

Southern Africa Labour and Development Research Unit



Is China "crowding out" South African exports of manufactures

by

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1. Introduction

The rise of China over the past three decades has led to concerns that Chinese products would “crowd out” exports from other developing countries, particularly after China joined the WTO in 2001 and the Multifibre Arrangement was phased out in 2005. There is a considerable literature both attempting to identify the countries that were most threatened by Chinese competition and subsequently trying to estimate the actual impact that China has had on exports from other countries. Most of this literature focussed either on Asia, particularly East Asia (Athukorola, 2009; Eichengreen et. al., 2007; Greenaway et. al., 2008; Lall and Albaladejo, 2004) or Latin America (Lall and Weiss, 2005; Gallagher and Porzecanski, 2010; Freund and Ozden, 2009; Hanson and Robertson, 2009; Jenkins, 2010).

In contrast most of the economic literature on China’s relations with Africa has focused on the so-called “new scramble for Africa” (FT, 2010) epitomised by the growing exports of commodities to China, Chinese foreign direct investment in oil and mining and Chinese aid for infrastructure and other projects in the region (see for example Goldstein et. al., 2006; Broadman, 2007; Zafar, 2007; Brautigam, 2009; Schiere et.al., 2011). Given the lack of competitiveness of the manufacturing industry in most of Sub-Saharan Africa, it is not surprising that relatively little attention has been given to the impact of Chinese competition on African exports of manufactured goods.

Some authors have however expressed concerns that Chinese competition in third markets will inhibit exports of manufactures from Africa. Jenkins and Edwards (2006, Table 8) identified a number of SSA countries where more than half of exports were threatened by

increased Chinese competition (Lesotho, Zambia, Mozambique, Malawi, Namibia and South Africa). Case studies of the textile and garment industries have found evidence that African exporters have lost out to Chinese competition in Kenya, Lesotho, Madagascar, Swaziland and South Africa (Kaplinsky and Morris, 2008). Giovannetti and Sanfilippo (2009) using a gravity model also found that Chinese exports displaced African exports across a range of manufactured products, not just textiles and garments, but also footwear and machinery and equipment. The latter also found significant displacement of intra-regional trade by Chinese exports, a view that was supported by several studies of individual countries' regional exports carried out as part of the African Economic Research Consortium scoping studies of China-Africa trade relations.¹

The impact of Chinese competition on manufacturing is a particular concern in South Africa which has the most advanced manufacturing sector in the region and has developed significant exports of manufactures. The rapid growth of Chinese imports has had a major effect on production for the domestic market (Edwards and Jenkins, 2013) and Chinese competition may also lead to a crowding out of South African exports to third markets. Burke et al. (2008, p.19) claim that "Chinese exports to South Africa neighbours such as Swaziland, Lesotho, Namibia and Mozambique have reduced the demand for South Africa's exports to these countries and this has had a detrimental effect on South African producers that have not been able to compete."

The purpose of this paper is to analyse the impact of Chinese competition on South African exports to its major markets in Europe, the USA and Sub-Saharan Africa (SSA). In analysing the impact of China on South African exports, we consider four related research questions. First, are China and South Africa competing with each other in export markets, how extensive is such competition and how is this changing over time? Second, to what extent has Chinese competition led to the displacement of South African exports in its major markets? Third, in which countries have South African exports been most affected? Finally, which South African export sectors face the greatest threat from Chinese competition?

The next section explains the data that has been used in the paper and the choice of countries and time period. Section 3 sets out the market shares of South Africa and China in the imports of each market and the way in which these have changed over time. Various indicators are presented in Section 4 to show the extent to which China and South Africa compete with each other at the 6-digit level of the Harmonized System (HS) classification. This is followed by a Constant Market Share (CMS) analysis of South African exports which identifies the degree to which changes in overall market share are attributable to changes in market share at the product level as opposed to the product composition of South African exports. Section 6 extends the CMS analysis to calculate the extent to which changes in the overall competitiveness of South African exports are attributable to changes in

¹ These include studies on Cameroon, Kenya and South Africa, all quoted in Ademola et al. (2009).

competitiveness vis-à-vis China. Finally the overall picture with regard to the effects of Chinese competition is further disaggregated by technology level and products.

2. Data

The paper focuses on competition between South African and Chinese exports of manufactured goods in key export markets for South Africa. The EU and the US are South Africa's largest markets accounting for 29 % and 13 % of all manufactured exports in 2008. Given the large number of countries in SSA, it was decided to focus on 10 countries which were the most important export markets for South Africa in the region. These are Angola, Democratic Republic of Congo (DRC), Ghana, Kenya, Malawi, Mozambique, Nigeria, Tanzania, Zambia and Zimbabwe. Between them, they accounted for 87% of South African exports of manufactured goods to SSA and 17 % of the country's total manufacturing exports in 2008.

We are interested in the competition between South Africa and China in each destination. To analyse this, we draw upon import data of each market. In the case of the US and the EU, import data as reported by each country or region is used. However the trade data of many SSA countries is often unreliable.² To remedy this problem, the data for SSA imports was constructed from export data to each SSA country reported by South Africa, China and a selection of major exporting countries.³ This does not cover all sources of imports, but since the focus is on the performance of South African exports relative to China and other countries in these markets, this should not lead to significant biases in the results.⁴

Because the focus is on competition with China and Chinese exports are overwhelmingly manufactures, the analysis is concentrated on manufactured products, although these are broadly defined to include resource based manufactures. To identify the trends in competition in products with different technological levels, Lall's (2000) classification of manufactured products into high-technology, medium-technology, low-technology and resource-based categories is used.

The data are obtained at the 6-digit level of the Harmonized System (Revision 1996) since it is important to have a sufficiently high level of disaggregation to ensure that the products

² See Yeats (1990) for a detailed exposition of the quality of SSA trade data.

³ The exporters included were South Africa, Australia, Canada, Germany, Spain, France, UK, Italy, Netherlands, USA, South Korea, ASEAN 5 (Singapore, Malaysia, Indonesia, Thailand, Philippines), Hong Kong, India, China. The Philippines and Thailand only reports HS6 Rev. 96 data from 2000 and 1999, respectively and are not therefore included in earlier years,.

⁴ It does however mean that the market shares of both South Africa and China in these countries will be overestimated since not all imports have been included in the denominator. This means that comparisons between the import penetration of China and South Africa in SSA and their shares of the US and EU markets need to be made with caution.

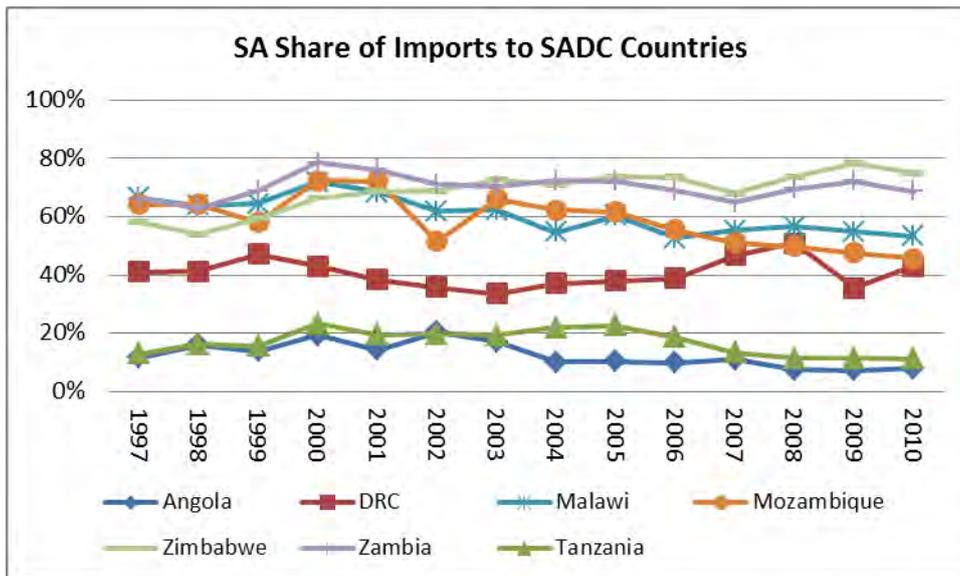
which are being compared in the analysis do indeed compete with each other. The period of analysis covers the years 1997 to 2010. The data comes from UN COMTRADE and was accessed using the World Bank's WITS software. In the case of the EU the data used relates to the extra-EU trade of the 25 countries that were members of the EU prior to the accession of Bulgaria and Romania. Unfortunately UN COMTRADE only has data on EU imports on this basis from 2000 onwards, so that it was not possible to cover the entire period. However we are particularly interested in the period since 2001 when China became a member of the WTO, so that much of the analysis focuses on the period 2001-2010.

3. South Africa and China's Market Share in Major Export Markets

There are considerable variations in terms of South Africa's share of manufactured imports by different countries (see Figures 1 and 2). Not surprisingly, its share of imports to its neighbours in Southern Africa is much higher than in the West African and East African countries. South Africa accounts for more than half of exports going to its three landlocked neighbours, Zambia, Zimbabwe and Malawi. It also has relatively high shares of the market in Mozambique and the DRC which are both also members of SADC. It has a somewhat lower share of exports to two other SADC members, Angola and Tanzania. The lowest shares of imports from South Africa amongst the African countries included here are in the three non-SADC countries, Kenya, Ghana and Nigeria.

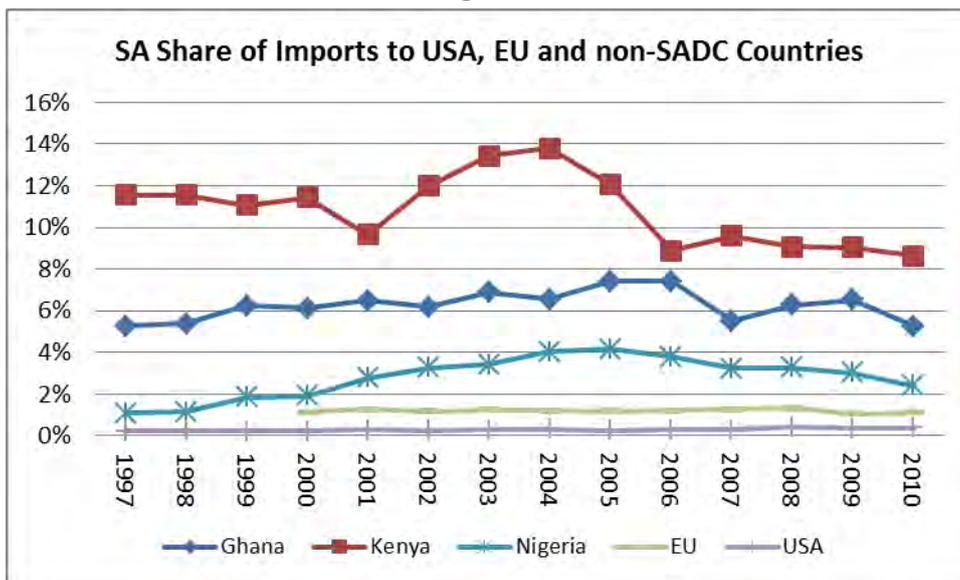
Although both the USA and the EU account for a significant share of South Africa's manufactured exports, this reflects the large size of these markets. South Africa accounts for only slightly more than 1% of imports of manufactures by the EU and less than ½% of US imports.

Figure 1



Source: Own elaboration from UN Comtrade data

Figure 2



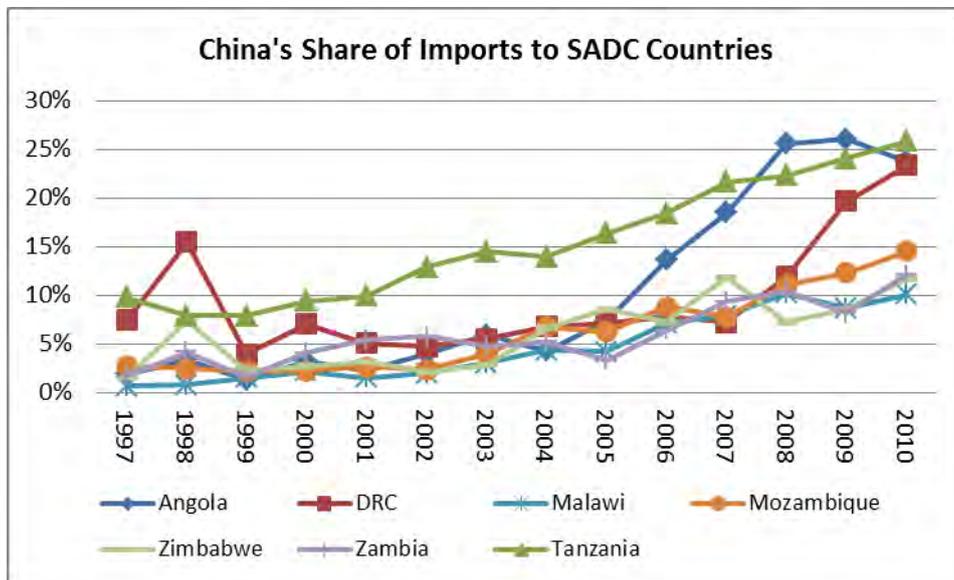
Source: see Figure 1

Following the ending of apartheid, South African exports of manufactures to other African countries grew rapidly, averaging 9.5 percent growth per annum over the period 1997 to 2010. Its share of imports also increased in most SSA countries in the late 1990s. However in recent years South Africa's market share has declined except in Zimbabwe and DRC. Its share peaked in other SADC countries around the start of the Millennium (Figure 1), while in the non-SADC African countries it began to decline from the middle of the decade (Figure 2).

In contrast South Africa's share of the EU market has remained fairly stable since 2000 while in the USA it has increased significantly, although it still remains at a very low level.

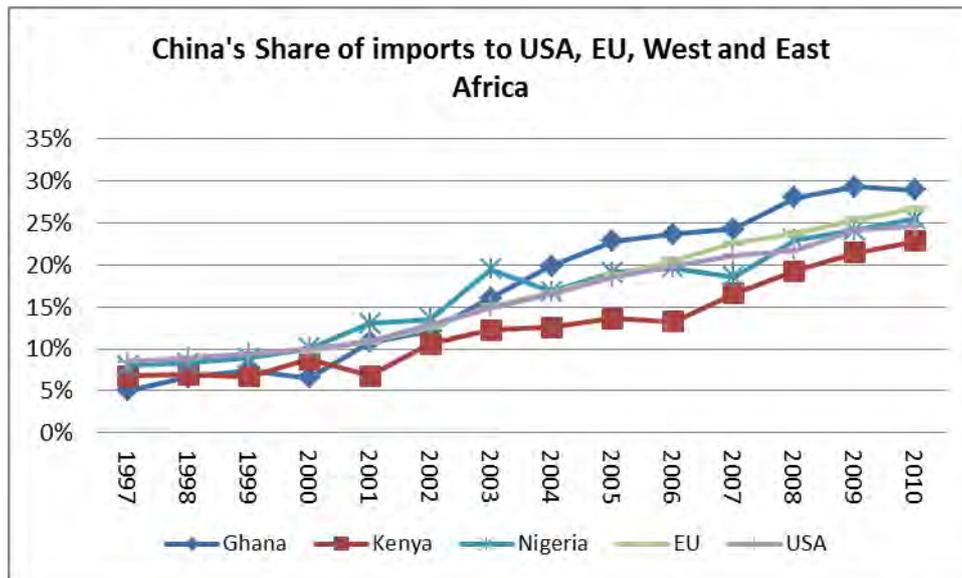
In contrast, the import share accounted for by China is significant in all twelve markets. By 2010, China accounted for around a quarter of manufactured imports in the EU, USA and six of the ten African countries (Figures 3 and 4). The exceptions were the three landlocked countries which relied heavily on South African imports - Zambia, Zimbabwe and Malawi, and Mozambique – where China's share remained below 15%. Looking over time, China's share of imports to all these markets increased significantly, particularly since 2001 when it became a member of the WTO.

Figure 3



Source: see Figure 1

Figure 4



Source: see Figure 1

4. Do Chinese products compete with South African exports?

The last section showed that over the past decade, South Africa's share of imports into most of its major markets have declined, while that of China increased significantly. These trends at an aggregate level give no indication of whether South Africa and China compete with each other in these markets. A preliminary indication of whether they do or not can be obtained by looking at the extent to which they export the same products in each market. Table 1 shows the extent to which South African exports face competition from Chinese products in each country both in terms of the share of the value of South African exports (columns 1 and 2) and in terms of the proportion of products exported (columns 3 and 4).

Table 1: Share of South African manufacturing exports facing competition from China by export value and product count, percent

	Share value of SA exports with overlap		Share number of SA export products with overlap	
	1997	2010	1997	2010
	(1)	(2)	(3)	(4)
EU	96.4*	98.8	94.6*	99.1
USA	71.1	97.7	94.8	98.0
SSA Total	16.8	73.8	11.0	54.7
Angola	9.2	78.9	8.7	65.5
Ghana	37.2	81.3	24.0	69.8
Kenya	18.0	74.1	25.3	71.6
Mozambique	7.7	72.3	5.5	50.9
Malawi	8.4	51.0	2.5	28.9
Nigeria	29.9	89.9	37.3	78.9
Tanzania	20.0	79.3	21.3	65.1
DRC	7.9	82.0	10.3	51.0
Zambia	10.3	76.4	5.2	45.6
Zimbabwe	24.7	64.9	11.2	41.0

Source: Author's calculations using 6-digit HS level trade data obtained from UN Comtrade

Note: * data for 2000.

There is considerable variation between markets in terms of the extent of overlap between South African and Chinese products exported. The overlap is highest in the EU and US where virtually all the products that South Africa exports are also exported by China. In terms of the share of products exported this was already the case in these markets by the late 1990s, although in the US the share of the value exported by South Africa that competed with Chinese products was lower (71%).

Competition with Chinese exports was less prevalent in SSA than in developed country markets, particularly in 1997 where on average competing exports only made up 16.8% of the value and 11% of the number of products exported by South Africa to the region. However this proportion increased dramatically over the period reflecting the significant growth of Chinese exports at the extensive margin (i.e. through exporting new products).⁵ By 2010 more than half of products exported by South Africa and almost three-quarters of the value of exports to SSA faced competition from Chinese goods.

⁵ Growth at the extensive margin accounted for more than half of the total growth in Chinese exports of manufactures to the ten SSA countries between 1997 and 2010 (Edwards and Jenkins, forthcoming)

Despite the variation between countries in the degree of overlap between South African and Chinese exports, the trend in terms of increased competition is the same in all of them. The lowest overlap is in Malawi, which only established diplomatic relations with China in 2007 and where Chinese market penetration is less than elsewhere in the region. It is followed by Zimbabwe, where 40% of products exported from South Africa faced competition from China in 2010 (up from 11% in 1997) and these accounted for almost two-thirds of the value of exports. The overlap in 2010 was greatest in Nigeria (nearly 80% of products and 90% of value) followed by Kenya and Ghana (around 70% of products).

A major weakness of the overlap measure of competition between China and South Africa is that it does not distinguish between products where China exports \$1 and those products where it is a major exporter. As a result it is only affected by changes in China's exports at the extensive margin and not by changes at the intensive margin. Moreover once China exports virtually the full range of products to a market as is now the case in the EU and USA (see Table 1), it is impossible for the index to show increased competition.

One of the most common indices used to measure the extent of Chinese competition in the literature is Finger and Kreinin's (1979) Export Similarity Index, which, as the name suggests, compares the structure of two countries' exports to particular markets. Although the index suffers from a number of limitations, particularly in terms of measuring changes in competition over time (see Jenkins, 2008), it is useful in terms of comparing the extent of competition in different markets.

The index is calculated as:

$$ESI = \sum \text{MIN}(m_{ABi}, m_{ACi}) \quad (1)$$

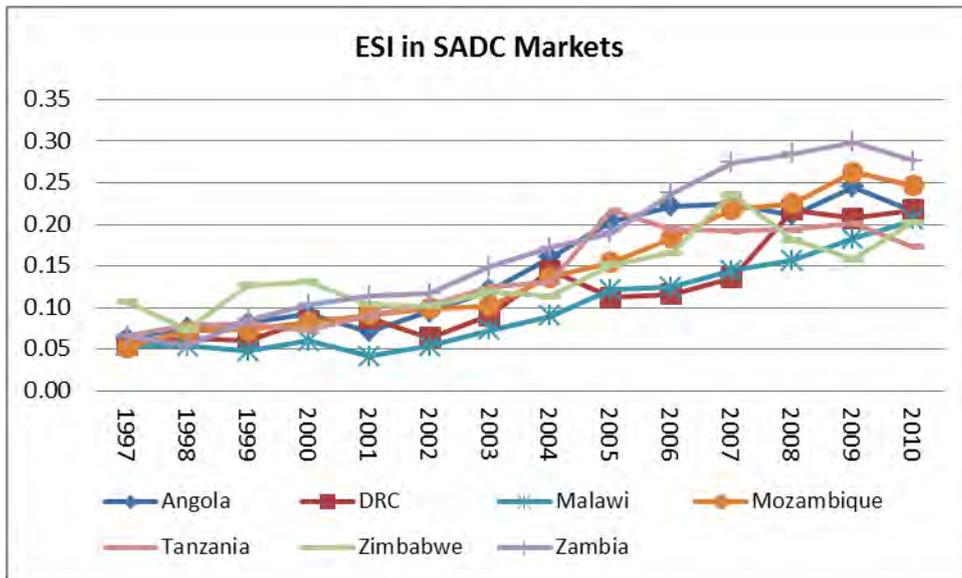
where m_{ABi} , m_{ACi} are the shares of product i , in Country A's imports from Country B and Country C respectively. The ESI takes a value of zero when the two countries have no products exported in common and a value of 1 when they have identical export structures. The more disaggregated the data used, the lower the absolute value of the ESI.

Figures 5 and 6 plot the ESI for South African and Chinese manufactured exports to the various destinations over time. Apart from the EU and USA, there has been a strong increase in the similarity of South Africa's and China's export bundle to all destinations. The ESI in SADC markets rose from around 0.05 for most countries in 1997 to between 0.18 (for Tanzania) and 0.3 (Zambia) by 2010. The ESI in the other SSA markets also rose, but less strongly to around 0.18. In contrast, the ESI in the EU and USA markets did not change substantially.

The rising similarity in export structures suggests that competition between South Africa and China in the SSA markets is increasing. However, the level of the ESI remains low (less

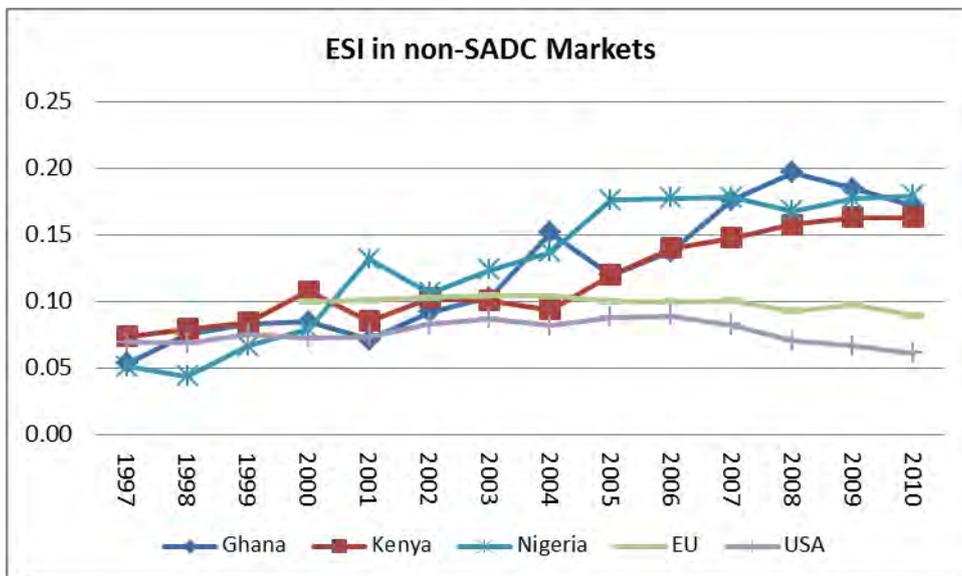
than 0.3 in all cases) compared to that between China and several East Asian economies.⁶ This shows that there are still significant differences in the product composition of Chinese and South African exports, despite the rise in similarity over the past decade. It implies that some South African exports to the region are still insulated from Chinese competition.

Figure 5



Source: see Figure 1

Figure 6



Source: see Figure 1

⁶ The ESI at the HS 6-digit level between Chinese exports and those of a number of other East Asian countries fall between 0.3 and 0.4 in 2008 (IMF, 2012, Table 5).

Although the ESI measures the similarity in the export structures of two countries, it does not necessarily provide a very good picture of how the degree of competition changes over time. If Chinese exports expand at the extensive margin into products that are not exported by South Africa, then the ESI is likely to decline although the level of competition experienced by South African exporters has not changed. If China expands the share of its exports made up of products which are significant for South Africa's exports, then the ESI tends to rise, but if China displaces South African exporters and the share of these products in South African exports falls below their share in China's exports, further displacement will lead to a fall in the ESI. Moreover if China increases its share of imports of all products to a particular market, but the structure of Chinese exports remains unchanged, then the ESI does not increase, although the increased market share would suggest greater competitive pressure for other exporters.

An alternative measure which avoids some of the problems identified with other indicators is the Index of Competitive Threat (ICT) (Jenkins, 2010). The ICT attempts to capture the effect of the growth of Chinese exports at both the extensive and intensive margins on South African exports. It does so by taking the share of each product in South African exports to a particular destination (the overlap share measure) and weighing it by China's share in the total imports of the destination market from all sources. Thus

$$ICT = \sum x_{SAi} * k_{Ci} \quad (2)$$

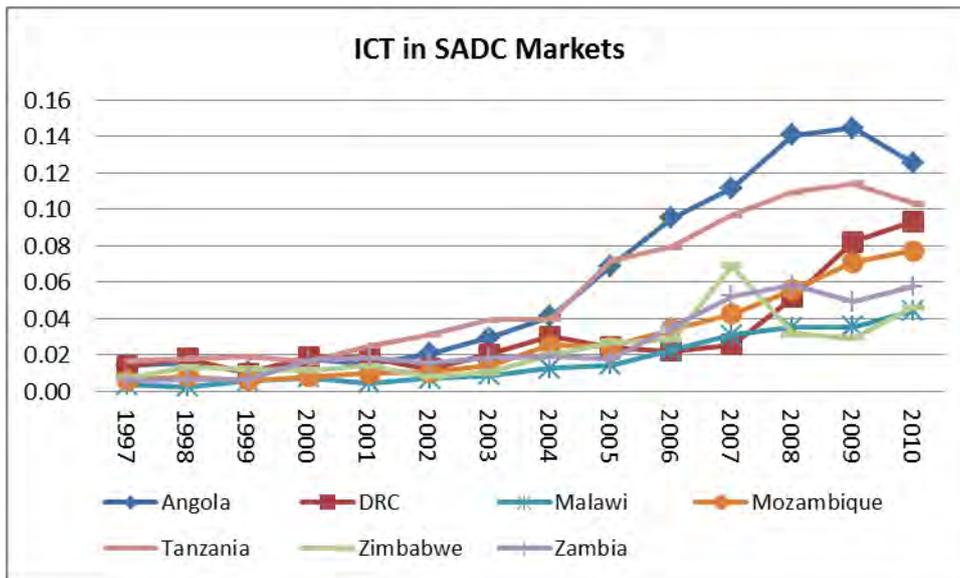
where: x_{SAi} - share of product i in South African exports to destination country.

k_{Ci} - share of China in destination country's total imports of product i.

Over time the ICT can increase both because the number of products which face competition from China increase (extensive margin) and because the Chinese penetration of existing product markets rises (intensive margin). Like the ESI, the value of the ICT could range from zero, when South Africa and China have no exports in common, to 1 when South Africa's exports are entirely made up of products in which China's exports account for the entire market.⁷ In practice the value of the index is unlikely to be anywhere approaching unity. It has an advantage over the ESI in that an increase in China's share of a particular market, other things remaining equal, leads to an increase in the index.

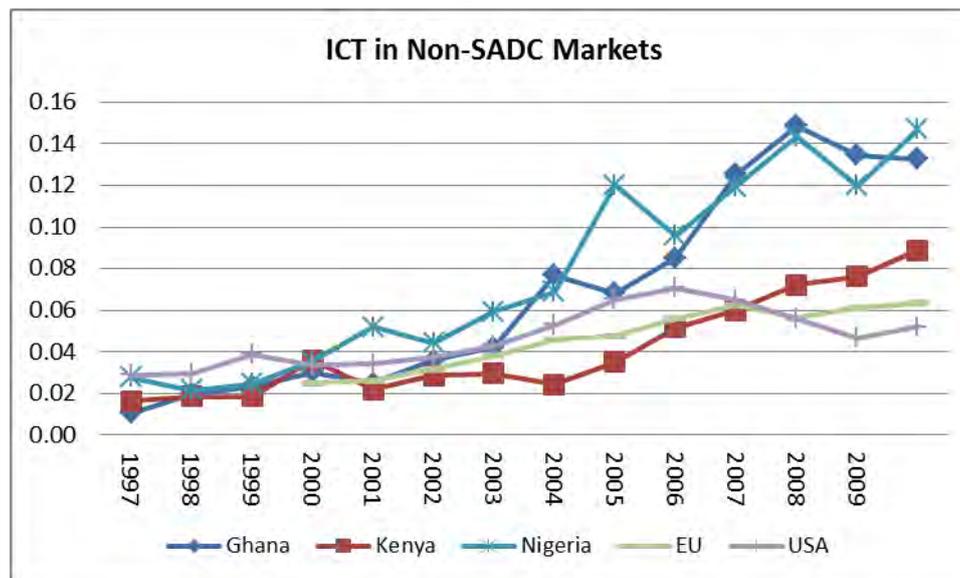
⁷ This of course is a logical impossibility since if China accounted for the entire market, then South Africa would not be exporting the product at the same time.

Figure 7



Source: see Figure 1

Figure 8



Source: see Figure 1

Figures 7 and 8 show that competition between China and South Africa was limited in all markets in the late 1990s, but, as with the ESI, increased markedly during the following decade. The countries where South Africa is least threatened by Chinese exports according to this indicator are Malawi, Zimbabwe and Zambia, which are the countries where China's share of imports is lowest (see Figure 3). The low similarity between the structure of exports to the US and EU (see Figure 5), mean that competition from China is also relatively low in those markets. As with the ESI, the ICT declined in the US and stabilized in the EU

from the mid-2000s. The countries where China poses the greatest threat are Nigeria, Ghana, Angola and Tanzania, all of which had an ICT in 2010 of over 0.1.

5. A Constant Market Share Analysis of South African and Chinese Exports

As was seen in Section 3 above, South Africa has experienced a decline in its market share of imports in most of its major export markets in recent years while China has seen its share increase significantly. In order to analyse this further it is useful to decompose changes in the share of imports into that part which is attributable to the type of products that each country exports and that which reflects the decline in the country's share of imports of each product. To do this, the Constant Market Share method developed by Fagerberg and Sollie (1987) is used. This decomposes the change in Country B's share of Country A's total imports of manufactures into a *competitiveness effect*, a *product composition effect* and a *relative adaptation effect*. Thus the change in the market share can be expressed as:

$$\Delta k_B = \sum \Delta k_{Bi} * m_{Ai} + \sum k_{Bi} * \Delta m_{Ai} + \sum \Delta k_{Bi} * \Delta m_{Ai} \quad (3)$$

where: k_{Bi} is the share of country B in country A's imports of product i, and

m_{Ai} is the share of product i in country A's total imports of all manufactured goods.

The first term on the right hand side of Equation (3) measures the competitiveness effect, the second term the product composition effect and the third, the relative adaptation effect. A positive value for the first term indicates that Country B is gaining competitiveness in those products which it exports to Country A. A positive value for the second term shows that Country B is specialized in products which are increasing their share in the total imports of Country A. Finally, the sign of the third term is positive if Country B is gaining market share most in those products which are increasing their share in the total imports of Country A. This is referred to as the relative adaptation effect since it shows the extent to which a country's exports are responding to changing import demand patterns in their markets. By using base year (Laspeyre) weights throughout and providing a meaningful interpretation of the interaction (third) term, this method resolves the inconsistencies and arbitrariness of earlier applications of CMS which were pointed out by Richardson (1971).

Table 2: CMS Analysis of South African Exports by market, 2001-2010

	Competitiveness	Product Composition	Relative Adaptation	Total Change
Angola	5.8%	12.2%	-24.2%	-6.3%
DRC	3.4%	1.4%	-0.4%	4.5%
Ghana	0.7%	0.4%	-2.3%	-1.2%
Kenya	-2.5%	12.9%	-11.4%	-1.0%
Malawi	-10.0%	-2.3%	-3.0%	-15.3%
Mozambique	-24.2%	1.9%	-4.2%	-26.5%
Nigeria	0.2%	1.9%	-2.5%	-0.4%
Tanzania	-6.3%	11.6%	-13.6%	-8.3%
Zambia	-9.4%	1.1%	0.8%	-7.6%
Zimbabwe	3.6%	4.5%	-1.8%	6.3%
EU	0.1%	-0.1%	-0.1%	-0.1%
USA	0.1%	0.1%	-0.1%	0.1%

Source: See Table 1

Tables 2 and 3 present the decomposition of changes in South Africa and China's shares of imports in the twelve markets since 2001. This period was chosen as being of particular interest since it covers the time since China became a member of the WTO and which saw an acceleration of its penetration of the market, particularly in SSA. As noted earlier, the markets in which South Africa increased its share were Zimbabwe and the DRC and marginally the USA. However if one looks at its position in terms of competitiveness at the product level, this shows a somewhat more positive picture with competitiveness also increasing in Angola, Ghana, Nigeria and the EU. South Africa suffered large losses of competitiveness in Mozambique (-24.2 percentage points), Malawi (-10 percentage points) and Zambia (-9.4 percentage points), as well as moderate losses in East Africa (-2.5 to -6.3 percentage points).⁸

The initial product composition of South African manufactured exports was not a factor in the declining market share, since this is negative in only two of the twelve countries (Malawi and EU). On the other hand, South Africa has not been able to shift its exports towards more dynamic products over time since the relative adaptation effect has been negative in eleven cases.

⁸ The much larger losses in the first three countries reflect the higher initial share of South Africa in their imports compared to the East African countries. In relative terms, the losses were greatest in Mozambique and Tanzania.

Table 3: CMS Analysis of China's Exports by Market, 2001-2010

	Competitiveness	Product Composition	Relative Adaptation	Total Change
Angola	8.1%	2.0%	11.4%	21.5%
DRC	11.9%	0.8%	5.6%	18.3%
Ghana	13.9%	0.1%	4.1%	18.1%
Kenya	9.0%	2.0%	4.9%	16.1%
Malawi	7.2%	-0.0%	1.4%	8.6%
Mozambique	7.5%	1.0%	3.4%	11.9%
Nigeria	12.6%	1.9%	-2.0%	12.5%
Tanzania	14.6%	1.0%	0.4%	15.9%
Zambia	3.3%	-2.0%	5.5%	6.7%
Zimbabwe	4.7%	-0.2%	4.1%	8.6%
EU	12.1%	-0.2%	3.9%	15.8%
USA	11.8%	-1.2%	3.1%	13.7%

Source: See Table 1

Table 3 decomposes the growth of China's market share in the twelve countries and shows quite a different picture from the one for South Africa. First of all, China's share of imports has increased substantially in every market over the period, ranging from a low of 6.7% in Zambia to 21.5% in Angola. The most important factor contributing to this increased market share was the growing competitiveness at the product level. The initial composition of Chinese exports has not been a major factor, only accounting for a small part (less than 2 percentage points) of the total increase in market share and in five cases actually depressing China's share of imports. Finally, it is worth noting that whereas for South African exports, the relative adaptation effect was negative in all but one case, in the case of Chinese exports this effect was positive in all markets apart from Nigeria. Thus whereas South Africa tended to lose market share in products where imports were growing fastest, China's exports were increasingly oriented towards those fast growing imports.

6. The Displacement of South African Exports by China

Having analysed the extent to which South Africa faces competition from China in its major markets and the degree to which its loss of market share is attributable to declining competitiveness at the product level, the next step is to look at how far the latter can be attributed to Chinese competition. In order to do this we apply an extension of Constant Market Share Analysis developed by Chami Batista (2008) to divide the loss of market share

by a country attributable to the *competitiveness effect* to the different countries with which it competes in a given market.

The loss of market share by South Africa (SA) to China (C), in a particular product i is defined as:

$$\Delta k_{SAi} = \Delta k_{SAi} * k_{Ci}^t - \Delta k_{Ci} * k_{SAi}^t \quad (4)$$

Summing over all products gives the aggregate loss of market share to China:

$$\Delta k_{SAC} = \sum m_{Ai}^t * \Delta k_{SAi} \quad (5)$$

where m_{Ai}^t is the share of product i in country A 's total imports of all manufactured goods in base year t .

Summing over all exporters to the destination market gives the total competitiveness effect in a conventional Constant Market Share analysis. It can be shown that this formula satisfies four desirable properties.⁹ A country cannot lose or gain from itself. A gain for China from South Africa is equal to the loss by South Africa to China. The sum of the gains and losses of any country to all its competitors is equal to the total gain or loss of market share by that country. Finally the gain (loss) of a country to another country is a function of, and has the same sign as, the difference between the growth rates of their exports.¹⁰

As in the previous section, the relevant period for considering the impact of China on South African exports is from 2001 to 2010. Table 3 presents the results of the calculations.

⁹ See Batista (2008) for the mathematical proof that Equation (5) satisfies these requirements.

¹⁰ One should note however that the decomposition is based on accounting identities and should therefore be careful in making any causal inferences from it.

Table3: Crowding Out of South African Exports by China, 2001-2010

	As % of SA exports to market in 2010	As % of crowding out in all markets
Angola	-26.3%	7.1%
DRC	-8.8%	3.0%
Ghana	-16.0%	2.3%
Kenya	-9.8%	2.7%
Malawi	-8.8%	1.5%
Mozambique	-11.5%	7.2%
Nigeria	-11.3%	2.8%
Tanzania	-22.7%	5.0%
Zambia	-5.3%	3.7%
Zimbabwe	-3.0%	2.5%
<i>SSA Total</i>	<i>-9.9%</i>	<i>37.7%</i>
EU	-7.8%	49.8%
USA	-5.6%	12.5%
Total	-8.1%	100.0%

Source: See Table 1

Column 1 of Table 3 shows how much higher South African exports to each market would have been in 2010, had it not lost market share to China since 2001. It shows that the country lost to China in all markets; the fact that in some countries the CMS analysis showed an increase in competitiveness is because in those markets losses to China were more than offset by gains in market share from other exporters. In both Angola and Tanzania, exports would have been more than 20% higher had it not been for increased Chinese competition, while in Mozambique and Nigeria they would have been over 10% higher. The impact of Chinese competition was least severe in Zimbabwe and Zambia, followed by the USA and EU. This is broadly consistent with the ICT analysis where these were four of the five markets where South Africa was least threatened by Chinese competition in 2010.¹¹

South Africa enjoys several advantages relative to China in both Zimbabwe and Zambia, where according to the decomposition analysis, losses were relatively small. These include the preferential access to the markets as a result of SADC FTA and their geographical proximity. Since both countries are landlocked, Chinese exports have to pass through South Africa or other countries to reach the market, giving South African goods an advantage in terms of transport costs.¹² South Africa tends to export a wider range of products to these

¹¹ Malawi is something of an anomaly since it had the lowest ICT throughout the period, but nevertheless South Africa saw larger losses to China than in the markets ranked immediately above it.

¹² It is possible that some Chinese products being exported via South Africa appear as South African exports to the neighbouring countries.

countries than to other markets which may reflect a particular advantage in goods which are relatively costly to transport and which they do not export to other African countries or to Europe and the US.

Column 2 of Table 3 shows the importance of different markets in terms of the total crowding out effect on South African exports. Because of the importance of the EU as a market for South African exporters, almost half the total loss to China came in the EU, despite the fact that it was one of the markets in which the impact of China was less marked. The ten SSA countries accounted for 38% of the total loss, with three countries (Angola, Tanzania and Mozambique) responsible for half of all the crowding out in the region. These are also three of the top four countries in terms of the relative crowding out.

7. Impacts by Technology Level and Products

It is sometimes claimed that Chinese competition is felt mainly in low technology, labour-intensive products and that the threat is much less severe for exports of more sophisticated products or processed raw materials. Since low tech products account for less than 15% of South African exports to its main markets, if this were indeed the case, the impact would be relatively limited. However Chinese exports have diversified considerably in recent years into medium and high technology products.

Table 4 provides estimates of the impact of Chinese competition on South African exports of manufactures to the EU, USA and the ten SSA economies in 2010 by level of technology. As expected the largest reduction in exports as a result of Chinese competition was in low technology products over the period 2001-2010, while resource based manufactures were least affected overall. Exports of low technology products were particularly affected in developed country markets. What is also noteworthy is the extent to which South African exports of high tech products have been affected, particularly in the EU and SSA, although it should be noted that these account for a relatively small share of South African exports to all these markets.

There are striking differences between the different markets with low and high technology exports being affected more in the EU market, while medium technology exports have suffered more in SSA markets than in the high income countries. Comparing exports to the USA and to other African countries shows that low technology products have been affected more in the US, possibly reflecting the impact of the ending of the Multifibre Arrangement and the erosion of African Growth and Opportunity Act (AGOA) preferences (Kaplinsky and Morris, 2008), while all other types of products have suffered more from Chinese competition in SSA.

Table 4: Loss of Exports to China by Technology Level (2001-10) as % of South African Exports in 2010.

	US	EU	SSA	Total
Resource Based	-3.8%	-3.0%	-6.4%	-3.8%
Low technology	-34.0%	-46.1%	-13.0%	-25.2%
Medium Technology	-3.2%	-5.7%	-9.3%	-6.2%
High Technology	-2.2%	-20.8%	-17.5%	-17.5%

Source: own elaboration from UN COMTRADE data based on Lall (2000) classification of technology level.

Note: figures refer to the loss of market share to China over the period 2001-10 as a % of South Africa's total exports to each market in 2010.

Table 5 shows the share of each type of product in the total loss of exports to China. In each market, low and medium technology exports account for around 70% of the total, with low technology products being more significant in the US and EU and medium technology in SSA. While low technology products were shown in Table 4 to have suffered large losses, the losses in medium tech products reflects their large share in South Africa's exports. The low share of high tech products in total losses is because they only make up around 5% of South African manufacturing exports.

Table 5: Distribution of Total Loss of Exports to China by Technology Level, 2001-10

	US	EU	SSA	Total
Resource Based	26.5%	18.3%	17.6%	19.1%
Low technology	41.2%	41.9%	30.6%	37.6%
Medium Technology	31.2%	28.0%	39.8%	32.9%
High Technology	1.1%	11.8%	12.0%	10.5%

Source: see Table 4

The loss of market share to China in low technology products would not be a cause of concern if South Africa had responded by gaining market share from other exporters in medium and high tech products. There is some evidence that this has occurred in the US market where South Africa's exports of medium technology products trebled between 2001 and 2010 and its share of US imports more than doubled.¹³ In the EU and SSA however, South Africa's share of imports of medium and high tech products changed relatively little over the period.

¹³ Own calculation from UN Comtrade data. This may reflect the influence of preferential access granted by the US to South Africa under the African Growth and Opportunity Act (AGOA).

A more disaggregated view of the products most affected by Chinese competition can be obtained by looking at the HS Chapters where losses have been greatest. Table 6 shows that there are three chapters which feature in the top six in all three markets, iron and steel, non-electrical machinery and vehicles and parts. Two more sectors are amongst the most significant in both the EU and SSA, namely electrical machinery and iron and steel products. The main concentration of losses of market share to China in the US over the period was in knitted apparel, supporting the point made earlier that exports to the US market were affected by the erosion of AGOA preferences with the ending of the MFA. Losses in other base metals are mainly in manganese and to a lesser extent cobalt. Perhaps surprisingly the sixth Chapter in the US where South Africa has lost market share to China is in prepared fruit and vegetables where tinned pears and peaches and apple juice are the main products affected.

Table 6: Leading Sectors in terms of Aggregate Loss of Market Share to China, 2001-2010, by Major Market

USA	EU	SSA
Apparel (knitted)	Electrical Machinery	Non-electrical Machinery
Iron & Steel	Furniture	Electrical Machinery
Non-electrical Machinery	Iron & Steel	Iron & Steel Products
Other Base Metals	Non-electrical Machinery	Vehicles & Parts
Vehicles & Parts	Vehicles & Parts	Rubber
Prepared veg, fruit etc	Iron & Steel Products	Iron & Steel

Source: See Table 1

The more detailed sector and product analysis reinforces the point that South Africa has lost markets to China in a range of products, not just labour intensive products.

8. Conclusion

The evidence of this paper shows that competition between South Africa and China in the former's main export markets was relatively limited in the late 1990s before China joined the WTO. The last decade however has seen a significant increase in the competition faced by South African exporters, particularly in African markets. This has been a result of growth of Chinese exports both at the intensive and the extensive margins, with the number of products which they export in common increasing, as well as China increasing its share of the import market for products which it already exported at the start of the period.

There is evidence of “crowding out” of South African exports by Chinese products in all the country’s major export markets (see Table3). This was most marked in SSA where, on average, exports in 2010 were almost 10% lower than they would have been had South Africa maintained its market share vis-à-vis China. This compared to a 7.8% loss in the EU and 5.6% in the US (see Table 3). There was also considerable variation in the degree of crowding out within SSA with exports being most affected in Angola, Mozambique and the West and East African countries, while displacement has been relatively less marked in the neighbouring land-locked countries (Zimbabwe and Zambia).

Although the analysis by technology level showed that in general it was exports of low technology products that had been most severely affected by Chinese competition, all types of manufactured exports lost ground to China. South Africa has not been able to compensate for losses to China by expanding its share of imports of more sophisticated products except in the case of exports of medium technology products to the US.

While South Africa has lost market share to China in its major markets, this has not led to a reduction in the absolute level of manufactured exports from South Africa. Indeed South African exports to the 10 SSA countries more than trebled between 2001 and 2010, while those to the US more than doubled and to the EU increased by more than 90%.¹⁴ The “crowding out” that has been described in the paper is therefore a relative story and not one of absolute declines in South African exports. The “crowding out” also only refers to manufacturing and not to primary products where Chinese economic growth and demand for resources has enhanced South African exports to third countries through rising commodity prices.

¹⁴ Based on values in current US\$ taken from UN Comtrade.

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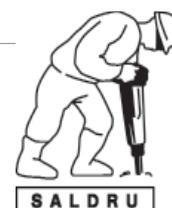
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southern africa labour and development research unit

The Southern Africa Labour and Development Research Unit (SALDRU) conducts research directed at improving the well-being of South Africa's poor. It was established in 1975. Over the next two decades the unit's research played a central role in documenting the human costs of apartheid. Key projects from this period included the Farm Labour Conference (1976), the Economics of Health Care Conference (1978), and the Second Carnegie Enquiry into Poverty and Development in South Africa (1983-86). At the urging of the African National Congress, from 1992-1994 SALDRU and the World Bank coordinated the Project for Statistics on Living Standards and Development (PSLSD). This project provide baseline data for the implementation of post-apartheid socio-economic policies through South Africa's first non-racial national sample survey.

In the post-apartheid period, SALDRU has continued to gather data and conduct research directed at informing and assessing anti-poverty policy. In line with its historical contribution, SALDRU's researchers continue to conduct research detailing changing patterns of well-being in South Africa and assessing the impact of government policy on the poor. Current research work falls into the following research themes: post-apartheid poverty; employment and migration dynamics; family support structures in an era of rapid social change; public works and public infrastructure programmes, financial strategies of the poor; common property resources and the poor. Key survey projects include the Langeberg Integrated Family Survey (1999), the Khayelitsha/Mitchell's Plain Survey (2000), the ongoing Cape Area Panel Study (2001-) and the Financial Diaries Project.



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