DISCUSSION PAPER SERIES

RETHINKING TRADE PREFERENCES: HOW AFRICA CAN DIVERSIFY ITS EXPORTS

Paul Collier and Anthony J. Venables

DEVELOPMENT ECONOMICS

Centre for Economic Policy Research

www.cepr.org

RETHINKING TRADE PREFERENCES: HOW AFRICA CAN DIVERSIFY ITS EXPORTS

Paul Collier, University of Oxford
Anthony J. Venables, University of Oxford and CEPR

ABSTRACT

Rethinking Trade Preferences: How Africa Can Diversify its Exports*

This paper argues that the contribution of trade preferences to economic development needs to be reappraised in light of the growth of globalized trade in manufactures. Trade preferences may be able to act as a catalyst for manufacturing exports, leading to rapid growth in exports and employment. To do so, preferences need to be designed to be consistent with international trade in fragmented 'tasks' (as opposed to complete products) and need to be open to countries with sufficient levels of complementary inputs such as skills and infrastructure. Recent experience with the African Growth and Opportunities Act shows that, in the right conditions, Sub-Saharan African countries have had large manufacturing export supply response to trade preferences.

Paul Collier
Centre for Studies of African Economies
Department of Economics
University of Oxford
Manor Road
Oxford OX1 3UQ
Email: paul.collier@economics.ox.ac.uk

Anthony J. Venables
Oxcarre
Department of Economics
University of Oxford
Manor Road
Oxford OX1 3UQ

Email: a.j.venables@lse.ac.uk

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=106116

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=101393

1. Introduction:

Trade preferences for developing countries continue to be a major part of the world trading system. Under the Generalised System of Preferences (GSP) developing countries have access to most OECD markets, and historical ties have been recognised in schemes such as the EU's Lome and Cotonou agreements. Recent years have seen several major extensions of preference schemes. The EU's Everything but Arms (EBA) scheme, initiated in 2001, gave duty free access to least developed countries (LDCs) in (almost) all products. The US introduced the African Growth and Opportunities Act (AGOA) in 2000, improving market access for eligible Sub-Saharan African (SSA) countries. The US also operates the Caribbean Basin Initiative and the Andean Trade Promotion Act. [1]

These schemes have two main elements. One is the trade preference – the granting of market access at reduced tariff rates and with less restrictive quotas, possibly going all the way to duty and quota free market access. The other is the constraints on participation. These define eligible countries and products, and also impose rules of origin (ROOs). There has frequently been a tension between these elements, with the constraints severely reducing the effectiveness of preferences as an instrument of economic development. These constraints are likely to be particularly important for manufactured products, and redesign of preferences is needed if they are to facilitate developing country participation in a globalised world trading system.

The benefits of trade preferences accrue through two mechanisms. The one usually emphasized is a transfer of rent to recipient (developing) countries. Instead of being received by the developed country importer as tariff revenue or quota rent, the preference margin is instead transferred to producers in exporting countries. The magnitude of the rent transfer has been calculated by various researchers. A recent study estimates an upper bound (preference margins times the value of trade) of around $11bn pa, of which around $500mn goes to least developed countries[2].

However, preferences can also generate benefits through a second mechanism: there may be a significant export supply response, creating employment in developing

---

[1] Both the EU and the US also have regional integration agreements extending preferences on a reciprocal basis, and the EU is moving towards replacing its Cotonou agreements with such Economic Partnership Agreements. Our focus is on unilateral rather than reciprocal preferences, although some of our policy messages will apply to both.

[2] Hoekman, Martin and Primo Braga (2006) drawing on Low, Piermartini and Richtering (2005). See also Olarreaga and Ozden (2005) for an application to preferences in the apparel sector.

countries. This is the focus of the present paper. While the rent-transfer mechanism depends upon the existing quantity of exports, the supply response mechanism depends upon the potential of unrealized opportunities. For Africa, which is our geographic focus, this distinction between actual and potential exports approximates to that between agriculture and manufactures. Africa's rents from trade preferences depend upon market access for its existing agricultural exports, whereas preferences in manufactures might enable the region to break into markets that it has scarcely entered. Of course, rents for agricultural exports will also generate some quantity effect. However, the potential magnitude of the quantity effect is far greater in manufacturing exports. One reason for the greater potential is liberation from diminishing returns to scale. Production of manufactures for the domestic market encounters diminishing returns due to the constraint of small market size. Traditional agricultural and resource-based exports encounter diminishing returns because of limited endowments of suitable land and hence declining resource base per worker. By contrast, employment in manufacturing exports can be expanded without running into diminishing returns to scale due to markets or endowments. The other reason for the greater potential is that manufacturing exports are subject to scale thresholds which can generate multiple stable equilibria. The scale thresholds arise because of well-documented external economies that advantage those firms that are located within a cluster of similar firms. Potentially viable export locations may be uncompetitive relative to established clusters and so never develop unless induced. Hence, not only may trade preferences in manufactures generate a large supply response, they may switch a location to a new equilibrium and so have permanent effects even if only implemented temporarily.[3]

The importance of manufacturing and other modern sector exports to the wider process of economic growth is now supported by a good deal of evidence. The Asian experience is well documented, and a number of recent studies point to the role of exports in growth accelerations (Hausmann, Pritchett and Rodrik 2005). Jones and Olken (2006) identify growth accelerations, and show that these are associated with an average 13 percentage point increase in the share of trade in income (over a 5 year period) as well as an acceleration of the rate of transfer of labour into manufacturing.

---

[3] Computable general equilibrium studies of trade preferences include both rent and supply effects, but typically ignore the potential of scale thresholds. See for example Karingi et al (2007) for a recent example.

Pattillo et al (2005) point to the association between growth accelerations and trade growth in sub-Saharan Africa.

How can trade preferences be designed to maximise their effectiveness in stimulating a manufacturing supply response? The argument developed in this paper is that manufacturing supply response is not a simple matter of moving up a supply curve, but depends on a wide range of complementary inputs, some of which can be imported and some of which have to be developed domestically, often involving increasing returns to scale. Trade preferences can have a catalytic role, but will only perform this role if they are designed to allow import of complementary inputs, and to operate in countries with the skills and infrastructure to be near the threshold of global manufacturing competitiveness.

Our argument is based on several analytical strands of work and on empirical evidence from recent preference schemes. The analytical strands argue that modern sector export growth is characterised by 'fragmentation' of production and by increasing returns to scale, typically external to the firm. These ideas are developed in section 2. Section 3 presents empirical work based largely on the experience of AGOA which, with relatively liberal ROOs in apparel, has seen rapid growth in exports of some participating countries. Section 4 draws conclusions, arguing that appropriately designed trade preferences can make a much more significant contribution to development than is suggested by existing literature.

2. Modern sector trade and growth:

Modern sector production is not simply a matter of transforming primary factors into final output. It requires primary factors and many other complementary inputs, ranging from specialist skills and knowledge to component parts. These are frequently supplied by many different countries, with design, engineering, marketing and component production occurring in different places – a process known as fragmentation of production. Furthermore, productivity levels in these different activities are not exogenously fixed. They are shaped by learning and by complementarities with other activities. These processes often give rise to increasing returns to scale, and imply that clusters are more productive than is dispersed activity.

We briefly review existing literature on both these aspects of modern sector production.

2.1 Fragmentation:

Fragmentation – otherwise known as unbundling or splitting the value chain – refers to the fact that the different stages involved in producing a particular final good are now often performed in many different countries. Particular 'tasks' may be outsourced (or off-shored) and can be undertaken in different places. This occurs in response to productivity or factor price differences, and may take place within a single multinational firm or through production networks of supplier firms.[4] Although widely reported, solid evidence on the extent of fragmentation is quite hard to obtain. A good survey is contained in Grossman and Rossi-Hansberg (2006), whose discussion includes the fact that the share of imports in inputs to US goods manufacturing has doubled to 18% over a twenty year period. To put this number in perspective, the US is by far the world's largest economy so that opportunities for competitive domestic sourcing of inputs are evidently radically superior to those in the typical African economy.

Fragmentation means that comparative advantage now resides in quite narrowly defined tasks. For some products tasks may be undertaken in parallel and then 'assembled' in a single place. For others a sequential production process still applies, under which each task adds value to a product that crosses borders at each stage. In this case the partially complete product is an essential input to the task to be performed at the next stage. The effect of tightly restrictive ROOs is to prohibit participation in production processes of this type. Countries are unable to use preferences to exploit a comparative advantage in a narrowly defined task, instead having to undertake a wide range of tasks domestically to meet ROO requirements.

2.2 Increasing returns to scale and market failure

Analyses of market failures in manufacturing development have a long history. They underpinned much of the theory of shadow pricing developed in the 1960s and 1970s. More recently they have re-entered mainstream literatures on trade theory and

---

[4] See Arndt and Kierzkowski (2001) for discussion of this, and for more recent treatments see Markusen and Venables (2007), Grossman and Rossi-Hansburg (2006).

industrial organisation with the development of models of trade with increasing returns to scale and models of complementarity and coordination failure.

Increasing returns to scale may be internal to the firm as costs fall with longer production runs and learning by doing. They are often external, meaning that firms in a particular location gain from the presence of other firms in related activities. One set of mechanisms creating these external returns to scale is technological externalities arising as firms learn from other firms, observing and borrowing best practise technique. These technological spillovers have been extensively researched in the industrial organisation and spatial economics literatures, and they are typically found to be important, particularly in high-tech industries, and to be spatially concentrated. Notice that the knowledge discovered need not be sophisticated technology – it might simply be discovery of the fact that it is possible to undertake a particular type of business profitably in a particular location. This has a demonstration effect which underlies theories of social learning and which Hausmann and Rodrik (2003) have termed 'economic development as self-discovery'.

In addition to technological externalities there are a number of pecuniary externalities associated with provision of complementary inputs. As a cluster of firms grows so specialist input suppliers develop, markets for intermediate goods become thicker, transport and infrastructure support improves, and workers have a greater incentive to acquire skills.[5] For example, consider a downstream industry that requires specialist inputs from upstream firms, or specialist skills from its workers. If there is a single firm in the downstream industry there will be no incentive for upstream suppliers or workers to invest in improving quality or acquiring skills, since they will be 'held-up' by the monopsony power of the downstream firm. The complementarity is evident; it is only once the downstream industry is large enough that there is an incentive for its suppliers to upgrade and thereby raise the productivity of the combined operation.

There is a good deal of empirical work establishing the importance of thick market effects. Productivity is higher in areas of dense economic activity, and work on cities suggests that, over a wide range of city sizes, each doubling of size raises productivity by 3-8% (see the survey by Rosenthal and Strange 2005). The effects often operate over quite a small spatial range – within a city or travel-to-work area.

---

[5] See Duranton and Puga (2005) for a survey of the micro-economic mechanisms underlying clustering.

The benefits may be shared among a number of sectors (as with improved transport or more regular shipping services) but are often quite sector or task specific, as in sectoral clusters in financial services, film production, or electronics.

An important consequence of spatially concentrated increasing returns is that comparative advantage is, in part, *acquired* rather than fundamental. A particular location may have no inherent advantage in a sector or task, but as a cluster starts to develop so costs fall, creating the comparative advantage.

2.3 Implications – lumpy development

The facts of fragmentation and of increasing returns to scale imply that modern sector export growth is likely to be uneven or 'lumpy' in three senses; in product space, in geographical space, and in time. Lumpiness in product space arises as the acquired comparative advantages of learning and clustering may be narrowly concentrated in a few tasks, implying that countries may come to specialise in a very narrow range of activities. Lumpiness in geographical space means that activity may be concentrated in small spatial areas – cities will acquire particular specialisations. And lumpiness in time means that there are threshold effects; establishing a new activity in the face of existing competition may be quite difficult, but once it gets established costs start to fall and growth can become extremely rapid.[6]

All three of these aspects of 'lumpiness' are illustrated by recent experience. Hausmann and Rodrik (2003) draw attention to the very narrow specialisation of many countries; both Pakistan and Bangladesh have more than one quarter of their total exports concentrated in just three (different) 6-digit product lines.[7] Spatial concentration is apparent from the rapid growth of urban areas and of clusters of activity (eg Henderson 2002). An extreme example of product and spatial concentration is the city of Qiaotou, producing 60% of the world's buttons. As for rapid growth, Bangladesh shipped its first consignment of garments to the US in 1978, had exports of $600mn by 1990 and more than $6bn by 2005, employing 2.5 million people.

What are the implications of these facts for a region with abundant skilled labour and low levels of both hard and soft infrastructure, such as sub-Saharan

---

[6] For further development of these ideas see Burgess and Venables (2004) and Puga and Venables (2006).

[7] The 6 digit classification is highly disaggregated – eg one of Bangladesh's three categories is 'hats and other headgear – knitted or from textile material not in strips'.

7

Africa? Successful participation in production networks and fragmented production processes requires a business environment that delivers security, contract enforcement, and protection from predation. It also requires a level of infrastructure that can support continuous production and reliable delivery. However, the fact of spatial concentration means that it is not necessary that high quality infrastructure be provided everywhere – it can be provided in selected areas or in special economic zones. This is positive for Africa since it economises on these scarce inputs. Infrastructure (and institutions) can be targeted so that some areas work well, and this is more efficient than spreading infrastructure at a uniformly low level.

The fact that globalisation enables countries to specialise on a narrow product or task range is also positive for Africa. Instead of having to learn and acquire comparative advantage in all stages of a product's production, fragmentation makes it possible to progress incrementally, first learning narrow tasks – such as production of a particular type of garment using imported textiles and yarn. However, barriers to trade in intermediate goods are a critical obstacle to this. The barriers may arise because of domestic import restrictions, because of high trade costs due to geography and infrastructure, or because of rules of origin. They all have the effect of inhibiting participation in global production networks.

The temporal lumpiness of modern sector growth is also problematic. Coordination failures mean that getting started is hard, and it is only once a threshold has been passed that increasing returns start to reduce costs. This calls for some sort of catalytic action to overcome initial obstacles and get to the threshold level.

2.4 Trade and industrial policy

What implications follow for trade and industrial policy in general, and trade preferences in particular?

Past African discussion of industrialization strategies has generally focused upon the trade policies of African governments. Changes in African trade policy would indeed be a necessary part of catalytic action, but not in the form most commonly envisaged. For an African-based firm to succeed in exporting a manufacturing 'task' it would need to be able to import without restriction all the complementary upstream tasks. Hence, the catalytic trade policy for African governments is to remove their current tariffs on manufactured inputs. For example, in West Africa, ECOWAS imposes a uniform 10% tariff on all such inputs. While

8

10% may appear modest, suppose that in the absence of trade impediments an Africa-based firm would choose to import inputs constituting half of the value of its output, so that the tariff raises its total costs by 5%. Now consider what this implies for what the firm can afford to pay as labour costs. Even in labour-intensive manufacturing, labour costs typically only constitute around 16% of total cost. Hence, to keep its total costs constant in the face of the tariff on inputs, the firm would need an offsetting reduction in its labour costs to 11%. Thus, to compete with firms based in a location that was identical other than that it did not impose tariffs on inputs the firm would need to pay wages that were around one third lower. Of course, Africa's problem arises precisely because its locations are *not* currently identical to those of Asia – they have higher costs due to the lack of clusters. Tariffs on inputs intensify the problem rather than resolve it.

Should an astute government adopt a tariff structure with zero tariffs on inputs but positive tariffs on final goods? There are several reasons why such a strategy would also fail. First, the country's niche in the long chain of manufacturing 'tasks' that eventually generate a final product is unlikely to be precisely the final 'task'. For any task prior the protection would be useless. And products which are 'final' to one industry are 'inputs' to another industry. As the above examples demonstrate, modern manufacturing niches are so specialized that the domestic market for them in the typical African country is too small to be a significant inducement to relocation. How important is the prospect of a price premium in the Senegalese market for buttons in determining whether firms selling on the global market should relocate their production from Qiaotou? Even in the unlikely event that such protection would be significant, the political difficulties for the Senegalese government of imposing high tariffs on buttons alongside free trade in all the myriad inputs that button producers want to use would surely be overwhelming.

An alternative style of industrial policy for an African government would be to subsidize the costs of production rather than protect the domestic market. But such policies have a poor track record. As a claim on government expenditure it would have to compete with manifestly pressing social needs. Further, the most conventional form of subsidy, tax incentives for investment, subsidizes capital and this can be at the expense of employment. Untargeted production subsidies would be expensive because existing production for the domestic market would qualify, but targeting requires information that is typically not available to government, and a degree of discretion

that risks eliding into corruption.[8] Perhaps the most effective way of targeting a subsidy towards exporting firms is to provide good quality infrastructure for geographically-defined export zones, but since Asian governments already do this, it may be merely a necessary but not a sufficient condition for inducing relocation.

Unlike these forms of industrial policy, trade preferences in OECD markets are not under the control of African governments; like aid, they are an instrument of development policies under the control of OECD governments. However, they have some major advantages over the policies that are available to African governments to provide the (temporary) advantage needed to get cluster formation. First, they are relatively immune from recipient country political economy problems, since they are set by foreign, not domestic government. Thus, there is no way in which their level can be escalated in support of failing firms. Second, since trade preferences support exports, they offer a performance based incentive – firms benefit only if they export. Firms therefore face the discipline – on quality as well as on price – imposed by international competition. Rodrik (2004) argues that this discipline was an important positive factor underlying the success of export oriented strategies, as compared to import substitution. Finally, they are fiscally costless to African governments and virtually costless to OECD governments and so compete with neither government spending on social needs nor aid.

Is there any evidence that trade preferences have had a positive effect on modern sector production? Before answering this question we need to be clear about what effects we expect. Preferences will be valuable if countries are able to participate in fragmentation and production networks. This is facilitated by liberal ROOs and by geographical proximity, as well as by standard determinants of comparative advantage. Even if these circumstances are met, their effects might be 'lumpy' – concentrated in a few sectors, regions, or countries, and only setting in above some threshold.

In the next section we present analysis of the effects of AGOA and EBA on exports, but before doing this it is worth reviewing experience under other preferential trade schemes.   The most successful such scheme has been the EU itself, where newly joining countries have generally experienced rapid growth of exports and of income as a whole. However, the EU extends far beyond trade preferences and so

---

[8] See Rodrik (2004) for discussion of these issues.

schemes that are purely concerned with trade and apply to developing countries are more pertinent.

NAFTA has had a strong effect on Mexican exports to the US, with exports growing five-fold in twelve years. This has lead to increased employment in the border region, although the controversial issue is whether it has had significant repercussions for the rest of the Mexican economy (Hanson 2004). The ASEAN Free Trade Area has been relatively successful in enabling low-income members (Cambodia and Laos) to participate in production networks with the middle- and high-income members (Indonesia, Philippines, Malaysia, Thailand, Singapore). It is notable that the ROOs are relatively straightforward and allow for cumulation across a wide range of member countries (see Cadot and de Melo 2007).

Mauritius is the only African country to have decisively penetrated global markets in manufacturing, in the process transforming itself from an impoverished sugar island to Africa's highest income economy. Famously, this performance defied the forecast of Nobel Laureate James Meade that the country was condemned to poverty. Subramanian and Roy (2003) investigate the reasons for the take-off. They find that export manufacturing success was the foremost proximate reason for economic success. In turn, the success in manufacturing was triggered by two coincident strategies. The Mauritian government granted duty-free inputs for manufactured exports and Subramanian and Roy find this to have been quantitatively important. However, they find that the OECD decision to grant Mauritius trade preferences in garments through the multi-fibre agreement (MFA) was even more important. Crucially, the MFA gave Mauritius privileged access to OECD markets relative to established Asian producers. The MFA ended in 2004 but Mauritius is now well-established in OECD markets and has gradually shifted to more complex manufacturing 'tasks'. The temporary preference scheme was thus critical in permanently transforming the Mauritian economy.

3. Empirics: AGOA; a natural experiment

The cleanest 'natural experiment' which enables study of the effects of trade preferences – and in particular of ROOs – is the African Growth and Opportunities Act (AGOA) which gives trade preferences to African countries in the US

market.[9,10,11] This offers duty free access for a wide range of products. Importantly, AGOA is not restricted to LDCs, and is currently available to 38 African countries, including Kenya, Nigeria and South Africa[12]. AGOA ROOs are strict (varying across products, but generally with inputs having to come from the US or other AGOA countries). However, they were relaxed for apparel under the 'special rule' clause. This allows eligible countries to use fabric imported from third countries in their apparel exports to the US so that the ROO is just a 'single transformation requirement' (i.e., that the transformation from fabric to garment is undertaken in the eligible country). This special rule is temporary and has been renewed under a series of waivers, most recently in December 2006 when the expiry date of end 2007 was pushed back to 2012. The special rule now applies to 25 African countries (including Kenya and Nigeria, but not South Africa).

Study of the effects of AGOA is particularly informative, as it can be compared with the EU's trade preferences under the Cotonou agreement and EBA. These are in many respects similar, but (a) have more restrictive ROOs for apparel, and (b) a somewhat different country coverage, only Least Developed Countries being eligible. The rationale for this restricted eligibility is that they are the countries that need it most. However, being the most lacking in skills and infrastructure, they are also the African countries least likely to be near the threshold of global manufacturing competitiveness.

3.1 Descriptive evidence

We focus attention on the apparel sector, sub-Saharan African exports of which are illustrated in figure 1. The solid lines give exports of apparel from the region, excluding Mauritius. Exports to the US and the EU (defined throughout as the EU15, see appendix) were of similar values during the 1990s, but since then exports to the US have quadrupled from $400mn to $1.6bn, while exports to the EU, including those under EBA have stagnated. The dashed lines give exports from Mauritius. Exports from Mauritius to the US have stagnated throughout the period while EU imports

---

[9] See http://www.agoa.gov/ for details

[10] Several other studies look at the effects of AGOA, notably Matto et al (2003), Brenton and Ikezuki (2005), Olarreaga and Ozden (2005), Brenton and Ozden (2006) and Frazer and van Biesebroeck (2005), discussed more fully below.

[11] For comprehensive analysis of the operation of ROOs see Cadot et al (2006) and Cadot and de Melo (2007).

[12] For details of eligibility see http://www.agoa.gov/eligibility/country_eligibility.html.

soared in the first half of the 1990s for reasons discussed above, and have been constant since.

Figure 1.   Apparel exports from SSA, $ Mn

Year	SSA to US, excl. Mauritius	Mauritius to EU	SSA to EU, excl. Mauritius	Mauritius to US
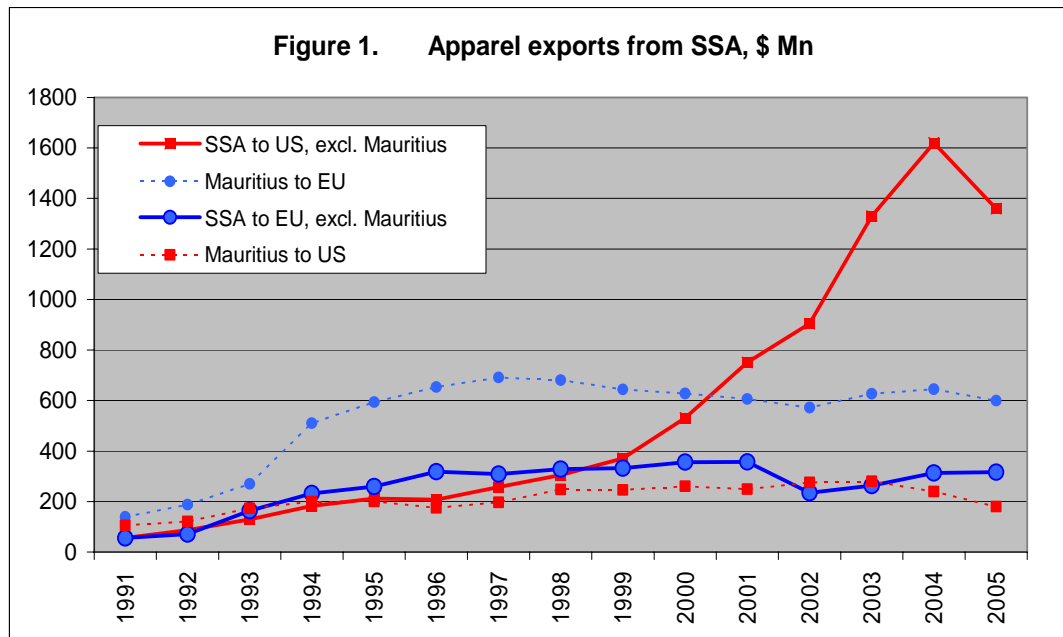
Source: UN Comtrade

The growth of exports to the US has been concentrated in a few countries, as illustrated in figure 2. The bottom line is exports from Kenya, now amounting to some $270mn pa, and the difference between this and the line above is Madagascar, with exports to the US of around $300m pa. SACU exports have reached $700mn pa and Mauritius's exports have held around the $250mn pa level. The combined apparel exports to the US of all other SSA countries is only some $50mn pa, although within this there are some very fast growing totals, such as Malawi.

Figure 2. Apparel exports to US from SSA, $Mn
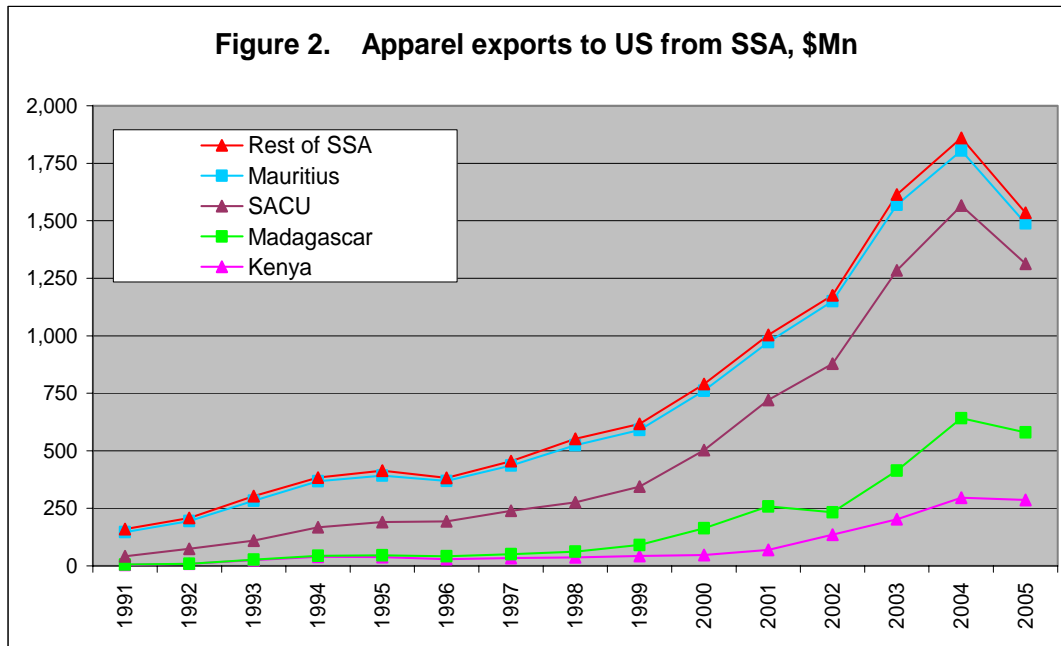
Source: UN Comtrade.

3.2 Country narratives:

Kenya: Kenyan apparel exports to the US went from $40mn in 1999 to $270 mn in 2005, this comparing to total goods exports of $2.8bn. Apparel exports to the US employs over 30,000 workers accounting for 15% of formal sector manufacturing employment. Apparel production is largely based in a number of special economic zones, within which it makes up 90% of employment.

Madagascar: For eight months during 2002 political disturbance closed the port used by the Export Processing Zone and consequently drastically reduced its activity. The Zone thus has two phases, the expansion of the 1990s, and the recovery of the present decade. Launched at the beginning of the 1990s to take advantage of the MFA, the zone expanded to generate 300,000 jobs by the time of the political interruption. Given that the entire population of the country was only 15mn, this was a considerable addition to formal employment. Following the collapse of activity during the export blockade and the prospective phase-out of the MFA there was a prospect that firms would not return to the zone. Indeed, just as the MFA had produced a coordinated development of the cluster, the blockade produced a coordinated exit.

However, AGOA was sufficient to trigger a strong recovery. Total exports of goods under AGOA are now $740mn (of which apparel is $300mn).

SACU: The position with SACU is given in figure 3. Data for separate countries becomes available from 2000 (they are not all zero in 1999). Lesotho has been the largest beneficiary, with exports increasing from $140 mn in 2000 to $400mn in 2005. Swaziland, Botswana and Namibia have all seen rapid growth from a smaller base. The remaining element is exports from South Africa which are not eligible for the ROO waiver. These stagnated before turning down sharply in 2005.

Figure 3.   Apparel exports to US from SACU, $Mn
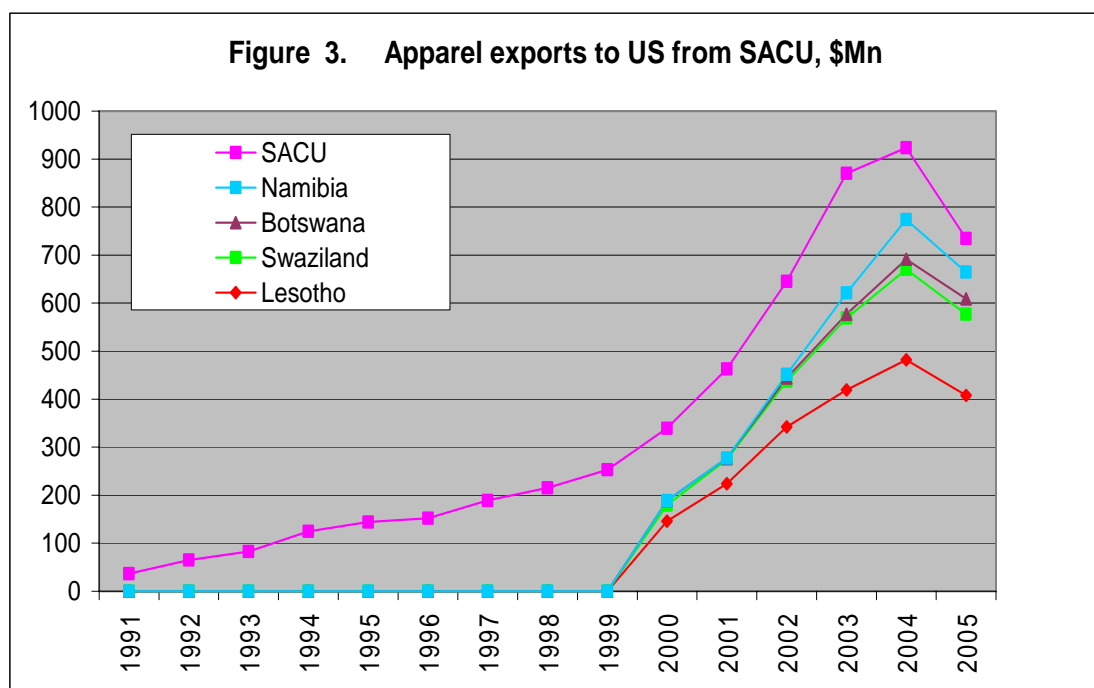
Source: UN Comtrade.

The 2005 downturn is apparent in Figures 1 – 3 and is largely due to the end of the Multi-Fibre Agreement. Some 70% of the total decline in SSA apparel exports to the US is attributable to South Africa, outside the AGOA ROO waiver. For other countries, an additional factor behind the decline may have been uncertainty about expiry of this waiver at end 2007; as we have seen, this uncertainty was removed only at end 2006. Notice that the figures above run to 2005, since they are based on UN Comtrade data. More up to date data is available from USITC and indicates some

continuing decline in exports in the earlier part of 2006 although the rate of decline is slowing.[13]

3.3 Econometrics:

Although the raw data presented in the figures above is persuasive, we also present some econometric analysis. The simplest model expresses imports from country i to market j, x_{ij}, as a function of some supplier country characteristics, S_i, some importer country characteristics, M_j, and some between-country characteristics, d_{ij}. All of these may be time-varying so writing the relationship for the two importer markets that we study, the USA and the EU,

$$x_{iUS}(t) = S_i(t)\, M_{US}(t)\, d_{iUS}(t)\, u_{iUS}(t)$$
$$x_{iEU}(t) = S_i(t)\, M_{EU}(t)\, d_{iEU}(t)\, u_{iEU}(t)$$

where $u_{ij}(t)$ is an error term. By focusing on performance in one export market relative to the other, supplier country characteristics can be substituted out, giving

$$x_{iUS}(t)\,/\,x_{iEU}(t) = [M_{US}(t)\,/\,M_{EU}(t)][d_{iUS}(t)\,/\,d_{iEU}(t)][\,u_{iUS}(t)\,/\,u_{iEU}(t)],$$

and this provides the relationship that we will estimate.

The dependent variable, $x_{iUS}(t)\,/\,x_{iEU}(t)$, is the value of apparel exports from country i to the US relative to this country's apparel exports to the EU. The relative market size element, $M_{US}(t)\,/\,M_{EU}(t)$, we capture by total imports of apparel to the US and the EU from all countries other than country i. We also run specifications where this variable is replaced by a year fixed effect. The relative between-country component, $d_{iUS}(t)\,/\,d_{iEU}(t)$, contains some fixed parts – such as distance and invarying trade preferences – and also the time-varying and country-pair specific trade preferences in which we are interested. We capture the constant parts by exporter fixed effects, and the time varying parts by dummy variables which are switched on at the date when the exporter receives preferential trade benefits. For imports to the US, we set the variable *AGOAA* equal to unity for complete years in which the exporter country has been eligible for the AGOA apparel waiver. For the

---

[13] http://www.agoa.info/index.php?view=trade_stats&story=apparel_trade

16

EU we set the dummy variable *EBANC* equal to unity for years in which a country not eligible for EU trade preference under Cotonou received preferences under EBA. We use this specification because Cotonou (and preceding Lome) were in place throughout the period, and are similar to EBA preferences. We also look at a specification in which the *EBANC* variable is replaced by a simple *EBA* dummy.

This specification is equivalent to a triple difference-in-differences approach. Exporter supply shocks are controlled for by looking at sales in the USA relative to the EU. Market demand shocks are controlled for by total imports of apparel in the US relative to the EU, or by time effects. Time invariant differences in exporters' sales in the US relative to the EU are controlled for by exporter fixed effects. The effects of trade preferences are identified from time series variation in exporters' sales to the USA relative to the EU.

Results are given in table 1. Columns 1-3 work with the sample of 86 developing and middle income countries (appendix), excluding those where apparel exports to the USA and EU combined averaged less than $1mn pa over the period. We see that the AGOA apparel (*AGOAA*) provision has a positive and significant effect. A coefficient of 2 corresponds to an increase by a multiplicative factor of 7.4 (= exp(2)). In contrast, the EBA variables, both *EBANC* and simple *EBA* do not have a significant effect (and have the wrong sign).

Columns 4 - 6 have a sample of 110 countries, adding in countries with mean apparel exports between $100,000 and $1mn. Including these smaller countries causes a small increase in the AGOA coefficient. EBA effects now have the correct sign[14], but it is only in the case where EBA is treated as an innovation with respect to Cotonou (column 6) that the effect is significant, indicating that it increases exports to the EU (relative to the US), by a factor of around 2.6 (= exp(0.97)).

---

[14]   A negative sign corresponds to an increase, since exports to the EU are in the denominator of the (logged) dependent variable.

Table 1: Apparel exports to the US relative to the EU, 1991-2005.

Dependent variable:
apparel exports to the US relative to exports to the EU, $\text{Ln}(x_{iUS}/x_{iEU})$

$\text{Ln}(x_{iUS}/x_{iEU})$	1	2	3	4	5	6
AGOAA	2.21	2.06	2.00	2.28	2.22	2.47
	(5.19)	(4.49)	(4.22)	(4.41)	(4.06)	(4.49)
EBANC	0.295	0.21		-0.58	-0.24	
	(0.52)	(0.36)		(-0.83)	(-0.33)	
EBA			0.14			-0.96
			(0.37)			(-2.52)
$\text{Ln}(M_{US}/M_{EU})$	1.14			2.15		
	(2.56)			(4.22)		
Year fixed effects	No	Yes	Yes	No	Yes	Yes
Exporter fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
No. observations, countries	1239 86	1239 86	1239 86	1599 110	1599 110	1599 110

Cols 1-3, exclude countries with mean apparel exports < $1mn
Cols 4-6, exclude countries with mean apparel exports < $100,000.

Table 2 extends the analysis to a quadruple difference-in-differences. Suppose that the relative between-country component, $d_{iUS}(t) / d_{iEU}(t)$, varies over time because of factors other than trade preferences – for example, improving economic relations between the US and a particular country. If this effect is the same across commodity groups, then the AGOA apparel effect can be identified by looking at apparel trade relative to trade in some other commodity – we use textiles. AGOA affects both apparel and textile trade, but the AGOA apparel waiver operates for a smaller set of countries and (somewhat) shorter time period. In principle we can therefore separate out the effect of the AGOA apparel waiver from that of AGOA as a whole, while conditioning out shocks that affect both product classes.

Results are given in table 2. The first column omits the simple AGOA and EBA (non-Cotonou) effects, since these should affect apparel and textiles in a similar way. The estimated AGOA apparel effect is then highly significant, and of somewhat greater magnitude than we found in table 1. Column 2 allows AGOA and EBA to affect apparel and textiles in different ways. We find that effects are insignificant, although the AGOA apparel effect is brought back to a coefficient of 1.95, consistent with those in table 1. This additional control therefore confirms the finding that the AGOA apparel treatment had a significant and large impact on apparel exports.

Table 2: Textile & apparel exports to the US relative to the EU, 1991-2005.

Dependent variable: apparel exports to the US relative to apparel exports to the EU, *relative* to, textile exports to the US relative to textile exports to the EU.

Ln(x_{iUS}/ x_{iEU}) - Ln(y_{iUS}/ y_{iEU})	**1**	**2**
AGOAA	2.65 (4.47)	1.98 (2.47)
AGOA		0.90 (1.28)
EBANC		0.48 (0.46)
Year fixed effects	Yes	Yes
Exporter fixed effects	Yes	Yes
No. observations, countries	1024 71	1024 71

Exclude countries with mean apparel or textile exports < $1mn

How do these results compare with others in the literature? Biesebroeck and Frazer (2005) conduct an econometric study of US imports, working with a highly disaggregate commodity specification (at the 6-digit level), but looking only at exports to the US market, and not therefore having the comparator of exports to the EU or any other market. They estimate a single equation across time, exporters, and products, and use fixed effects to control for time-varying exporter and product effects, and (time-invariant) exporter-product effects. This involves 5.1 million observations and 850,000 fixed effects. The AGOA apparel effect is estimated to be highly significant, and accounts for a 51% increase in trade. The likely reason that this number is so much smaller than our estimated effect is that we have the additional control provided by a comparison of exports to two markets. This enables us to have a time-varying fixed effect for each exporter which is specific to the commodity under study, apparel. This option is not possible for Biesebroeck and Frazer, lacking the control provided by a second import market.

4. Conclusions

For Africa to diversify its exports into manufacturing may require a catalyst to create clusters of activity and lift them to threshold productivity levels. Forty years of African domestic protectionism has failed to induce such clusters. However, the evidence suggests that – given the right conditions – it is possible for African countries to accelerate their modern sector export growth. Designing policy to promote such growth requires recognition of a number of features of modern global trade; fragmentation, increasing returns, and the consequent lumpiness of development. Domestic policy and international policy are complements. Domestic policy needs to ensure a good business environment and infrastructure, but this can be spatially concentrated. International policy needs to redesign trading arrangements with rules of origin that do not penalise narrow specialisation. Two of the past initiatives in trade preferences for African manufactures, the MFA and AGOA, have both demonstrated their effectiveness. However, at the time when the MFA was launched few African governments had adopted the complementary policies needed for success, and the MFA has now ended. The key feature that made AGOA effective, the apparel special waiver, has now been renewed through to 2012, but AGOA applies only to the US market. The natural large market for Africa is the EU. At the minimum there is thus an opportunity for the EU to redesign its trade preferences to promote African economic development, aligning its trade instrument with its aid instrument. However, the goal should be an integrated scheme across the OECD that subsumes both EBA and AGOA and thereby minimizes the information costs to exporting firms.

Appendix;
Exporter Countries

	Table 1, Cols 1-3	Table 1, Cols 4-6	Table 2		Table 1, Cols 1-3	Table 1, Cols 4-6	Table 2
Afghanistan	x	x		Liberia	x	x	
Albania	x	x	x	Mongolia	x	x	x
Algeria	x	x	x	Morocco	x	x	x
Argentina	x	x	x	Mozambique	x	x	x
Armenia	x	x		Namibia	x	x	x
Bangladesh	x	x	x	Nepal	x	x	x
Benin		x		Nicaragua	x	x	x
Bhutan	x	x		Niger		x	
Bolivia	x	x		Nigeria	x	x	x
Botswana	x	x	x	Oman	x	x	x
Brazil	x	x	x	Pakistan	x	x	x
Bulgaria	x	x	x	Panama	x	x	x
Burkina Faso		x		Papua New Guinea		x	
Cambodia	x	x	x	Paraguay	x	x	x
Cameroon	x	x	x	Peru	x	x	x
Cape Verde	x	x		Philippines	x	x	x
Central African Republic		x		Moldova	x	x	x
Chad		x		Russian Fed.	x	x	x
Chile	x	x	x	Rwanda		x	
China	x	x	x	Samoa	x	x	
Colombia	x	x	x	Sao Tome and Principe		x	
Costa Rica	x	x	x	Saudi Arabia	x	x	x
Croatia	x	x	x	Senegal		x	
Côte d'Ivoire	x	x	x	Seychelles	x	x	
DR Congo		x		Sierra Leone	x	x	x
Djibouti	x	x		Solomon Isles		x	
Dominican Republic	x	x	x	Somalia		x	
Ecuador	x	x	x	South Africa	x	x	x
Egypt	x	x	x	Sri Lanka	x	x	x
El Salvador	x	x	x	Sudan		x	
Equatorial Guinea		x		Swaziland	x	x	x
Eritrea		x		Syrian Arab Republic	x	x	x
Ethiopia	x	x	x	Tanzania	x	x	x
Gabon		x		TFYR Macedonia	x	x	x
Gambia		x		Thailand	x	x	x
Ghana	x	x	x	Togo	x	x	
Guatemala	x	x	x	Trinidad and Tobago	x	x	x
Guinea		x		Tunisia	x	x	x
Haiti	x	x	x	Turkey	x	x	x
Honduras	x	x	x	Tuvalu	x	x	x
India	x	x	x	Uganda	x	x	
Indonesia	x	x	x	United Arab Emirates	x	x	x
Iran, Islamic Republic of	x	x	x	Uruguay	x	x	x
Jamaica	x	x	x	Vanuatu		x	
Jordan	x	x	x	Venezuela	x	x	x
Kazakhstan	x	x	x	Yemen		x	
Kenya	x	x	x	Zambia	x	x	x
Kiribati		x		Zimbabwe	x	x	x
Kyrgystan	x	x	x				
Lao PDR	x	x					
Lebanon	x	x	x				
Lesotho	x	x					

Importer countries*:*
USA:
EU15: Austria, Belgium-Luxembourg, Denmark, Finland, France, Fmr Dem. Rep. of
Germany & Former Fed. Rep. of Germany/Germany, Greece, Ireland, Italy,
Netherlands, Portugal, Spain, Sweden, United Kingdom

References:

Arndt, S. and H. Kierzkowski (eds) (2001) 'Fragmentation; new production and trade patterns in the world economy', OUP, Oxford.

Brenton, P. and T. Ikezuki (2005) 'The value of trade preferences for Africa', processed World Bank

Brenton, P. and C. Ozden (2006) 'Trade preferences for apparel and the role of rules of origin – the case of Africa', processed, World Bank

Burgess, R. and A.J. Venables (2004) "Towards a micro-economics of growth" in F. Bourguignon and B. Pleskovic (eds) (2004) Accelerating Development: Annual World Bank Conference on Development Economics, World Bank – Oxford University Press.

Cadot, O., A. Estevadeordal, A, , Suwa-Eisenmann A. and Verdier, T (2006) 'The origin of goods; rules of origin in regional trade agreements', OUP, Oxford.

Cadot, O. and J. de Melo (2007) 'Why OECD countries should reform rules of origin', CEPR dp no 6172

Duranton G. and D. Puga (2005) 'Micro-foundations of urban agglomeration economies' in V. Henderson and J. Thisse (eds) Handbook of Urban and Regional Economics, vol 4, North Holland, Amsterdam.

Frazer, G. and J. van Biesebroeck (2005) 'Trade growth following AGOA' processed, University of Toronto.

Grossman, G.M. and E. Rossi-Hansberg (2006) 'The rise of offshoring; its not cloth for wine any more', processed, Princeton.

Hanson, G. (2004) "What Has Happened to Wages in Mexico since NAFTA?", in T. Estevadeordal, D. Rodrik, A. Taylor, A. Velasco, eds., FTAA and Beyond: Prospects for Integration in the Americas, Cambridge: Harvard University Press, 2004.

Hausmann, R. L. Pritchett and D. Rodrik (2005) 'Growth Accelerations' Journal of Economic Growth, 10

Hausmann, R. and D. Rodrik (2003) 'Economic development as self-discovery' Journal of Development Economics, 72.

Henderson, J.V. (2002) 'Urbanisation in developing countries', World Bank Research Observer, 17, 89-11.

Henderson, J.V. and J. Thisse (2004) Handbook of Urban and Regional Economics, vol 4, North Holland, Amsterdam.

Hoekman, B., W. Martin and C.A. Primo Braga (2006) 'Preference erosion; the terms of the debate', World Bank, Washington DC

Jones, B. and B. Olken (2006) 'The anatomy of start-stop growth' NBER wp no. 11528; http://www.econ.brown.edu/econ/events/startstop.pdf

Karingi, S.N., R. Perez and H.B. Hammoudah (2007) 'Could extended preferences reward Sub-Saharan Africa's participation in the Doha round negotiations', The World Economy, 30, 3, 383-404

Krugman, P. R. (1995), Development, Geography and Economic Theory, MIT press, Cambridge MA

Low, P. R. Piermartini and J. Richtering (2005) 'Multilateral solutions to the erosion of non-reciprocal preferences in NAMA' WTO Geneva.

Markusen, J.R. and A.J. Venables (2007) 'Interacting factor endowments and trade costs; a multi-country multi-good approach to trade theory', Journal of International Economics, forthcoming.

Mattoo, A., R. Devesh and A. Subramanian (2003), The Africa Growth and Opportunity Act and its Rules of Origin: Generosity Undermined? The World Economy 26 (6), 829–851

Olarreaga, M. and C. Ozden (2005) 'AGOA and apparel; who captures the tariff rent in the presence of preferential market access?', The World Economy, 28 (1) 63-77.

Pattillo, C., S. Gupta and K. Carey (2005), 'Sustaining growth accelerations and pro-poor growth in Africa', IMF wp 05/195

Puga, D. and A.J. Venables (1999) 'Agglomeration and Economic Development: Import substitution vs. Trade Liberalisation', Economic Journal 109

Rodriguez, P.L. (2001) 'Rules of Origin with Multistage Production', The World Economy 24 (2), 201–220

Rodrik, D. (2004) 'Industrial policy for the 21st century', processed, Harvard, http://ksghome.harvard.edu/~drodrik/UNIDOSep.pdf

Rosenthal, S.S. and W.C. Strange (2005) 'Evidence on the nature and sources of agglomeration economies', in V. Henderson and J. Thisse (eds) Handbook of Urban and Regional Economics, vol 4, North Holland, Amsterdam.

Subramanian, A., and D. Roy, 2003, 'Who Can Explain the Mauritian Miracle', in D. Rodrik, (ed) In Search of Prosperity, Princeton University Press.

Venables, A.J, (2006) 'Shifts in economic geography and their causes' Jackson Hole Symposium,
http://www.kansascityfed.org/PUBLICAT/SYMPOS/2006/pdf/venables.paper.0901.pdf