveys cover a broad range of business environment topics including access to finance, corruption, infrastructure, crime, competition, and performance measures.

2. Firm-level surveys have been conducted since 2002 by different units within the World Bank<sup>56</sup>. Since 2005-06, most data collection efforts have been centralized within the Enterprise Analysis Unit of the World Bank, with the use of a common instrument and survey methodology.

3. The Enterprise Survey is answered by business owners and top managers. Sometimes the survey respondent calls company accountants and human resource managers into the interview to answer questions in the sales and labor sections of the survey. Typically 1200-1800 interviews are conducted in larger economies, 360 interviews are conducted in medium-sized economies, and for smaller economies, 150 interviews. The manufacturing and services sectors are the primary business sectors of interest.

### **1. Structure of the surveys**

4. The standard Enterprise Survey topics include firm characteristics, gender participation, access to finance, annual sales, costs of inputs/labor, workforce composition, bribery, licensing, infrastructure, trade, crime, competition, capacity utilization, land and permits, taxation, informality, business-government relations, innovation and technology, and performance measures.

### **2. Sampling and weights**

5. The sampling methodology for Enterprise Surveys is stratified random sampling with replacement. In a simple random sample, all members of the population have the same probability of being selected and no weighting of the observations is necessary. In a stratified random sample, all population units are grouped within homogeneous groups and simple random samples are selected within each group. This method allows computing estimates for each of the strata with a specified level of precision while population estimates can also be estimated by properly weighting individual observations. The sampling weights take care of the varying probabilities of selection across different strata. Under certain conditions, estimates' precision under stratified random sampling will be higher than under simple random sampling (lower standard errors may result from the estimation procedure).

6. The strata for Enterprise Surveys are firm size, business sector, and geographic region within a country. Firm size levels are 5-19 (small), 20-99 (medium), and 100+ employees (large-sized firms). Since in most economies, the majority of firms are small and medium-sized, Enterprise Surveys oversample large firms since larger firms tend to be engines of job creation. Sector breakdown is usually manufacturing, retail, and other services. For larger economies, specific manufacturing sub-sectors are selected as additional strata on the basis of employment,

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<sup>56</sup> This information is provided on the Enterprise Surveys Website-[www.enterprisesurveys.org](http://www.enterprisesurveys.org). All data used here are available publicly on this website.

value-added, and total number of establishments figures. Geographic regions within a country are selected based on which cities/regions collectively contain the majority of economic activity.

7. Total number of firms surveyed in Manufacturing and Apparel sectors for the countries in our study are as follows:

**Table C.1: Sample Size**

	Manufacturing	Apparel	Apparel
Bangladesh2006	1124	296	260
Egypt2007	689	112	36
Indonesia2008	817	144	40
Kenya2006	371	92	23
Lesotho2008	59	15	13
Madagascar2004	185	52	41
Madagascar2007	138	53	32
Mauritius2004	96	22	19
Mauritius2007	106	29	14
Morocco2005	405	110	97
Swaziland2005	55	27	11
Vietnam2008	618	116	84

8. The Indicator Survey in Lesotho used a shorter questionnaire, and did not ask firms details on input costs and capital stock. Madagascar and Mauritius surveys of 2004 were conducted before questionnaires and survey methodologies were centralized within the World Bank. They did not include population weights. This was also true of Morocco. In Madagascar and Mauritius, although we had two years of surveys-information on exits was not available. All firms surveyed in 2004 were contacted for the 2007 survey; however, the refusal rates were high, and it is unclear whether firms that were not re-interviewed exited or refused to be interviewed. Due to differences in survey methodology and lack of information on exits, together with a small sample size for the apparel sector, this paper does not discuss changes over time within the apparel industry in these two countries, except to note the product shifts.

9. The pooled data available from the World Bank website did not include country-specific questions such as name of products, destination of exports or ethnicity of owners -- questions that were country specific. Instead of using the merged dataset, raw country data were downloaded and pooled. Each country dataset provided its own set of unique problems: the biggest issue in our case was to sort the garment firms from textile operations. Special care was taken to drop firms that were either vertically integrated, or would be considered a part of the textile sector, rather than apparel producers (knitting mills in particular, were classified as garments in most surveys).

10. The final sample available for productivity and cost analysis was considerably smaller. Missing information on sales and costs-particularly the cost of raw materials was the first drop criterion. Firms that did not report labor costs were also dropped from the productivity and cost analysis. Data on capital was

available for a smaller subsample. Enterprises were asked the question, “Hypothetically, if this establishment were to purchase machinery, vehicles and equipment it uses now, in their current condition, how much would they cost?” This question was not included in the Bangladesh Survey. We use book value of plant and equipment as a proxy for sales value. Firms with missing observations on capital stock were only dropped from the regression analysis, and computation of capital labor ratios. Labor in our study is defined as the sum of full time workers plus the annual equivalent for temporary workers ((months worked/12)\*number of temporary workers). Value added is computed as total sales –intermediates (raw materials and energy).

11. The following cleaning rules applied. All firms with negative value added were dropped. Firms with intermediates less than 10 percent of output were dropped, as these firms were likely engaged in trading activities, along with manufacturing. The bottom or top five percent of labor productivity and cost distributions for the sample as a whole were considered outliers and were dropped.

12. The value added and labor cost numbers were converted to 2006 US\$ by first using the GDP deflator to convert all nominal values to 2006 local currency amounts. The 2006 exchange rate (average) was used to convert these figures to US dollars. Where applicable, the firm level observations are weighted by the market share-measured by sales- of the firm in the industry.

### **3. Enterprise Survey Results**

13. Increases in value-added per worker are *ceteris paribus* associated with increased profitability and competitiveness. In Figure C2, we have superimposed lines for 100 percent, 50 percent and 25 percent – these represent combinations for which labor costs are 100 percent (or 50 percent, or 25 percent) of observed value added for that firm. Each symbol represents a single firm, and the type of symbol indicates the country in which the firm operates. Note that there are a number of firms for which labor cost exceeds value added – these could be firms operating at a loss, or firms for which the value-added per worker is mismeasured. There are many observations for Bangladesh, and most of these are near the origin: Bangladeshi firms pay low wages, but obtain low value-added from labor. Moroccan firms are at the other end of the spectrum: the highest labor costs of the four comparators, but also high value-added per worker. There is a strong concentration of Moroccan firms above the 50-percent line, indicating either low returns to capital, low net indirect costs, or some combination. In Madagascar the labor cost tends to be lower, and there is a greater percentage of firms located below the 50-percent line. Mauritius tends to be both higher-cost and higher-value-added than Bangladesh and Madagascar; just as with Morocco, the majority of its firms are above the 50-percent line.

14. Once we have accounted for the effects of low wages, there are two relevant comparisons across firms for determining profitability. We will take these in turn: first the value-added per worker, and then the indirect business costs of operation.

#### **a) Factors associated with higher value-added per worker**

15. Increases in value-added per worker are *ceteris paribus* associated with increased profitability and competitiveness. Figure C2 presents the dispersions of value-added per worker and unit labor costs for our four comparator countries. We see that there is a significant overlap of



firms between countries. As equation (3) illustrated, wage cost is an important share of value added. In Figure C2 we have superimposed lines for 100 percent, 50 percent and 25 percent – these represent combinations for which labor costs are 100 percent (or 50 percent, or 25 percent) of observed value added for that firm. Each symbol represents a single firm, and the type of symbol indicates the country in which the firm operates. Note that there are a number of firms for which labor cost exceeds value added – these could be firms operating at a loss, or firms for which the value-added per worker is mismeasured. There are many observations for Bangladesh, and most of these are near the origin: Bangladeshi firms pay low wages, but obtain low value-added from labor. Moroccan firms are at the other end of the spectrum: the highest labor costs of the four comparators, but also high value-added per worker. There is a strong concentration of Moroccan firms above the 50-percent line, indicating either low returns to capital, low net indirect costs, or some combination. In Madagascar the labor cost tends to be lower, and there is a greater percentage of firms located below the 50-percent line. Mauritius tends to be both higher-cost and higher-value-added than Bangladesh and Madagascar; just as with Morocco, the majority of its firms are above the 50-percent line.

**b.) Energy as a factor associated with higher direct cost**

16. As the discussion of the previous section demonstrated, there is a large percentage of firms in Sub-Saharan Africa with labor costs low enough to compete with Asian and North African comparators. While these labor costs comprise a large share, other costs are also important. In the examples of Figure 10 in the text, the costs of electricity, water, land and building rental together comprise 8 to 13 percent of costs, while inbound and outbound trade and transport costs comprise 13 to 16 percent of unit costs. Countries that are able to lower these costs will be better able to compete in terms of price. The problems of electricity in Sub-Saharan Africa are well-documented elsewhere<sup>57</sup>. The firms in our surveys report varied experience with power outages. In Figure C3, we highlight the replies from four comparators. There is a clear distinction between Bangladesh and Madagascar, on the one hand, and Mauritius and Morocco on the other. Nearly every firm in Bangladesh and Madagascar reported power outages, while among Mauritius and Moroccan firms only 25 and 41 percent, respectively, reported outages. In Bangladesh, this has led to 90 percent of firms owning generators; in Madagascar and Mauritius about 35 percent of firms reported having a generator, while in Morocco only about 10 percent. When the firms were asked what percent of their sales were lost due to power outages (right-hand scale), Bangladeshi firms reported nearly four percent, Madagascar firms about 2.5 percent, and Mauritian and Moroccan firms less than 0.5 percent.

**c) Factors associated with higher indirect cost.**

17. These are costs that translate into borrowing/float costs to the firm, and are components of  $v_{it}/L_{it}$ . Increased competition in the global value chain due to the increased dominance of a few large buyers in the process (see Staritz (2010)) has heightened the importance of **speed to market**. Countries that lie further from key input and output markets require efficient port systems to counter the adverse effect of geography. The data of Figure C4 present the average days to clear exports and imports from customs. We see that Morocco has a very efficient system, with about two days required on average to clear customs. Mauritian firms report about seven days on average, and

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<sup>57</sup> Ramachandran, Gelb and Shah (2009) provide a comprehensive discussion of infrastructure bottlenecks in SSA. World Bank Investment Climate Assessments provide an in-depth analysis of infrastructure costs within each country.

Bangladeshi firms report about 10 days on average. The average time required in Madagascar is much higher than all comparators. As noted by Morris (2006),

*“the condition of the road between the capital, Antananarivo and the port, Tamatave, a distance of 300 kilometres. It can take up to one week for containers of raw materials to arrive at the factories from the port due to delays at customs and slow travel speeds. In addition, the capital, around which most factories are located, is plagued by traffic jams. Cargo trucks going in and out of the capital are limited by law to rolling only between the hours of 20:00 and 6:00”.*

The surveys report nearly two weeks on average to clear customs for firms in Madagascar.

18. While the graphic of Figure 10 in the text does not include the **cost of corruption** among the indirect costs of production, the existence of corruption certainly raises the general costs of a firm’s operation. In Figure C5, we report the percent of firms in each survey that reported payment of bribes as a required component of production costs. Informal payments to public officials add to the costs of doing business and increase uncertainty. These costs are highest in Bangladesh, while much lower in Mauritius, Madagascar and Morocco. **Theft and crime** can also impose additional costs on firms. In Figure C6, we see that firms in Madagascar and Mauritius are likely to face higher costs due to property theft, and incur additional costs for securing their premises. These costs are lowest for firms in Morocco. Bangladeshi firms take a different approach; while there is an elevated incidence of crime, the firms spend relatively little on security.

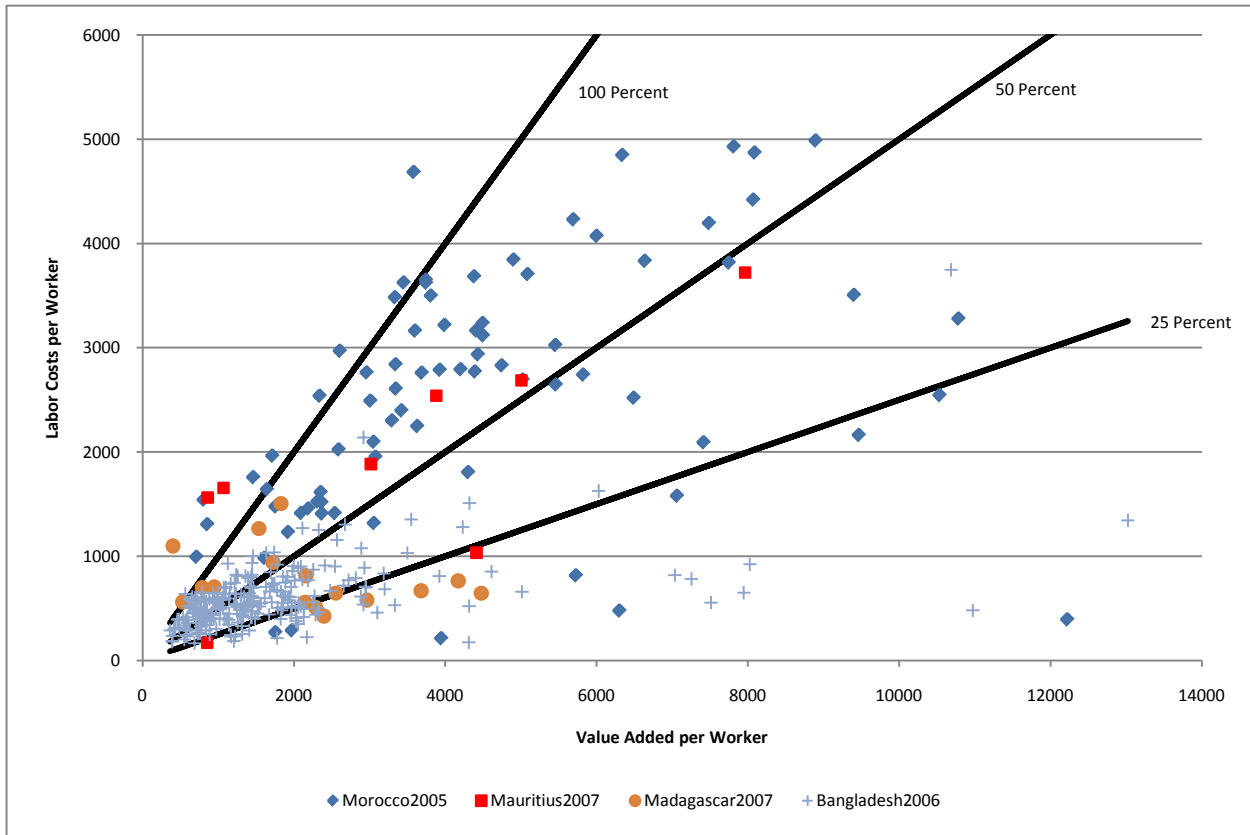
19. While the costs of finance do not appear in Figure 10 in the text, the **availability of financing** for working capital is a requirement for operation for most firms. In Figure C7 we report the percentage of firms that used overdraft and lending facilities in their operations.<sup>58</sup> Access to short-term capital through overdrafts and supplier credit is important for inventory management. It is most common among Moroccan firms, with 71 percent of exporters reporting use of overdraft privileges. The percentage is also high in Mauritius, with 64 percent. Bangladesh (at 56 percent) and Madagascar (at 34 percent) are the lowest of the four along this dimension. Access to long-term capital through loans provides financing for investment. We see sharp differences in access to finance across countries. 70 percent of exporters in Bangladesh report having a bank loan, compared to 64 percent in Mauritius, 31 percent in Morocco and only 3 percent in Madagascar. An inability to access local finance provides a competitive advantage for foreign-owned firms with access to global capital markets.

20. **Information technology and integration into the global value chain** is another feature that distinguishes Sub-Saharan African firms from comparator enterprises. Table C3 presents details on these differences. Firms in Egypt are more likely to have ISO certification than firms in other countries. Almost all firms across all countries use email to communicate with suppliers and clients, but a much smaller subset have their own website. Firms in Asia and North Africa are much more likely to have their own website compared to firms in Sub-Saharan Africa. The majority of firms in Lesotho and Swaziland have worker training programs; the percentage is smaller in all other SSA countries when compared to firms in Asia and North Africa.

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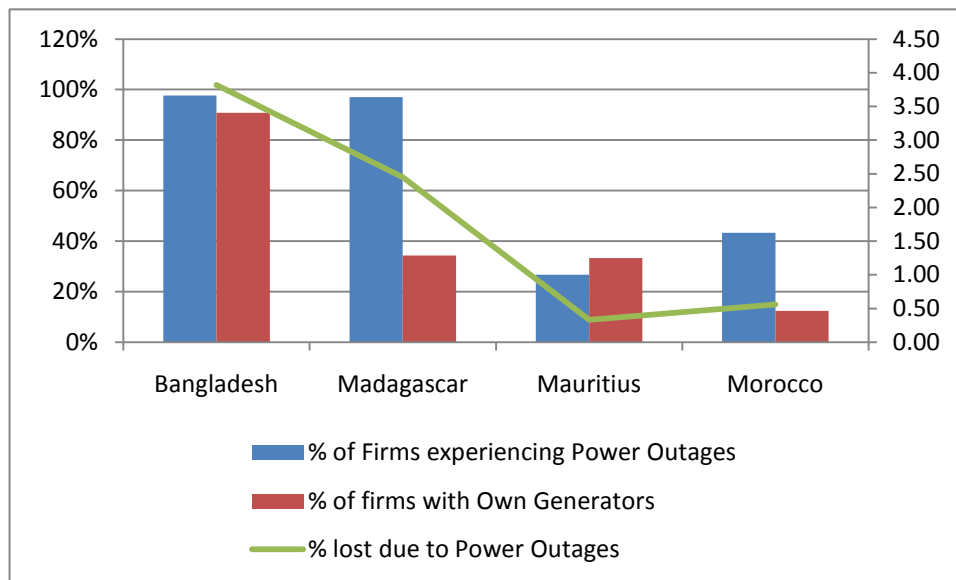
<sup>58</sup> We cannot separate those who chose not to do so from those who had no access.

Figure C2: Distribution of Value Added and Labor Costs for Exporters



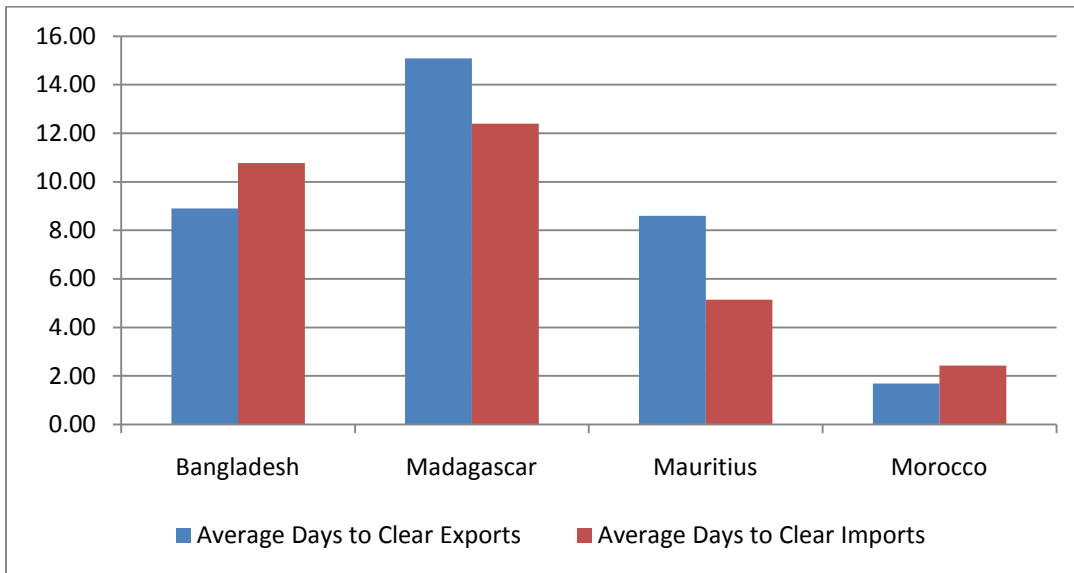
Source: World Bank Enterprise Surveys.

Figure C3: Access to Uninterrupted Electricity Service



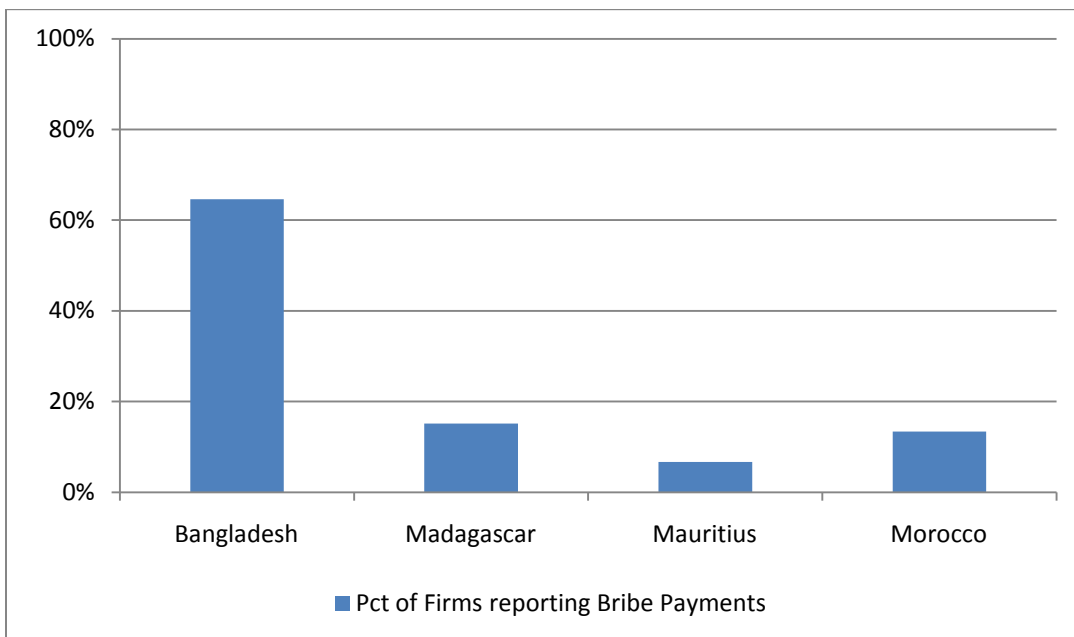
Source: World Bank Enterprise Surveys 2006-2009

Figure C4: **Time to Clear Customs**



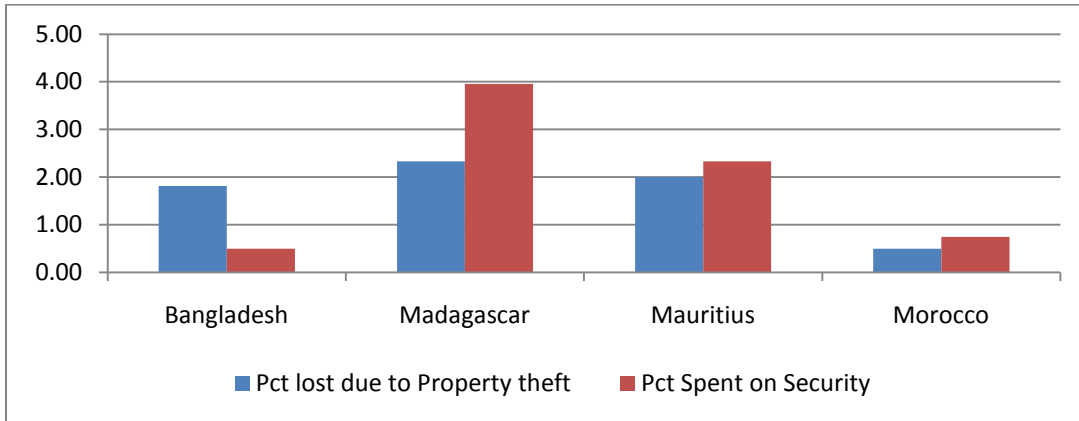
Source: World Bank Enterprise Surveys 2006-2009

Figure C5: **Incidence of Bribe Payments among Firms Surveyed.**



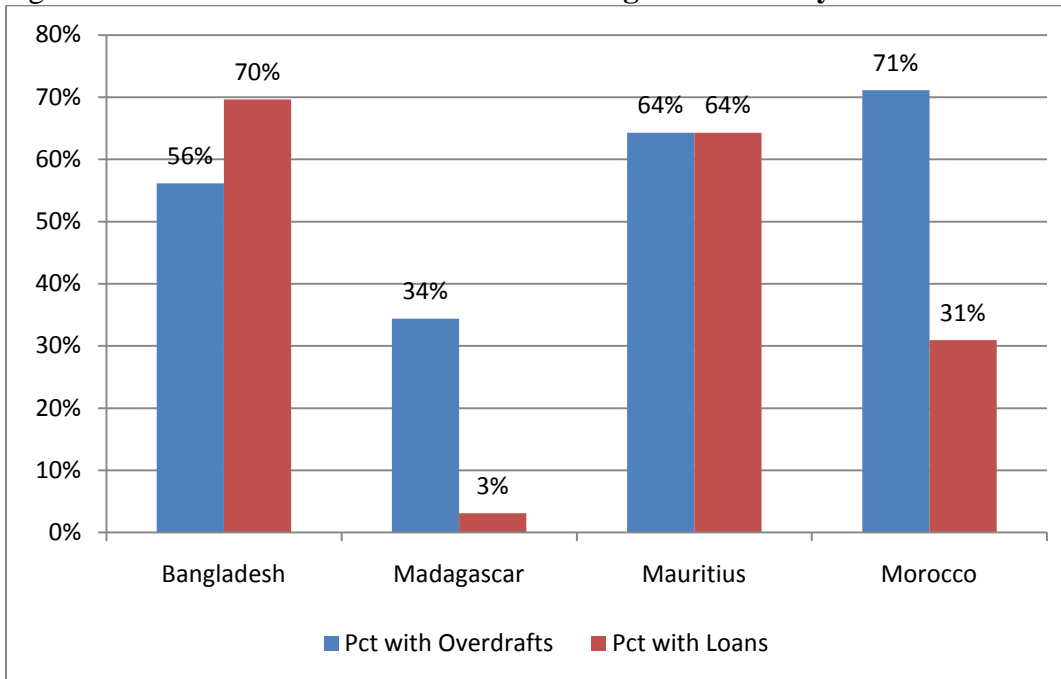
Source: World Bank Enterprise Surveys 2006-2009

Figure C6: **Incidence of Crime and Theft**



Source: World Bank Enterprise Surveys 2006-2009

Figure C7: **Use of financial instruments among Firms Surveyed**



Source: World Bank Enterprise Surveys 2006-2009

21. Almost all firms across comparators import some inputs. However, the share of imported raw materials differs across countries. The share of imported raw materials is greater in Asia, compared to firms in Sub-Saharan Africa. Firms in Vietnam operate their equipment close to full capacity; capacity utilization ranges between a low of 70 percent in Madagascar to a high of 88 percent in Kenya and 90 percent in Vietnam.

## APPENDIX D. CONTROLLING FOR OTHER FACTORS: AFRICA'S RELATIVE EXPORT PERFORMANCE.

1. The evidence of Section 4 in the text is suggestive but inconclusive: while the removal of quotas is one “shock” observed in 2005, there could be others as well. To isolate the export success of individual African countries we must control for other possible explanations of the evolution of bilateral exports. We do so by using the structural model of bilateral export and import decisions presented in Conway and Fugazza (2010). Through this model, we control for various size- and location-related factors that influence international trade; we also control for the direct impact of quota removal and the existence of preferential trading agreements (such as AGOA and the EU's Association Agreements and Everything but Arms). The export success of individual Sub-Saharan African countries will be derived as the country-specific effect.

2. The estimation strategy in Conway and Fugazza (2010) follows three steps. The first step identifies country-specific quality and cost differences through an analysis of “initial conditions” in 1994, one year before the system of phased quota removal under ATC was introduced. The second step predicts the probability that bilateral trade between specific exporter and specific importer will exist: it is based upon a model of heterogeneous firms similar to the one introduced by Helpman, Melitz and Rubenstein (2007). The third step provides an estimation of the determinants of the value of trade given that bilateral trade is observed. The results from this estimation strategy are laid out in detail in Conway and Fugazza (2010); here we summarize the implications of this estimation for African economies.

3. The summary of initial conditions derived in step one is reported in Tables D1 and D2. Table D1 reports the results of the two-stage Heckman estimation for 1994. The decision to export – what we will refer to as the pattern of trade -- is modeled as a random-effects probit, with the random effects clustered by importer to control for unobserved country-specific demand conditions. The exporter-specific parameter that we call the cost-quality ratio is estimated as a fixed-effect term in this probit. The results for the common regressors are reported in the top panel of Table 15 for the 15500 observations over 125 countries.<sup>59</sup> The logarithm of distance between trading partners is an instrument for the unobserved transport cost. Its coefficient takes a negative sign and coefficient -0.97, significantly different from zero but insignificantly different from 1.<sup>60</sup> Countries that are adjacent are distinguished in estimation by inclusion of a border dummy ( $DB_{ij}$ ); this has a positive coefficient, as expected, but is insignificantly different from zero. The logarithm of one plus the tariff levied by importers ( $\tau_{ij94}$ ) on apparel imports has coefficient -4.33 and is significantly less than zero.

4. The exporter-specific effects from this probit are interpreted as (the negative of) the measures of the cost-quality ratio for the exporting country. These coefficients are rebased by subtracting the coefficient for China, and are reported for the low-cost 10 globally as well as the

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<sup>59</sup> Each EU country except Belgium and Luxembourg is treated as a separate importer in estimation to allow for unobserved differences in preferences across EU-member importers. Data for Belgium and Luxembourg were not available for this estimation.

<sup>60</sup> Here and in what follows, significance is defined at the 95 percent level of confidence.

African countries.<sup>61</sup> The relative ranking of the country among the 113 countries is provided in the third and sixth columns. The identities of the low-cost 10 are for the most part unsurprising, although it is striking to find the US, EU and Japan in this group. Among the African countries in 1994, South Africa, Morocco, Mauritius, Tunisia and Egypt had relatively lower cost-quality ratios, while countries such as Central African Republic, Seychelles and Sudan were at the high end (for all countries) in cost-quality measurement.

5. The value of bilateral trade is estimated in a separate non-linear regression. Once again, the theoretical derivation is given in Conway and Fugazza (2010). The form of the regression set by the theory is similar to that of a gravity model, but with some important differences.

- Exporter output and population do not enter separately from the exporter-specific effect.
- There is a Heckman-style correction using a variant of the inverse Mills ratio for the simultaneous decision to export; its coefficient is  $\varphi$ .
- There is a modeling of the heterogeneity of firms in terms of cost with coefficient  $\mu$ .

6. This regression is estimated using non-linear least squares, with the inverse Mills ratio calculated from the random-effects probit on the pattern of trade. Exporter-specific effects are included to control for the quality characteristics of the goods exported. The coefficients on the logarithms of income and population of the importing country take the expected sign: for given population, import value rises with importer income; for given income, a larger population leads to larger import value. Import value declines with distance, though the coefficient is estimated imprecisely. Surprisingly, the level of the importer tariff and the value of trade are positively, though insignificantly, correlated. The selection correction, as indicated by the coefficient  $\varphi = 0.71$ , is significant and takes the expected sign. The correction for firm heterogeneity is greater than 1, indicating a distribution of firms skewed towards a larger density of high-cost firms, but this is also imprecisely measured.

7. Selected exporter-specific effects from the non-linear regression for 1994 are rebased so that China's is zero and are reported in the second panel of Table D2. The top 10 includes the major Asian exporters (Indonesia, Malaysia, China, Vietnam) as well as Turkey and the US. The highest-ranked African countries in 1994 were Morocco, Mauritius and Madagascar. In this index as well, many African countries are clustered at the extreme.<sup>62</sup>

8. In the second step of our estimation strategy, we estimate the structural pattern-of-trade probit. The explanatory variables include transport costs ( $D_{ij}$ ), tariffs ( $1+t_{ij}$ ), location ( $DB_{ij}$ ), initial

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<sup>61</sup> Conway and Fugazza (2010) demonstrates that the units of these cost-quality ratios are in logarithmic form, so that having a cost-quality ratio of 0 for China indicates that the underlying cost-quality ratio is 1. Positive rebased coefficients thus imply higher-cost countries (adjusted for quality of goods), and negative rebased coefficients imply lower-cost countries.

Theory indicates that these exporter-specific effects represent the cost-quality ratio. If we consider these without reference to the theory, we would interpret them as the relative ability of exporters to sell into an additional country in 1994, controlling for the distance to the country, the tariff levied by the country, and unobserved differences in demand.

<sup>62</sup> Theory predicts that these exporter-specific effects can be interpreted as quality differences. An atheoretic interpretation is that these coefficients measure the value of bilateral trade controlling for distance, tariffs, importer characteristics and a shared heterogeneity of firms across countries. The larger the coefficient, the greater the value of bilateral trade holding these other determinants constant.

cost-quality ratio ( $\hat{c}_i$ ) and indicators of the relaxation of binding quotas ( $QB_{Ujt-1}$ ,  $NB_{iUt-1}$ ,  $QB_{iNUt-1}$ ). There is also a shift term to capture global changes in the pattern of trade in 2006 relative to 2005 ( $H_t$ ), and exporter-specific effects to pick up exporter differences ( $H_i$ ). This is estimated as a probit using equations (D1) and (D2).

$$\begin{aligned} T_{ijt} &= 1 \quad \text{if and only if} \quad \ln(a_{ijt}^o/a_L) > 0 \\ &= 0 \quad \text{otherwise.} \end{aligned} \tag{D1}$$

$$\begin{aligned} \ln(a_{ijt}^o/a_L) &= \alpha_0 + \alpha_1 \ln(D_{ij}) + \alpha_2 \ln(1+t_{ijt}) + \alpha_3 DB_{ij} + \alpha_4 \hat{c}_i + \alpha_5 QB_{Ujt-1} + \alpha_6 NB_{iUt-1} \\ &\quad + \alpha_7 QB_{iNUt-1} + \sum_i \gamma_i H_i + \sum_j \sigma_j H_j + \sum_t \kappa_t H_t + \zeta_{ijt} \end{aligned} \tag{D2}$$

9. The results for the structural regressors are reported in the left-hand columns of Table D3. The coefficients are all significant and sensible. Distance, as proxy for transport cost, takes the expected negative sign. It is significantly different from both zero and one. The shared-border effect is positive once again, and the effect of rising tariffs on pattern of trade is negative and significantly different from zero. The trade-diversion effect of quotas is picked up by  $NB_{iUt-1}$ . The theory is straightforward: when quotas are removed, those exporters without binding quotas will find it desirable to diversify to other trading partners. The 0.88 coefficient indicates that this is both significant and sizable effect. The  $QB_{iNjt-1}$  coefficient measures the effect of quota removal on the scope of export partners of countries previously facing binding quotas. Theory suggests that these countries will export more to the countries removing quotas and perhaps export to fewer other trading partners. The coefficient of this variable takes the expected negative sign, but is small and insignificantly different from zero. Finally, the coefficient on the 2006 dummy variable indicates that there was a global increase in the probability of exporting to a country chosen at random – and exporters on average had more trading partners in 2006 than in 2005.

10. The third step examines the value-of-trade regression contingent upon the existence of positive bilateral trade. Quality ( $\hat{\theta}_i$ ) is derived from 1994 trade; importer GDP and population ( $y_{jt-1}$ ,  $l_{jt-1}$ ) proxy for demand conditions. There is a control for the heterogeneity of firms ( $\exp[\omega_5 \rho_{ijt}]$ ) and for selection bias ( $z_{ijt}$ ).

$$\begin{aligned} m_{ijt} &= \hat{\theta}_i + \omega_1 y_{jt-1} + \omega_2 l_{jt-1} + \omega_3 \ln(1+t_{ijt}) + \sum_t \omega_{4t} H_t + \ln\{\exp[\omega_5 \rho_{ijt}]-1\} + \\ &\quad \omega_6 QB_{iUt-1} + \omega_7 QB_{iNUt-1} + \omega_8 NB_{iUt-1} + \omega_9 QB_{Ujt-1} + \sum_j \omega_{14j} H_j + \eta z_{ijt} + e_{ijt} \end{aligned} \tag{D3}$$

11. The value-of-trade equation has one surprise, but otherwise is consistent with theory. The surprise comes in the coefficient of the distance term. We anticipate that greater distance (as a proxy for transport cost) will lead to smaller values of bilateral trade on average, but the coefficient



on this variable is positive – though insignificant. This is certainly driven by the growth in bilateral trade values of the Asian exporters with European and US markets, and may reflect the need for a more sophisticated measure of transport costs to reflect network effects of trade. The effect of importer tariffs on the value of trade is negative, significant and large, as theory would predict. Importer income and population have very similar coefficients to those observed in 1994. There are three effects of quota removal on the value of trade. First, there is the direct effect (indicated by  $QB_{Uji}$ ): when a quota is removed, the bilateral value of trade rises significantly for those exporters that faced a binding quota. Second, there is the trade-diversion effect on exporters without binding quotas. We anticipate that these will sell smaller values on average in new markets to offset the loss of market in the countries removing quota, and the coefficient of -3.43 on  $NB_{iUt-1}$  indicates that the effect is both significant and sizeable. The final effect ( $QB_{inj,t-1}$ ) measures the impact on bilateral trade values in third markets for exporters whose binding quotas have been removed. This would have been negative if there were fixed supply of exports from those countries; the positive and significant coefficient 0.66 indicates that those countries previously facing binding quotas were able both to expand sales into the US and EU and able to expand sales in third markets. The coefficient on the 2006 dummy variable indicates that the average bilateral value of trade fell significantly from 2005 to 2006. The coefficient  $\phi$  is positive and significant, indicating the importance of controlling for selection bias. The coefficient  $\mu$  is positive and significantly greater than zero and one; this indicates that the heterogeneity of firms has intensified, with relatively few high-productivity firms and relatively many low-productivity firms.

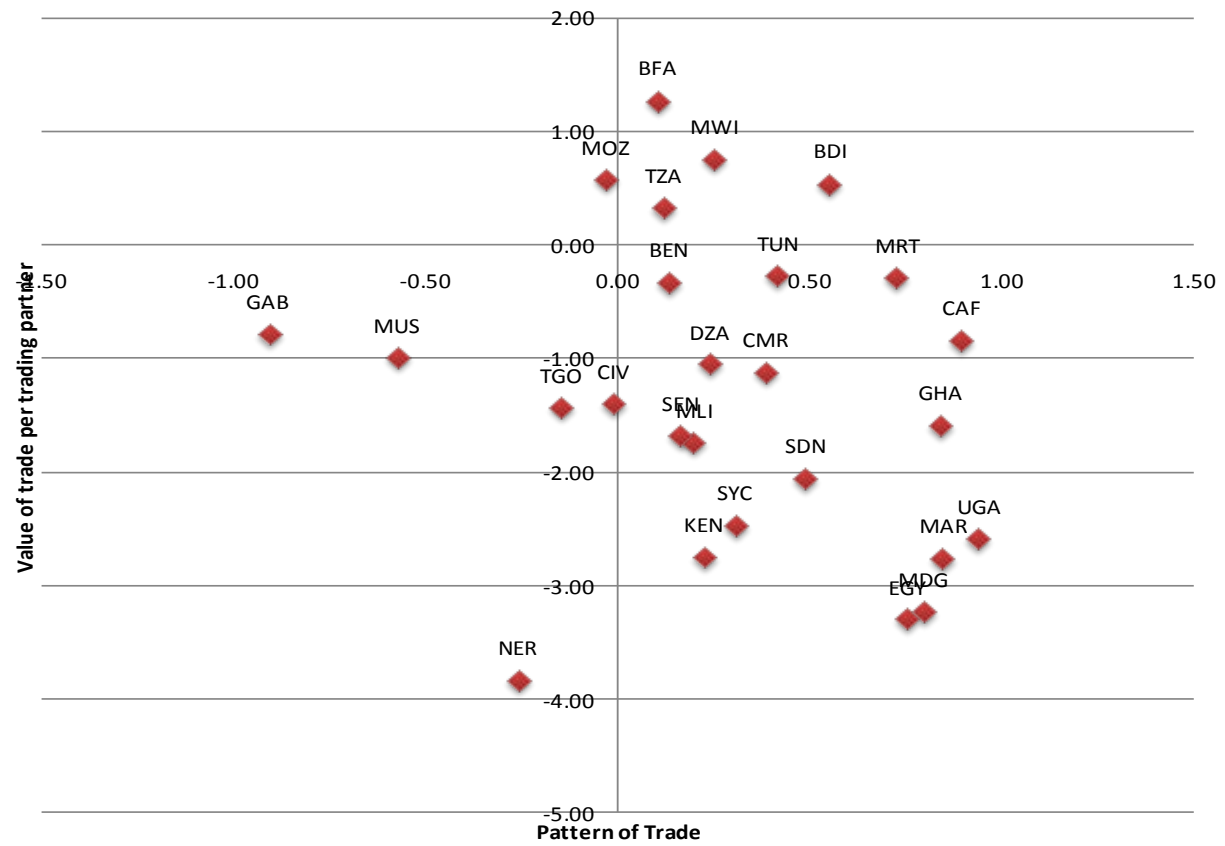
12. The pattern-of-trade and value-of-trade equations represent the central tendency in the data, and it is important that these reflect consistency with the underlying theory. For our purposes, however, it is even more important to see how the African nations did in 2005 and 2006 relative to this central tendency – and to each other. Figure D1 plots the exporter-specific effects from the regressions in Table D3. The horizontal axis indicates the fixed effect from the pattern-of-trade probit: does the country trade relatively with relatively more or fewer countries than on average, given its initial condition in 1994, its geography, size and relation to binding quotas? The vertical axis indicates the exporter-specific fixed effect from the value-of-trade regression: given the structure of trade as specified in the model, do the African nations have larger or smaller bilateral trade values than world exporters on average? The first and third quadrants of the diagram are easy to interpret. Burundi, Malawi, Burkina Faso and Tanzania both had a higher probability of exporting to the average market and had an above-average bilateral value of trade – and thus, after controlling for initial conditions and other factors they have successfully handled the first two years after removing quota. These are all very small exporters to begin with, though, and thus their improvements will have only minor effects on the world market or their local population. At the other end of the spectrum, Gabon, Mauritius, Togo and Niger experienced both a below-average expansion of the pattern of trade and an above-average contraction of the value of bilateral trade. Mauritius is a large exporter for Africa, and so we will examine its firm-level results to search for the reason for this result.

13. For the majority of African nations, the deviation from central tendency places them in the fourth quadrant: above-average expansion in the number of trading partners and above-average contraction in the bilateral trade value with each trading partner. The exemplars of this result are the countries Egypt, Madagascar and Morocco, while Kenya, Senegal and Tunisia are also found in this quadrant. There is a clear trade-off here: the exporters sell into more trading partners, but they

sell less on average in each market. As we noted in the earlier section, these include the countries that have expanded their exports in the wake of quota removal. We will examine in some detail what this strategy implies at the firm level.

□

**Figure D1: Country-specific effects in Africa for the period 2005-2006**



**Table D1: Quota-ridden equilibrium of 1994 – deriving the country-specific initial conditions.**

<b>Random-effect</b>	Coefficient	Standard Error
$\ln(D_{ij})$	-0.97	0.03
$DB_{ij}$	0.14	0.16
$\ln(\tau_{ij94})$	-4.33	1.72
N	15500	
<b>Non-linear</b>		
	Coefficient	Standard Error
$\ln(Y_{jt})$	0.23	0.01
$\ln(L_{jt})$	0.06	0.02
$\ln(1+t_{ijt})$	0.60	6.67
$\ln(D_{ij})$	-0.32	1.51
$\mu$	1.50	1.53
$\varphi$	0.71	0.13
N	4744	
$R^2$	0.87	

The random-effect probit includes exporter-specific indicators and random effects clustered by importer. Standard errors are robust. Each equation included exporter fixed effects; these are the cost-quality ratio and quality indicator reported in Table E2.

<b>Table D2: Initial Conditions in Apparel Trade in 1994</b>						
<b>Pattern of Trade Probit:</b>						
Cost-Quality			Cost-Quality			
Ratio	Exporter	Rank	Ratio	Exporter	Rank	
0.00	CHN	1	3.17	CMR	81	
0.17	USA	2	3.20	CIV	83	
0.30	HKG	3	3.24	GHA	84	
0.32	THA	4	3.30	TZA	86	
0.42	IDN	5	3.51	MOZ	87	
0.51	TWN	6	3.53	MLI	88	
0.54	IND	7	3.61	TGO	90	
0.60	EUR	8	3.69	MWI	93	
0.69	JPN	9	3.73	UGA	94	
0.73	KOR	10	3.73	ZMB	96	
1.65	ZAF	23	3.93	BFA	102	
1.74	MAR	24	3.94	NER	103	
1.78	MUS	25	3.97	BEN	105	
2.00	TUN	30	4.00	BDI	106	
2.02	EGY	32	4.00	DZA	107	
2.29	MDG	45	4.03	GAB	108	
2.72	KEN	60	4.10	CAF	110	
3.00	MRT	74	4.10	SYC	111	
3.15	SEN	80	4.10	SDN	112	
<b>Value of Trade Non-linear Regression:</b>						
Quality Coefficient	Exporter	Rank	Quality Coefficient	Exporter	Rank	
0.14	IDN	1	-2.02	CIV	69	
0.03	MYS	2	-2.21	TGO	75	
0.00	CHN	3	-2.32	MOZ	82	
-0.06	VNM	4	-2.35	KEN	83	
-0.25	TWN	5	-2.44	GAB	84	
-0.31	TUR	6	-2.46	TZA	85	
-0.33	BGD	7	-2.52	GHA	88	
-0.35	HKG	8	-2.55	DZA	90	
-0.40	USA	9	-2.84	SEN	94	
-0.40	URY	10	-2.97	CMR	99	
-0.59	MAR	16	-3.19	BEN	103	
-0.61	MUS	17	-3.29	MLI	106	
-1.00	MDG	23	-3.47	UGA	107	
-1.48	TUN	41	-3.53	SYC	108	
-1.48	CAF	43	-3.69	MRT	109	
-1.51	EGY	45	-3.76	BDI	110	
-1.53	ZAF	47	-4.08	NER	111	
-1.89	MWI	60	-4.17	SDN	112	
-1.91	ZMB	63	-4.51	BFA	113	

**Table D3: Apparel Trade Estimation for the complete sample in 2005-2006.**

	2005-2006		2005-2006
<b>Pattern of trade:</b>		<b>Value of trade:</b>	
$\ln(D_{ij})$	<b>-0.83</b>	$D_{ij}$	0.41
	(0.02)		(0.29)
$BD_{ij}$	<b>0.37</b>	$\ln(1+\tau_{ijt})$	<b>-2.53</b>
	(0.09)		(0.35)
$\ln(1+\tau_{ijt})$	<b>-0.72</b>	$y_{ijt}$	<b>0.21</b>
	(0.28)		(0.004)
C	<b>-0.94</b>	$l_{it}$	<b>0.06</b>
	(0.04)		(0.02)
$NB_{iUt-1}$	<b>0.88</b>	$QB_{Uit}$	<b>2.08</b>
	(0.13)		(0.13)
$QB_{int-1}$	-0.01	$QB_{int-1}$	<b>0.66</b>
	(0.21)		(0.07)
		$NB_{iUt-1}$	<b>-3.43</b>
			(0.45)
		M	<b>2.49</b>
			(0.34)
		$\Phi$	<b>0.61</b>
			(0.11)
		$\Theta$	1.00
			***
$D_{06}$	<b>0.72</b>	$D_{06}$	<b>-0.58</b>
	(0.02)		(0.25)
N	31000	N	14615
$N_{Groups}$	125	$R^2$	0.80
Wald $\chi^2(127)$	<b>8466.6</b>	RMSE	2.40

The pattern-of-trade equation is a random-effects (in importers) probit specification with exporter-specific fixed effects. The value-of-trade equation is a non-linear regression with exporter-specific fixed effects. Significant coefficients are in bold. Robust standard errors are given in parentheses.

## APPENDIX E: PRICE AND QUANTITY IMPACT OF QUOTA REMOVAL IN EU AND US \

1. The EU created a system of over 100 quota categories in the years leading up to and including 2004. In Table E1, the quota categories are reported that individually represent more than 1 percent of total imports. For these, the change in unit value and the change in quantity exported to the EU are reported for both the short term and the medium term. The change in unit value is summarized as a ratio. In the short term, the ratio of 2005 unit value to 2004 unit value gives an indicator of price competition in the wake of quota removal: a value of 1 indicates that unit values are unchanged, while a value less than 1 indicates a reduction in price after quota removal. The difference from 1 indicates the degree of price reduction – for example, a unit value ratio of 0.6 indicates that the unit value in 2005 is 40 percent less than in 2004. The change in quantity is also reported as a ratio: it is the ratio of the quantity exported at the end of the period to the quantity exported in 2004. An expansion of the quantity exported to the EU will register as a value greater than one, while a reduction in export quantity will register as a value below one.

2. We begin our discussion of price competition by examining the short-term unit value ratios for China. In quota category 4 (knit shirts), for example, China's short-term unit value ratio is 0.47. This indicates that the unit value in 2005 is 53 percent below that in 2004. This is typical for the categories reported here: China's unit value ratio is generally well below one. We can contrast this with the unit-value ratios for African exporters (including both Sub-Saharan and North African exporters): these are at best a few percentage points under one, and more often greater than one. We, thus, have no evidence that the African exporters responded to price competition with their own price reductions in the short run. The impact of this is evident in the short-term quantity ratios: China's ratios are for the most part much greater than one, indicating expansions, (often large expansions) in quantity exported. The Africa ratios are for the most part less than one, indicating contractions in quantity exported.<sup>63</sup>

3. The medium-term results tell a similar story. China's unit-value ratios are all well below one (although they tend not to be as low as in the short term results) and its quantity ratios are even higher than in the short term. Africa's unit-value ratios are for the most part above one. Africa's quantity ratios are nearly all less than one. The slight reduction in the value of total African exports between 2004 and 2008 (after adding together Sub-Saharan Africa and North Africa in Table 10 in the text) is a combined effect of lower quantity sold and higher unit value. The "Not Africa" result in Table 10 in the text is dominated by the converse: increased quantities sold at a lower unit value.

4. Consideration of unit values of exports into the US market explains this result in part, but also opens a conundrum. In Table E2, we report the unit value ratio and quantity ratios for the short term and the medium term for three export groupings: Sub-Saharan Africa, North Africa and China. We examine these ratios for 14 quota categories, chosen because they (a) included US imports subject to quotas in 2004 and (b) represented as a category more than one percent of US apparel imports in 2004. The quota categories are ordered in decreasing order by their share in total US apparel imports in 2004 (listed in the second column of the table). The top five categories are

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<sup>63</sup> "Not Africa" as a category includes China. The values for "Not Africa" indicate that there were many other exporters that did not match the price reductions on Chinese apparel, but that on average "Not Africa" passed through greater price reductions than did the two African groups. "Not Africa" also experienced expansions in quantities exported, unlike Africa.

348 (women's trousers), 339 (women's knit shirts), 338 (men's knit shirts), 347 (men's trousers), and 352 (knit underwear) – all using cotton as raw material.

5. In the short term, the unit-value ratios for China are much below one: for example, in category 348 China's ratio is 0.45, indicating a drop of 55 percent in 2005. The unit-value ratios for all these categories range from 0.37 to 0.65: the reduction in unit value is both across the board and quite large. For Sub-Saharan Africa the ratios are rather evenly distributed between just below one and just above one. For North Africa, the unit-value ratios are even higher on average. Given these disparities, the evidence from the quantity ratio in the short term is as expected: China's quantity ratio is at least two, and as high as 16.58. The Sub-Saharan Africa ratios are nearly all below one. The North Africa ratios are sometimes larger, sometimes smaller – recalling they begin from a very low base.

6. In the medium term, the China unit value ratios remain below one, although not as low as they were in the short term. The quantity ratios for China are even higher in the medium term in almost all categories. The unit value ratios for Sub-Saharan Africa are generally below one, though not as low as those of China.

7. The quantity ratios for Sub-Saharan Africa are generally below one, often by 15 percent or more. There are only two categories in which the quantity ratio rose, 340 (men's woven shirts) and 341 (women's woven shirts); for 340 the unit-value ratio is lower than China's (0.89 vs. 0.98) and for 341 the unit-value ratio declines just a bit less than that of China (0.77 vs. 0.59). The conundrum about these statistics arises from the North Africa results. The unit-value ratio for North Africa is larger than one in nearly all categories, indicating that on price-competition grounds North Africa has a poorer position than Sub-Saharan Africa. However, the quantity ratio for North Africa is in all cases greater than one – the quantity sold by North African exporters has risen across the board since 2004.

8. The regression results reported in Table 6 in the text were created using these data, and summarize the results reported here.

Table E1: Price and quantity responses of exporters to the EU market														
Quota category	Percent of observations	Short Term						Medium Term						
		Unit value ratios			Quantity ratios			Unit value ratios			Quantity ratios			
		Africa	Not Africa	China	Africa	Not Africa	China	Africa	Not Africa	China	Africa	Not Africa	China	
4	5.91	0.98	0.89	0.47	0.94	1.25	4.18	0.96	0.89	0.64	0.74	1.25	4.05	
5	9.65	1.01	0.99	0.56	0.93	1.12	6.87	1.05	1.05	0.63	0.96	1.30	13.98	
6	10.95	1.07	0.92	0.53	0.88	1.18	9.20	1.15	0.99	0.74	0.81	1.20	12.61	
7	3.76	1.06	1.07	0.59	0.82	1.03	3.90	1.22	1.10	0.72	1.28	1.41	7.62	
8	1.97	1.01	1.00	0.73	0.95	1.03	3.63	1.15	1.02	0.77	0.85	1.12	6.16	
12	3.9	1.01	0.87	0.48	1.04	1.25	9.93	0.94	0.86	0.77	0.05	0.06	0.54	
13	3.21	0.98	0.85	0.76	0.99	1.21	1.88	1.17	0.81	0.79	0.78	1.39	2.32	
14	3.17	1.09	0.91	0.98	1.03	1.23	1.23	1.16	1.17	1.23	0.98	1.08	1.36	
15	5.64	1.10	1.01	0.82	0.92	1.22	2.75	1.27	1.13	0.92	0.90	1.09	3.45	
16	3.96	1.03	0.92	1.08	1.01	1.04	1.15	1.26	1.11	1.39	0.89	0.89	1.18	
17	2.28	1.02	0.90	1.37	1.04	1.34	1.88	1.17	1.24	1.45	0.84	1.00	3.47	
26	4.8	1.06	1.02	0.32	0.86	1.00	4.32	1.18	1.19	0.45	1.94	2.31	12.42	
28	7.64	1.02	0.84	0.89	0.26	0.27	0.29	1.09	0.79	0.75	0.36	0.41	0.55	
29	4.34	1.18	0.88	0.76	0.62	0.84	1.11	1.46	0.85	0.66	0.47	0.54	0.67	
31	1.24	1.05	0.90	0.71	0.93	1.17	1.90	1.22	0.92	0.83	0.78	1.32	2.61	
78	9.83	1.02	0.79		0.92	1.37		1.19	0.71		0.85	1.93		
83	8.81	1.03	0.83		0.85	1.38		1.13	0.73		0.90	1.81		
157	5.76	0.80	1.12	1.61	1.44	0.82	0.44	0.76	1.41	2.63	4.55	1.16	0.43	
159	2.05	0.96	0.98	0.97	1.34	1.27	1.31	0.52	1.01	1.23	5.32	1.60	1.44	
Removed: quota categories covering less than 1 percent of observations														
Observations reporting measurement in kilos used.														
Unit value ratios report the ratio of unit value in 2005 (Short Term) or 2008 (Medium Term) to the unit value in 2004.														
Quantity ratios report the ratio of the total quantity exported by the group in 2005 (Short Term) or 2008 (Medium Term) to the quantity exported in 2004.														

Source: authors' calculations



Short-Term								
Quota Category	Share of Total US Imports in 2004	Unit Value ratio			Quantity ratio			
		Sub-Saharan Africa	North Africa	China	Sub-Saharan Africa	North Africa	China	
348	11.9	0.98	1.10	0.45	0.85	0.80	9.44	
339	11.5	0.95	0.90	0.42	0.79	0.95	8.92	
338	9.8	0.92	0.98	0.37	0.83	0.95	5.70	
347	9.5	0.97	1.10	0.49	0.90	1.03	7.08	
352	4.8	0.81	0.89	0.38	0.89	1.31	4.84	
340	4.5	1.03	1.01	0.65	0.99	0.99	3.55	
639	4.4	1.07	1.38	0.59	1.01	0.59	3.02	
647	3.4	1.13	1.14	0.56	0.81	1.11	2.69	
648	3.3	0.97	1.56	0.55	0.89	1.69	2.60	
638	2.9	1.04	1.35	0.52	1.06	1.17	4.14	
341	2.7	0.81	1.09	0.58	1.59	0.80	5.85	
635	2.7	1.00	0.53	0.39	0.92	3.35	7.91	
634	2.4	1.06	0.70	0.39	0.76	1.52	6.47	
335	1.9	1.01	1.26	0.40	0.61	0.74	16.58	
Medium Term								
Quota Category		Unit Value Ratio			Quantity Ratio			
		Sub-Saharan Africa	North Africa	China	Sub-Saharan Africa	North Africa	China	
348		0.84	1.25	0.59	0.93	1.14	14.05	
339		0.94	1.06	0.78	0.49	1.30	16.51	
338		1.07	0.94	0.85	0.50	1.65	6.30	
347		0.93	1.48	0.77	0.57	1.15	6.98	
352		0.63	1.74	0.56	0.39	1.88	5.49	
340		0.89	1.57	0.98	1.23	1.19	6.65	
639		0.98	1.12	0.71	0.94	1.31	4.90	
647		1.27	2.56	0.73	0.81	2.10	2.83	
648		1.00	1.92	0.67	0.84	1.70	3.59	
638		1.16	2.23	0.75	0.98	2.16	4.99	
341		0.77	1.11	0.59	1.85	1.46	14.28	
635		1.07	0.60	0.44	0.83	2.01	10.00	
634		0.96	0.62	0.48	0.36	3.70	7.23	
335		0.98	1.11	0.38	0.27	1.35	23.75	
Short Term refers to the adjustment from 2004 to 2005.								
Medium Term refers to the adjustment from 2004 to 2008.								
The Unit Value Ratio is the ratio of weighted-average unit values for all exporters in group over the time period in question.								
The Quantity Ratio is the ratio of total quantity exported in that category by that group for the end over the beginning of that period.								

Source: authors' calculations.

## APPENDIX F. THE DIFFERENCES BETWEEN REGIONAL AND GLOBAL EXPORTERS

We report evidence from the Enterprise Surveys of Kenya, Swaziland and Madagascar.

### A. Kenya

1. The first export incentives by the Kenyan Government were offered in 1990. The export-processing zone (EPZ) program now serves as the focal point of those incentives: it allows complete foreign ownership, and provides exporting firms with a ten year tax holiday and full repatriation of profits. The number of apparel enterprises locating in EPZs in Kenya grew rapidly after AGOA enactment. In 2000 there were only 6 apparel firms in Kenyan EPZs, but by 2004 there were 44 firms (Omolo, 2006). However, after the MFA phase out, several large firms exited, citing increased competition from lower cost producers in China and India<sup>64</sup>. Firms in our sample of enterprises are those remaining in operation in Kenya in 2007.

2. Table F1 provides information about the employment, ownership and export destinations of Kenyan apparel enterprises in the survey; the enterprises are listed in order of increasing employment. The largest-employment enterprises describe what we might call the archetypal Sub-Saharan African firm integrated in the global value chain: foreign-owned, processing 100-percent imported raw material, producing a standardized product (women's jeans) selling all or almost all its product to the US and EU markets.<sup>65</sup> The smaller firms, by contrast, sell domestically and in regional exports: locally owned, with a varied output (school and corporate uniforms, batiks, socks, skirts), not totally reliant upon imported raw material. These are the exporters who are likely to have benefited from regional trade agreements and the expansion of the EAC market.<sup>66</sup> All received government benefits through the EPZ program.<sup>67</sup>

3. There is an important bias involved in examining the behavior of exporting enterprises in the Enterprise Surveys: any firm able to export apparel is by definition a success in international competition. The analytical comparison we'd like to make – between successful firms and failed firms – is precluded by the failed firms dropping from the survey. We can make a related comparison, though: how do exporting firms differ from non-exporting firms within each country? This has policy relevance as well, since an export-oriented strategy will rely for growth on an ability of non-exporters to graduate into exporter status. In what follows, we will contrast non-exporters with exporters along many of the same dimensions used to contrast exporters in the previous section. A vast majority of firms surveyed in most countries comprised of exporters; the non-exporters were typically small tailoring establishments<sup>68</sup>. Kenya is an exception-only 25 percent of firms in the sample reported exporting any part of their output. We examine the characteristics of non-exporters versus exporters, focusing on Kenya.

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<sup>64</sup> Daily Nation, 2006

<sup>65</sup> The largest exporters shifted from multiple product categories into the production of jeans wear exclusively at the request of buyers. (Phelps, Stillwell and Wanjiru, 2008).

<sup>66</sup> Details of the regional trade agreements and their impact on Kenyan firms are discussed in the World Bank Investment Climate Report on Kenya (2007).

<sup>67</sup> All firms except the smallest four reported operating from Industrial or Export Processing Zones.

<sup>68</sup> The local textile and garment industry was destroyed in the 1990s due to liberalization and the influx of cheap imports and used clothing. For a discussion on this, see Jauch and Traub-Merz (2006).

## Box F1

### **MBABANE - The Swaziland Cotton Board (SCB) has put an organic cotton pilot programme on hold this year.**

The SCB spent about E 20 000 in 2009 to purchase two tons of organic cotton seeds from Zimbabwe. The seeds are called quton and are used specifically for organic cotton growing.

The SCB engaged the Tex-Ray Group (owners of the largest apparel enterprise) to carry out the organic cotton pilot programme at Ebuseleni in the Shiselweni region. According to the SCB Chief Executive Officer Tom Jele the pest control aspect at the pilot project was a complete failure, which resulted in the cotton not producing the expected yield. “We had small scale trials of organic cotton production at Ebuseleni where the Tex Ray Group planted about 100 hectares of organic cotton last year.” Organic cotton by nature of the target market cannot be sprayed with pesticides, and the crop at Ebuseleni was rapidly and completely infested by pests.

“The Tex Ray Group said they were pulling out of the programme this year. Therefore we have put it on hold this year,” said Jele.

Source: Times of Swaziland, February 05, 2010

4. Table 6 in the text compares value added per worker relative to labor costs for exporters and non-exporters, highlighting the dispersions within and across these groups. While very low value-added firms are all in the non-exporter category, we see significant overlaps between the two groups for higher productivity firms. Further examination of product categories for non-exporters reveals that very small firms with low value added per worker are likely to be tailoring shops producing women’s clothes. Firms with more than 20 employees are a heterogeneous mix, with the higher value added per worker firms producing men’s suits, silk garments, jeans or uniforms.

5. We see that average capital intensity and value added per worker are both higher for non-exporting firms in Kenya’s garment sector. These firms have specialized in producing niche products for the local market, with high corresponding returns. Costs due to a poor business environment in Kenya are likely to impact exporters and non-exporters equally. As reported in Table F4, almost all firms reported experiencing power outages. Percentage lost due to power outages are slightly lower for exporters compared to non-exporters, even though many more exporters own their own generators, unlike non-exporters<sup>69</sup>. The majority of firms is also likely to be subject to bribery requests by Government officials. As shown in the sections above, exporters face additional costs due to road transport conditions and slow clearance times.

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<sup>69</sup> Ramachandran, Gelb and Shah (2009) provide an extensive discussion of power outages, and reported losses. The higher reported losses by firms owning generators reflects a combination of actual losses due to work stoppages, equipment breakdowns etc and also perceived losses against a hypothetical alternate of inexpensive, grid-supplied power.

Generator fuel is an expensive alternative to grid supplied electricity in SSA-it is not common for firms to use generators as a primary source of power supply.

6. Exporters however, have greater access to finance than non-exporters. 48 percent of exporters reported having loans, compared to 30 percent for non-exporters. Differences in access to short-term finance are even more striking: 65 percent of exporters reported using overdrafts, compared to only 29 percent of non-exporters. This difference remains, even after controlling for firm size differences, and may indicate greater credit constraints for firms serving the domestic market. Improvements in the business environment will have a positive impact on all firms in Kenya.

7. In Table F3, we see that a vast majority of firms in Lesotho, Madagascar and Swaziland are foreign owned; foreign ownership shares are much lower in Mauritius and Kenya. Among comparators, the majority of exporters are foreign-owned only in Indonesia. The ethnic backgrounds of foreign owners for SSA exporting enterprises are presented in Table 18 in the text, and this pattern reinforces the importance of Asian owners in integrating these enterprises into a global value chain.

## **B. Madagascar.**

8. With the removal of ATC quotas, the preferences available to apparel producers in Sub-Saharan Africa through the AGOA legislation and the Cotonou Agreement remain vital to success. The discussion of preceding sections has been based upon data through 2009 at the latest, and in the picture provided there Madagascar has been a successful post-2005 competitor in the US and EU markets. This changed abruptly on December 23, 2009 when the US removed AGOA eligibility from Madagascar following a military coup in that country. According to Reuters ( December 24, 2009):

*President Barack Obama said on Wednesday he has terminated trade benefits for Guinea, Madagascar and Niger, three African countries where democratic progress is threatened by political turmoil. In a statement, Obama said the three countries had failed to make "continual progress" in meeting U.S. requirements for the African Growth and Opportunity Act. "Each of these countries has experienced an undemocratic transfer of power, which is incompatible with making progress toward establishing the rule of law or political pluralism," said a White House official.*

9. This decision had immediate negative consequences for the apparel manufacturers of Madagascar. While a full accounting will require time and analysis, the news reports summarized in Box F2 indicate the scale of this loss.

## **C. Swaziland.**

10. The Kingdom of Swaziland is a small country with a population of 1.1 million. It is a lower middle-income country, with well developed infrastructure links to South Africa and Mozambique. Prior to AGOA, very few firms produced apparel within the country. The domestic market was served by imports from South Africa. After the passage of AGOA in 2001, the Government made aggressive efforts to attract foreign investors into the apparel sector by creating Industrial Zones with ready-made factory shells and all electricity and water privileges. The Government, with historical ties to Taiwan, offered special incentives to attract Taiwanese investors who were linked to global supply chains. Despite Swaziland's higher labor costs compared to other countries regionally (86 cents per hour for production workers, compared to

46 cents in Lesotho and 33 cents in Madagascar), these incentives worked: by 2004 there were several large apparel firms in operation, mainly exporting to the US market. About 30,000 workers were employed in these firms. The number dropped sharply after 2004, with global suppliers shutting down their operations in Swaziland. (Madonsela, 2006). The sector currently employs only around 11,000 workers (Times of Swaziland, 2010). Detailed information on a small number of the remaining apparel firms surveyed in 2006 is presented in Table F2 below<sup>70</sup>.

11. All firms in the export sector are foreign-owned, with the majority of them being from Taiwan. All the Taiwanese firms in the sample are part of global supplier chains<sup>71</sup>. One firm supplying to Malawi reported that 100 percent of its sales were of intermediate products. This firm subsequently closed. Since labor costs remain much higher in South Africa compared to Swaziland, regional trade agreements have helped South African producers in Swaziland supplying into the South African Market. One firm in our sample was subsequently noted to be on an expansion spree, with plans to increase production facilities and add contracts with South African suppliers<sup>72</sup>. Others that continue to supply to the US market continue to complain of higher labor costs in Swaziland. Their future within the country remains driven by Government incentives. As noted by Haan and Stichele<sup>73</sup>,

“After the MFA phase-out, lobbying of the government by the companies has intensified; the factory managers regard the labour regulations as too strict and find that the market conditions require that labour regulations be loosened. According to SIPA, these producers are being pressured by buyers such as Wal-Mart to lower their prices. “There is no way that we can make the garments for the price that Wal-Mart wants to pay”. The companies have been lobbying to decrease the minimum wages and to be able to pay the workers a piece rate. The buyers from the garment industry in Swaziland used the phase-out of the MFA as an extra pressure on the companies to give better prices, and to realise more beneficial government policies. Companies have been asking for certain “incentives” in exchange for their continued production in the country, implying that the country owes them something for their presence. One of the companies in Swaziland, for example, Tex Ray, announced its willingness to set up a textile mill but asked in return for less stringent labour laws and laws on the environment, and for the prices of electricity and water to be halved. They also felt that the government should subsidise the wages”.

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<sup>70</sup> The Swaziland Enterprise Survey available to us included Enterprise names. Information on these was collected through Google online search.

<sup>71</sup> This information was verified through online search of company names.

<sup>72</sup> Swaziland: Fashion International on an expansion spree, January 18, 2007

<sup>73</sup> de Haan and Vander Stichele (2007).

## **Box F2: Madagascar After Loss of AGOA Privileges in December 2009**

The success of many Malagasy apparel firms post MFA phase-out continued to be AGOA driven. Loss of AGOA privileges in December 2009 has led to substantial loss of employment and factory closures, and future success of this sector remains uncertain. As reported in *The Mail & Guardian*, March 21<sup>st</sup>, 2010:

Madagascar's president, the Indian Ocean island is facing stiffer political penalties and economic sanctions that are plunging thousands into poverty.

A deserted garment factory in the capital Antananarivo is one of the recent victims of the forcible power change that prompted the United States to halt a scheme allowing some African countries preferential access to its markets. Since the US suspended the Africa Growth and Opportunity Act (AGOA) in December, factory manager Richard Hurnungee has been struggling to liquidate the Cosmos plant. "Our client turned his back on us as well as my general manager and the financial director," Hurnungee said bitterly, referring to the German Adidas label.

### **Empty boardroom**

"I am left alone in Madagascar to do the liquidation," he added, sitting in an empty board room with a pile of files and a laptop computer before him. In late January, one phone call from the firm's Hong Kong owners halted production of thousands of items of Adidas apparel, and ordered immediate liquidation. At its peak, Cosmos was producing between 450 000 and 500 000 pieces of Adidas sportswear every month. Madagascar has been in a political crisis since the March 17, 2009 power grab by then Antananarivo mayor Andry Rajoelina with the backing of the army. Regional blocs African Union and the Southern African Development Community suspended membership for the vast Indian Ocean island, while Washington halted humanitarian aid to the country after the coup.

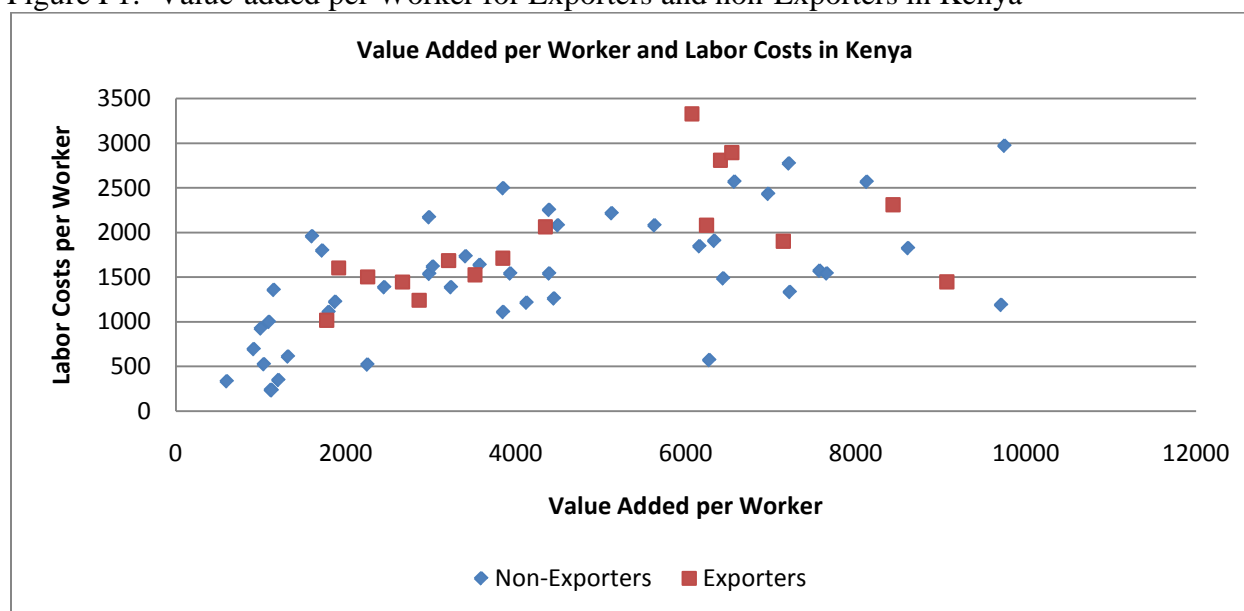
### **Travel bans**

On Wednesday, the AU went further by slapping travel bans and economic sanctions on Rajoelina and scores of his supporters, who defied an AU directive to implement accords to end the protracted impasse. This month, Cosmos's 1 750 staff turned up at the shuttered factory to be paid a paltry 45 000 ariary (€5), half their monthly salary, sparking anger among those who had expected more money. "Our case is in court. The creditors have frozen our assets," Hurnungee said.

Production manager Parvez Jamdaty said: "We have to wait to see if we can sell what we produced or the machines." About 30 factories under the AGOA scheme have been affected by the suspension and nearly 20 000 workers have been laid off. "I have no confidence that AGOA can resume in Madagascar," said Jamdaty. The AGOA programme was set to end in 2015. Alongside Madagascar, Guinea and Niger also saw the US suspend the preferential market access scheme for disregard for democracy.

Up to last year, Madagascar was one of the largest African textile exporters to the United States -- with sales worth US\$250 million, the sector employed at least 50 000 workers directly. In November, Madagascar strongman Rajoelina signed a power-sharing agreement with his political rivals to end the turmoil, but later disregarded the deal. Madagascar is one of the world's poorest nations, where three quarters of the population live on less than two dollars a day. – AFP

Figure F1: Value-added per Worker for Exporters and non-Exporters in Kenya



Source: World Bank Enterprise Surveys (2004-2009)

Table F1: Characteristics of Kenyan Exporters in 2007.

Total Workers	Product	Percent of Imported Raw Material	Share of Exports to US/EU	Share of Regional Exports	Percent of Foreign Ownership	Ownership
10	School Uniforms Protective Clothes	30	0	100	0	Local
11	Staff uniform	10	0	100	0	Local
12	School uniforms and ladies' & men's suit	60	0	100	0	Local
21	Batik garment	70	0	100	0	Local
93	T-shirts and Pullovers	0	0	50	50	Local
105	Corporate Uniform	40	0	90	0	Local
115	Duke Female Socks	60	0	100	0	Local/Indian
150	Jeans	80	10	90	0	Local/Indian
170	Women's Blouses Skirts	40	0	95	0	Local/Indian
180	Garments	0	40	40	0	Local/Indian
193	Polyester Pants Shirts	30	0	100	0	Local
235	Menswear (jeans)	60	0	0	0	Local/Indian
237	Garment	100	0	90	40	Local/Indian
182	Plain Garments	60	100	0	0	Foreign Indian
670	Ladies Wear (polyester suits)	100	80	20	0	Taiwan
1100	ladies wear jeans	100	100	0	100	Taiwan
1165	ladies wear jeans and pajamas	100	100	0	100	China
1300	Ladies wear	100	100	0	100	India/UAE
1750	Trousers (ladies jeans)	100	100	0	100	India/UAE
2750	Ladies wear (jeans)	100	100	0	0	China

Source: World Bank Enterprise Surveys 2006-2007

Note: Some firms also supply into the domestic market. The export shares do not add up to 100 for these firms.

**Table F2: Characteristics of Swaziland Exporters in 2006.**

Total Workers	Percent of Imported Raw Material	Product	Export Destination	Share of Exports to US/EU	Share of Regional Exports	Percent of Foreign Ownership	Ownership
300	100	JEANS	Malawi	0	100	100	Taiwan
325	100	UNIFORMS	South Africa	0	100	100	Indian
445	100	JEANS WEAR	South Africa	0	100	100	African
675	100	SKIRTS	South Africa	0	100	100	African
579	100	T-SHIRTS, PANTS	USA	100	0	100	Taiwan
750	99	SHIRTS	USA	100	0	100	Taiwan
930	100	T-SHIRTS	USA	100	0	100	Taiwan
3162	100	T SHIRTS	USA	100	0	100	Taiwan

Source: World Bank Enterprise Surveys 2006-2007

12. Just as in Kenya, there is a clear distinction in Swaziland between regional exporters and global exporters. The smaller firms sell regionally, in this case to South Africa, while the larger firms sell standardized products (here, T-shirts) to the US market. Unlike in Kenya, all are foreign-owned; also unlike in Kenya, all rely upon imported raw materials. The co-existence of government incentives and AGOA preferences brought about the rapid expansion of large-scale firms in the years before quotas were removed. Once the quotas were removed, incentives and preferences were not sufficient to stop a large-scale withdrawal from the sector. For those that remain, there is either a focus upon the regional export market or an effort to create niche products for the US market that has been unsuccessful to date (see Box F1).

**Table F3: Comparison of Exporters and Non-Exporters in Kenya.**

	Exporters	Non-Exporters
Pct Reporting Outages	96%	88%
Pct lost due to Power Outages	1.94%	2.48%
Pct owning Generators	78%	24%
Pct reporting Bribe Payments required	70%	71%
Pct with Overdrafts	65%	29%
Pct with Loans	48%	30%

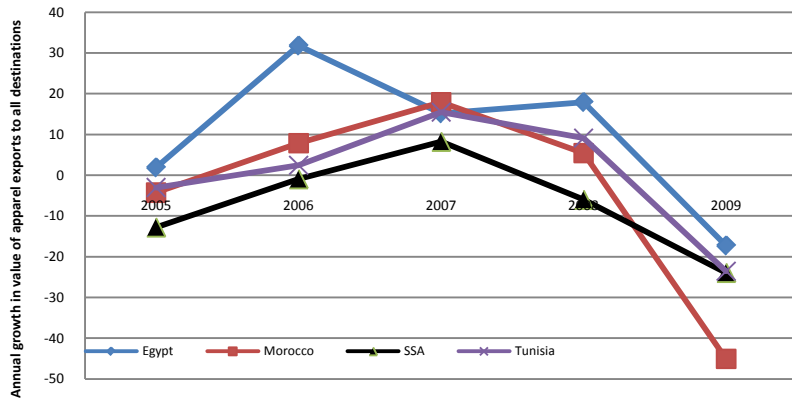


## APPENDIX G. THE “AFTER-SHOCK”: A SECOND REDUCTION IN DEMAND DUE TO THE RECESSION OF 2008-2009.

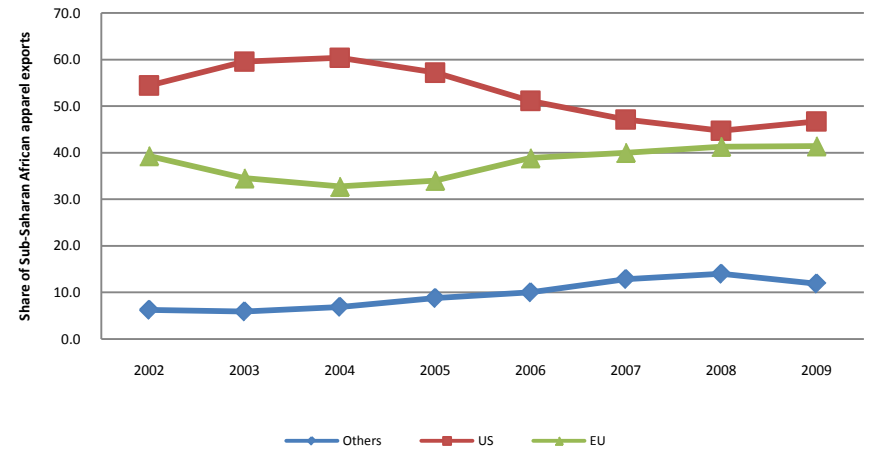
1. Our focus in this report was on the evolution of apparel trade with the removal of ATC quotas. It is important, though, to recognize that African apparel exporters have now been through two negative shocks: the end of “trade diversion” with the ending of the ATC quota system, and the “trade elimination” through demand reduction in the US and EU in the aftermath of the financial crisis of 2008. Figure G1 illustrates the changes in annual exports (measured in value terms) for Sub-Saharan Africa (SSA), Egypt, Morocco and Tunisia to all destinations. As is evident, SSA, Tunisia and Morocco all experienced negative growth in apparel exports in 2005; only Egypt managed to sustain positive growth. The year 2006 was a positive one for the North African countries, and SSA experienced marginally lower export value from the previous year. By 2007 all had positive growth. In 2008, SSA once again experiences reduced export values while the others continue to experience export growth. In 2009, however, there is a marked reduction in export value for all. The year 2009, if these statistics are not revised, was a much worse year for all of these countries than was 2005.

2. Figures G2 through G4 illustrate a degree of diversification in export destination observed for Sub-Saharan Africa, Morocco and Egypt. In Figure G2, it is evident that Sub-Saharan Africa relies heavily upon the US and EU markets. In the years leading up to 2005, there was a shifting of export share away from the EU and toward the US; it is this shift that Perez-Portugal (2008) is measuring in finding the high value of the relaxed rules of origin under AGOA relative to the Cotonou Agreement. In 2005 and thereafter, the share exported to the US falls while the share of the EU rises. There is also a slight gain (5 percentage points) in diversification to other destinations. Morocco, by contrast, relies almost completely on the EU market. As Figure G3 illustrates, the reliance has been reduced since 2005, with other destinations capturing 10 percentage points of export share by 2009. Egypt begins in 2002 with a pattern of (non-) diversification quite similar to that of SSA, as shown in Figure G4. By 2009, Egypt is reliant upon the US for almost the same share of its export market; its sales to the EU have dropped in share, with other destinations taking on 7 additional percentage points of total exports.

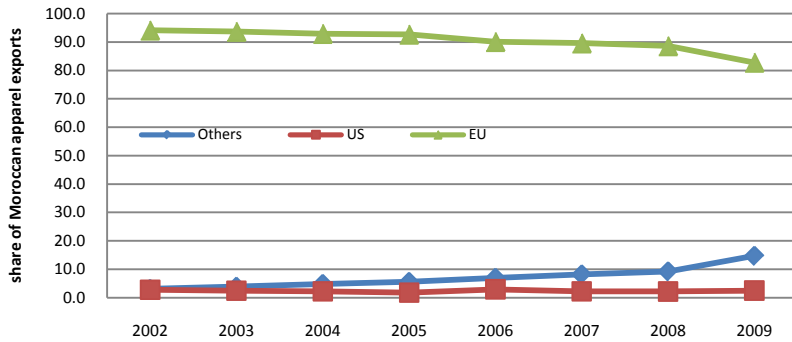
**Figure G1: Growth in Apparel Exports**



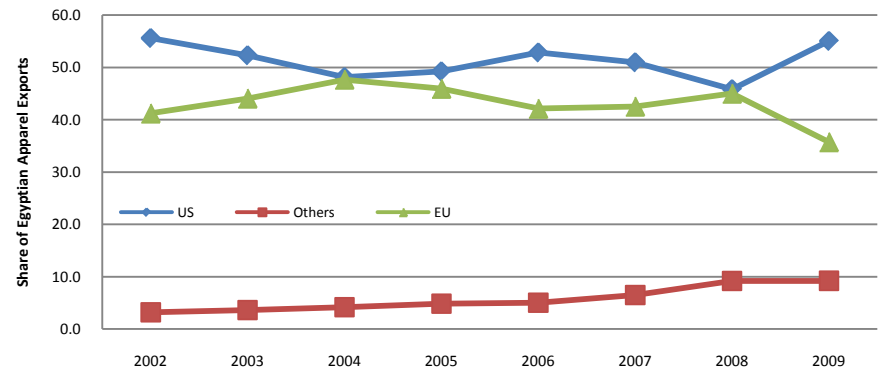
**Figure G2: Sub-Saharan Africa Apparel Exports by Destination**



**Figure G3: Morocco Apparel Exports by Destination**



**Figure G4: Egypt Apparel Exports by Destination**



## BIBLIOGRAPHY.

- Abernathy, F., J. Dunlop, J. Hammond and D. Weil: A Stitch in Time. New York, NY: Cambridge University Press, 1999.
- Arbache, J. and J. Page: “More Growth or Fewer Collapses? A New Look at Long-run Growth in Sub-Saharan Africa”, World Bank Policy Research Working Paper 4384, November 2007.
- Bernard, A. and J. Jensen: “Exceptional Exporter Performance: Cause, Effect, or Both?”, *Journal of International Economics* 47/1, 1999, pp. 1-25.
- Blokker, N.: International Regulation of World Trade in Textiles. Dordrecht, NL: Kluwer Academic Publishers, 1989.
- Bown, C. and M. Crowley: “Trade Deflection and Trade Depression”, *Journal of International Economics* 72, 2007, pp. 176-201.
- Bown, Chad P. (2010). "Taking stock of antidumping, safeguards, and countervailing duties, 1990-2009" World Bank Policy Research Working Paper 5436.
- Brambilla, I., A. Khandelwal and P. Schott: “China’s Experience Under the MultiFiber Arrangement and the Agreement on Textiles and Clothing”, NBER Working Paper 13346, 2007.
- Brenton, P., M. Hoppe and R. Newfarmer: “Economic Partnership Agreements and the Export Competitiveness of Africa”, World Bank Policy Research Working Paper 4627, May 2008.
- Brown, J.: “Imperfect Competition and the Anglo-German Trade Rivalry: Markets for Cotton Textiles before 1914”, *Journal of Economic History* 55/3, 1995, pp. 494-527.
- Cadot, O., C. Carrere, M. Kuenova and V. Strauss-Kahn: “OECD Imports: Diversification and Quality Search”, World Bank Policy Research Working Paper 5285, April 2010.
- Cadot, O., L. Iacovone, D. Pierola and F. Rauch: “Success and Failure of African Exporters”, processed, 2010.
- Cline, W.: The Future of World Trade in Textiles and Apparel. Washington, DC: Institute for International Economics, 1987.
- Conway, P. and M. Fugazza: “Taking in One Another’s Clothing: The Impact of the Removal of ATC Quotas on International Trade in Textiles and Apparel”, processed, 2010.
- Dean, J.: “The Effects of the US MFA on Small Exporters”, *Review of Economics and Statistics* 72/1, 1990, pp. 63-69.

- Dean, J.: “Market Disruption and the Incidence of VERs under the MFA”, *Review of Economics and Statistics* 77/2, 1995, pp. 383-388.
- Eifert, B., A. Gelb and V. Ramachandran: “Business Environment and Comparative Advantage in Africa: Evidence from the Investment Climate Data”, *World Development* 36/9, 2008.
- Evans, C. and J. Harrigan: “Distance, Time and Specialization: Lean Retailing in General Equilibrium”, *American Economic Review* 95/1, 2005, pp. 292-313.
- Farnie, D.: The English Cotton Industry and the World Market. Oxford, UK: Clarendon Press, 1979.
- Farnie, D., ed.: The Fibre that Changed the World: The Cotton Industry in International Perspective, 1600-1900s. Oxford, UK: Oxford University Press, 2004.
- FIAS: “Market Diversification of the Lesotho Garment Industry”, Discussion Draft, 2006.
- Fofack, H.: “Technology Trap and Poverty Trap in Sub-Saharan Africa”, World Bank Policy Research Paper 4582, March 2008.
- Francois, J. and J. Woerz: “Rags in the High-Rent District: The Evolution of Quota Rents in Textiles and Clothing”, Tinbergen Institute Discussion Paper 2006-07/2, 2006.
- Francois, J., M. Manchin, H. Norberg and D. Spinanger: “Impacts of Textiles and Clothing Sectors Liberalisation of Price”, Kiel Institute for the World Economy Final Report 2007-04-18.
- Frankel, J.: “Mauritius: African Success Story”, Harvard Kennedy School Working Paper RWP10-036, September 2010.
- Frazer, G. and J. Van Biesebroeck: “Trade Growth under the African Growth and Opportunity Act”, *Review of Economics and Statistics* 91/1, 2010, pp. 128-144.
- Fukunishi, T.: “Has low Productivity Costrained the Competitiveness of African Firms?”, Discussion Paper 129, Institute of Developing Economies, October 2008.
- Fukunishi, T.: “FDI and Export Participation of Local Firms in Africa: The Case of the Kenyan Garment Industry” Discussion Paper 232, Institute of Developing Economies, April 2010.
- Fukunishi, T. and H. Ramiarson : “Linkages between Foreign and Local Firms in the Malagasy Garment Industry: Overview of the industry and analytical framework”, in T. Fukunishi, ed., African Producers in the New Trend of Globalization: An Interim Report, Chosakenyu Hokokusho: Institute of Developing Economies, August 2010.
- Gereffi, G. and S. Frederick: “The Global Apparel Value Chain, Trade and the Crisis”, World Bank Policy Research Working Paper 5281, April 2010.

- De Haan, E. and M. Vander Stichele: “Footloose Investors: Investing in the Garment Industry in Africa” August 1, 2007. Available at SSRN: <http://ssrn.com/abstract=1660426>
- Hanson, J.: Trade in Transition: Exports from the Third World, 1840-1900. New York, NY: Academic Press, 1980.
- Harrigan, J. and G. Barrows: “Testing the Theory of Trade Policy: Evidence from the Abrupt End of the Multifibre Arrangement”, *Review of Economics and Statistics* 91/2, 2009, pp 282-294.
- Helpman, E., M. Melitz and J. Rubenstein: ““Estimating Trade Flows: Trading Partners and Trading Volumes”, *Quarterly Journal of Economics* 123, 2008, pp. 441-487.
- Iacovone, L., F. Rauch and L. Winters: “Trade as Engine of Creative Destruction: The Mexican Experience with Chinese Competition”, processed, 2010.
- Jassin-O'Rourke Group: “Global apparel manufacturing labor cost analysis, Textile and Apparel Manufacturers & Merchants, 2008”, available at <http://www.tammonline.com/researchpapers.htm>
- Johnson, S., J. Ostry and A. Subramanian: “The Prospects of Sustained Growth in Africa: Benchmarking the Constraints”, IMF Working Paper 07/52, March 2007.
- Kaplinsky, R. and M. Morris: “The Asian Drivers and SSA: Is There a Future for Export-Oriented African Industrialisation?” *World Economy* 32/11, 2009, pp. 1638-1655.
- Lall, S.: “FDI, AGOA and manufactured exports by a landlocked least developed African economy: Lesotho”, *Journal of Development Studies* 41/6, 2005, pp. 998-1022.
- Maddison, A.: Economic Progress and Policy in Developing Countries. New York: W.W. Norton, 1970.
- Madonsela, W. S.: “The Textile and Clothing Industry of Swaziland”, in H. Jauch and R. Traub-Merz, eds.: The future of the textile and clothing industry in Sub-Saharan Africa. Bonn, DE: Friedrich-Ebert-Stiftung, 2006.
- Martin, W.: “Implications for Pakistan of Abolishing Textile and Clothing Export Quotas”, World Bank, 2004.
- Martin, W. and C. Pham: “Estimating the Gravity Model when Zero Trade Flows are Frequent”, processed, 2009.
- Melitz, M. “The Impact of Trade on Intraindustry Reallocations and Aggregate Industry Productivity”, *Econometrica* 71, 2003, pp. 1695-1725.
- deMelo, J. and A. Portugal-Perez: “Rules of Origin, Preferences and Diversification in Apparel: African Exports to the US and to the EU”, CEPR Discussion Paper 7072, December 2008.

- Morris, M.: “Globalisation, China, and Clothing Industrialisation Strategies in Sub-Saharan Africa”, in H. Jauch and R. Traub-Merz, eds.: The future of the textile and clothing industry in Sub-Saharan Africa. Bonn, DE: Friedrich-Ebert-Stiftung, 2006.
- Morris, M.: “China’s Dominance of Global Clothing and Textiles: Is Preferential Trade Access an Answer for Sub-Saharan Africa?”, IDS Bulletin 37, 2006.
- Morris, M. and L. Sedowski:” The competitive dynamics of the clothing industry in Madagascar in the post-MFA environment”, African Clothing and Footwear Research Network, 2006.
- Nordås, H.: “The Global Textile and Apparel Industry Post the Agreement on Textiles and Clothing”, Discussion Paper 5, World Trade Organization, 2004.
- Omolo, J.: “The Textile and Clothing Industry in Kenya”, in H. Jauch and R. Traub-Merz, eds.: The future of the textile and clothing industry in Sub-Saharan Africa. Bonn, DE: Friedrich-Ebert-Stiftung, 2006.
- Ozden, C. and G. Sharma: “Price Effects of Preferential Market Access: The Caribbean Basin Initiative and the Apparel Sector”, World Bank Economic Review 20/2, 2006, pp. 241-259.
- Panagariya, A., S. Shah and D. Mishra: “Demand Elasticities in International Trade: Are They Really Low?” Journal of Development Economics 64/2, 2001, pp. 313-342.
- Phelps, N., J. Stillwell, and R. Wanjiru: “Broken Chain? AGOA and Foreign Direct Investment in the Kenyan Clothing Industry”, World Development 37/2, 2009, pp. 314-325.
- Portugal-Perez, A.: “The Costs of Rules of Origin in Apparel”, UNCTAD Study 39, 2008.
- Ramachandran, V., A. Gelb and M. Shah: Africa's Private Sector: What's Wrong with the Business Environment and What to Do About It. Washington, DC: Center for Global Development, 2009.
- Rajan, R. and A. Subramanian: “Aid, Dutch Disease, and Manufacturing Growth”, Journal of Development Economics, 2010.
- The RATES Center: “Cotton-Textile-Apparel Value Chain Report Mauritius” February 2005.
- Santos Silva, J. and S. Tenreyro: “The log of gravity”, Review of Economics and Statistics 88, 2006, pp. 641-658.
- Staritz, C.: “Competing in the Post-Quota and Post-Crisis World: Global Buyers and the Clothing Sector in Low-Income Countries”, processed, June 2010.
- Sturgeon, T. and M. Kawakami: “Global Value Chains in the Electronics Industry”, World Bank Policy Research Working Paper 5417, 2010.
- Trela, I. and J. Whalley: “Global Effects of Developed-Country Trade Restrictions on Textiles and Apparel”, Economic Journal 100, 1990, pp. 1190-1205.

- Jauch, H. and R. Traub-Merz, eds.: The future of the textile and clothing industry in Sub-Saharan Africa. Bonn, DE: Friedrich-Ebert-Stiftung, 2006.
- USAID: “Factory Level Value Chain Analysis of Cambodia’s Apparel Industry”, prepared by Nathan Associates Inc. and Werner International, September 2007.
- USAID: “Improving Productivity in Egypt’s Ready-Made Garments Sector”, Trip Report, 2009.
- US International Trade Commission, “Economic Effects of Significant US Import Restraints”, Report 3519, June 2002.
- US International Trade Commission: “Export opportunities and barriers in African growth and opportunity act-eligible countries”, Publication 3785, 2005.
- US International Trade Commission: “Sub-Saharan African Textile and Apparel Inputs: Potential for Competitive Production”, Investigation No. 332-502, 2009.
- Viner, J.: The Customs Union Issue. London, UK: Carnegie Endowment for International Peace, 1950.
- World Bank: Accelerated Development in Sub-Saharan Africa. Washington, DC: World Bank, 1981.
- World Bank: Toward Sustained Development in Sub-Saharan Africa. Washington, DC: World Bank, 1984.
- World Bank: Financing Adjustment with Growth in Sub-Saharan Africa. Washington, DC: World Bank, 1986.
- World Bank: Investment Climate Assessments, Africa Region, Various years.
- World Bank: “Vertical and Regional Integration to Promote African Textile and Clothing Exports a Close Knit Family?”, Report No. 39994 - AFR, PREM 1, Southern Africa, Africa Region, 2007.
- World Bank: “Firms’ Productive Performance and the Investment Climate in Developing Countries-An Application to MENA Manufacturing”, Policy Research Working Paper No.4869, March 2009.
- World Bank: “Trade Crisis and Recovery-Restructuring of Global Value Chains”, Policy Research Working Paper 5294, 2010.
- World Development Indicators, World Bank, Washington, D.C., 2010.
- World Bank: Temporary Trade Barrier Database , at <http://econ.worldbank.org/ttbd/>

Yang, Y., W. Martin and K. Yanagishima: “Evaluating the Benefits of Abolishing the MFA in the Uruguay Round Package”, chapter 10 in Hertel, T., ed.: Global Trade Analysis. Cambridge, UK: Cambridge University Press, 1997.

Yoshino, Y.: “Domestic Constraints, Firm Characteristics, and Geographical Diversification of Firm-Level Manufacturing Exports in Africa”, World Bank Policy Research Working Paper 4575.