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BOTSWANA INSTITUTE FOR DEVELOPMENT POLICY ANALYSIS

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Abstract

The objective of this paper is to examine the impact of trading with China on Botswana's domestic and third markets. The paper also assesses the structure and magnitude of Botswana-China bilateral trade. Botswana's trade balance with China has been widening over the past decade, with Botswana mainly exporting primary products and importing intermediate and capital goods, which are mainly used as inputs in the development of infrastructure in the country. The increased import penetration from China is associated with Botswana's reduced total manufacturing output. China's Textile, Clothing and Footwear (TCF) exports gained market share from Botswana's TCF exports in the third markets, that is South Africa. There is a need to consider ways of enhancing Botswana's export competitiveness and there are also lessons to be learnt from China in relation to enhancing productivity in the TCF and other exporting industries.

Executive Summary

1. The re-emergence of China as a major producer in the global economy can mainly be explained by its use of trade and industrial policies which complemented its ascension to the World Trade Organization (WTO) in 2001. Due to its rapid economic growth rate and increased integration with the global economy over the past decades, China has had a significant trade impact on both developed and developing countries.

2. Trade between Botswana and China dates back to 1975, but began to intensify from 2006 onwards. In 2011, China was Botswana's third largest import supplier after South Africa and the United Kingdom. It was also the 12th largest destination for Botswana's exports.

3. As Botswana exports primary products, it is not surprising that exports to China are also mainly raw materials and intermediate goods. These include non-industrial diamonds, copper and nickel ore concentrates and crude vegetable materials (Tables 2 & 3). Unlike in the past, the main imports from China to Botswana are now intermediate and capital goods (machinery and equipment, iron and steel products) (Table 4), which are mainly used as inputs in the infrastructural development projects in Botswana. Many of these are being implemented by Chinese construction companies but imports would nevertheless continue irrespective of the presence of these companies simply by virtue of China's relative competitiveness as a supplier of this range of products.

4. The technological sophistication of products imported from China has evolved over time. In 2000, almost 70% of the total imports sourced from China by Botswana were labour-intensive and resource-intensive manufactures. This proportion shrank to less than 13% in 2011 and 25% in 2012. Although the share of labor-intensive and resource-intensive manufactures in total manufactured imports from China declined, its value has increased in absolute terms (Figure 3).

5. Industries which had a high share of imports from China include travel goods and handbags (40%), textile fibres, yarn, fabrics and clothing (26%), telecommunication and sound recording (25%) footwear (21%), machinery and equipment (12%) (Table 5).

6. The extent of the impact of imports from China on Botswana's productive sectors is reflected on the rising share of the imported goods from China in the domestic consumption, mainly after 2005 (Figure 4). The increased imports from China are associated with reduced manufactured output growth in Botswana over the period under investigation. However, the increase in import penetration from China was not sufficient to offset the decline in import penetration from the rest of the world (Table 6).

7. The expansion of exports from Botswana to the world has contributed little to the growth of the domestic manufacturing sector. This in turn implies that the export of manufactured goods from Botswana has not been globally competitive (Table 6).There is a need to consider ways to enhance export competitiveness of manufactured goods in Botswana.

8. Imports from the rest of the world also lost market share to China in the Botswana market (Table 7). Thus, South Africa, which has long been the main source of supply of Botswana's imports, has lost part of its Botswana market share to China (Table 5).

9. Almost all Botswana's TCF exports into South Africa lost market share to China. Moreover, the extent of the loss of market share has been increasing over the years but it should be noted that the decline has been very small (Table 9). By way of contrast Lesotho has gained market share from China in the SA market, implying that Lesotho is a relatively competitive producer of TCF products in comparison to Botswana (Table 10).

10. China's TCF's commercial advantage stems from various factors. China has managed to integrate into global production networks and updated to more advanced and sophisticated production technology. Secondly, productivity is a major driver of its competitive advantage and has been a central issue in China's industrial policy. Thirdly, China has lower manufacturing overheads. Fourth, China's TCF industry and many other industries receive generous government support to improve production, develop new technology, improve product quality and undercut price.

11. There is a need to consider ways of enhancing Botswana's export competitiveness. There are also lessons to be learnt from China in relation to enhancing productivity in the TCF and other export industries.

Acronyms

BOB	Bank of Botswana
CSO	Central Statistics Office
CMS	Constant Market Share analysis
GDP	Gross Domestic Product
MFA	Multi-Fibre Agreement
ROW	Rest of the World
SA	South Africa
SITC	Standard International Trade Classification
SMEs	Small Medium Enterprises
TCF	Textile, Clothing and Footwear
UK	United Kingdom
UNCTAD	United Nations Conference on Trade and Development
USA	United States of America
WTO	World Trade Organization

1. Introduction

In the past three decades, China has re-emerged as a major producer in the global economy and is rapidly regaining its place as the world's largest producer which it held until the 19th century[1]. In 2012, China was ranked second after the USA in terms of GDP (nominal figures) and second as a trading nation[2]. Over the past decade, the real GDP for China has grown in real terms by more than 8% per annum on average while the expansion of its exports grew at an annual average rate of 21% since 2000. China's re-emergence and its rapid growth as a trading nation can mainly be explained by its use of trade and industrial policies which complemented its accession to the World Trade Organization[3]. The sheer size of the economy has also played a role in attracting investment to China.

China's rapid economic growth has also generated enormous improvement in the economic performance of many countries, in particular those that have developed a strong commercial relationship with China. Countries have benefited significantly from both lower costs of intermediate and capital goods and from the higher prices of basic commodities exported to China. The trade relationship has also had negative effects on those countries which compete with China's exports, especially in third export markets (Ramos, 2008). Thus, the trade relationship between China and its trading partners has resulted in economic gains and losses. China has provided a growing market for the exporters of primary commodities and has also contributed to a price boom for many of these primary commodities, boosting export growth in a number of developing countries (Farooki & Kaplinsky, 2012). In the case of Africa, the engagement with China has contributed significantly to its export growth (Wang & Bio-Tchane, 2008). Between 2001 and 2012, Africa's exports to China rose on average by more than 30% while Africa's exports to the rest of the world rose on average by less than 15%. Beneficiaries of the export growth are mainly countries with a trade structure which does not overlap with that of China (Renard, 2011) (Lederman, Olarreaga & Soloaga, 2007). Most of these countries' main exports are raw materials such as minerals, industrial inputs and primary agricultural products (Lederman, Olarreaga & Soloaga, 2007).

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1 Before the industrial revolution era, china was once major player in the global economy. Lin. J. Y. (2011) in his paper titled China's Economic Development and Cultural Renaissance in the Multipolar Growth World of the 21st Century, says;

> "China's civilization is one of the oldest in the world…. After the Industrial Revolution, however, China's economic and international status dropped precipitately, while the West enjoyed substantial gains in social, economic, and technological progress. By the mid-19th century, when many nations in Africa, Asia, and Latin America were colonized by or fell into the spheres of influence of Western powers, China also descended to become a poor, underdeveloped, semi-colonized nation that had to pay indemnity and surrender territory to the West".

2 See the 2012 rankings of countries by GDP by the World Bank, United Nations, and the International Monetary Fund

3 For detailed reading on the impacts of WTO on China economy consider Lanchovichina & Martin (2004) and Ramos (2008).

However, China's global expansion has also lead to concerns amongst developing countries (mainly Latin America and Africa) that its export growth displaces domestic production and employment, especially for low cost manufactures in labour intensive industries, and exports of manufactures of developing countries in third markets. To date, there have been relatively few systematic studies on the impact of the growing economic relations especially between China and individual countries in Africa. Existing literature mainly focuses on Africa as a continent and in few major trading partners of China in Africa, disregarding the fact that the African continent consists of 53 individual countries with different histories, development models and political regimes. Consequently, country case studies are of necessity when studying the impact of China on developing countries.

This paper therefore seeks to determine whether trading with China has an impact on developing countries by using the case of Botswana. A decade ago trade between China and Botswana was limited to a narrow range of products but this has changed dramatically since the relationship has evolved to center on markets for each other's exports and Botswana's demand for infrastructure. Bilateral trade between the two countries surged from nearly zero 30 years ago to BWP265 million (USD45.6 million) in 2006, and to BWP2.1 billion (USD275.94 million) in 2012. Botswana's total imports from China stood at BWP1.74 billion (USD234 million) in 2012, while Botswana's exports to China were BWP 353 million (USD47 million) in the same year.

The main objective of this paper is to examine the impact that import penetration from China has had on domestic production and imports from other countries. Secondly, the paper estimates the loss of market by Botswana to China, in third markets. In this case, the paper considers the South African market, which is Botswana's main export market for non-mining exports. The paper also analyses the bilateral trade structure of Botswana and China. The period under analysis runs from 2000 to 2012. The paper applies the Chenery decomposition approach (1979) to separate changes in manufacturing output into domestic demand, export expansion and increased import penetration. It also applies the extension of Constant Market Share (CMS) analysis by Batista (2008) to estimate the loss/gain of market share by Botswana to/from China in third markets.

This paper is organised as follows: Section 2 outlines the analytical framework for measuring the complementary and competitive effects posed by China to developing countries. Section 3 discusses the composition and structure of Botswana's trade with China. Section 4, analyses the impact of import penetration on local production and imports from other countries, whereas section 5 estimates the extent to which Botswana's exports of manufactures losses/gains market share to China's exports in SA market. Section 6 concludes the paper.

Data limitations

The data used to estimate the impact of trading with China is a yearly series ranging from 2000 to 2012. The data was collected from Statistics Botswana, Bank of Botswana-Botswana financial statistics, Comtrade, and United Nations Conference on Trade Development (UNCTAD). The data was either in HS 8 Code classification or SITC 3, Revision 3.

Limitations of the paper include the failure to estimate the impact of import penetration in the manufacturing subsectors and to analyze the rapidly growing Botswana-China bilateral trade-in-services. There has been no estimate of the impact of intermediate and capital goods on production costs of Botswana's productive sectors. Lastly, due to lack of data there has been no estimates of Botswana's consumer surplus generated from consuming relatively low-priced goods from China.

2. A framework Analysis for the Impacts of China on the Botswana's economy

China cooperates with Botswana through various channels, which include; aid, investment, trade in goods and services, and education[4]. Among these forms of cooperation, the trade channel is the main driver of the bilateral relationship between the two nations. China has also actively provided construction service since 2003 mainly to the Government of Botswana (GoB) and to parastatal organizations. The estimated value of projects conducted by Chinese companies that commenced between 2003 to 2008 in Botswana amounts to USD741.88 million (Chen, 2009). The increased service provision by Chinese companies in the construction sector partly explains the rapid increase in trade in goods between the two countries.

This paper examines in detail the trade in goods channel[5] by following the analytical framework by Kaplinsky & Messner (2008) in Table 1. The matrix distinguishes between those impacts that involve a complementary relationship between China and Botswana and those where Botswana and China are in competition with each other. According to Jenkins (2012), the former involves the 'win-win' situation where both countries gain from the growth of China whereas the latter gives rise to fears that Botswana is losing out to China in the global and domestic markets[6].

[4] The Botswana-China education and human resource cooperation is within the framework of Forum on China-Africa cooperation, the education and human resource. Since 2007, China has increased the scholarships for Botswana students. Besides that, China has also rendered military training assistance to Botswana Defence Force. In 2006, China offered 32 training quotas and this number was raised to 43 in 2007. Compared to the above mentioned long-term study and training, more and more short-term training opportunities are offered to Botswana by China, which usually last from one week to half a year. The cooperation includes the establishment of the Confucius Institute at the University of Botswana. (http://bw.china-embassy.org/eng/xwdt/t356945.htm).

[5] The paper failed to discuss the trade in service in any detail due to unavailability of disaggregated data on services trade in Botswana.

[6] These two dimensions are also commonly expressed as opportunities/ or gains and threats/ losses / or challenges in the literature on China and developing countries.

Table 1: Impacts of China on other developing countries through trade channel

Channel	Impact	Nature of Links
Trade	Complementary	Consumer goods and inputs for industries; China's demand for commodities; increased world commodities prices for developing countries' exports.
	Competitive	Imports from China displace local producers and imports from traditional partners; loss of market share to China in third markets by developing countries.

Source: Author's elaboration based on Kaplinsky & Messner (2008)

The literature on the impact of trading with China on developing countries has shown that many developing countries have reaped enormous benefits from China's rapid growth and increasingly important trade links with the developing countries, although other developing countries have suffered from increased competition both in domestic and third markets. The impact of China on each country depends on the commodities in which the county specializes. Countries producing and exporting labour-intensive goods are likely to face competition from China in both domestic and third markets, while those exporting primary commodities will gain (Schiere, Ndikumana & Walkenhorst, 2011). It is worth noting that in the recent past China's exports of capital-intensive and technologically advanced goods has shown a marked upward trend, implying that China has joined other global suppliers of these goods.

African countries that mainly export unprocessed oil, metals and certain industrial inputs have enjoyed increases in export volumes and prices (Schiere, Ndikumana, & Walkenhorst, 2011). Some of the African countries mentioned in Schiere et.al (2011) as beneficiaries of exporting oil, metals and industrial inputs to China include Angola, Chad, Congo, Cameroon, Nigeria, Sudan, Ethiopia, Ghana, South Africa, Ivory Coast , Mali, Tanzania, Zambia, Zimbabwe and Congo. Studies have shown that sectors in developing countries trading with China have suffered from reduced production and employment, owing to the competition from China, both domestically and in third markets. Egziabher (2006), cited in Kaplinsky & Morris (2008) analyzed the impact of China's exports on a group of 98 small and medium enterprises (SMEs) in Ethiopia and reports that about 60% of footwear firms were forced to close or to rationalize their activities due to increased competition from China. In South Africa industrial production was reduced by 5% and contributed to drastic decline in the formal employment[7] in the textile sector (Edwards and Jenkins, 2012). Firms affected by increased import penetration from China in Africa include even firms financed by China, for instance, the closure of Mulungushi textile mills in Zambia[8] (Chileshe, 2010).

[7] Renard (2011) reports that the textile industry in South Africa lost between 23 000 and 85 000 jobs due to increased imports from China.

[8] As a direct result of competitive imports, the Mulungushi Textiles factory closed in early 2007. The Mulungushi was financed by China in the 1970s as a sign of Sino–Zambian solidarity. The factory was once the biggest textile factory in the country, but ceased production after suffering repeated losses. More than 1 000 jobs were lost and the infrastructure left to waste. See also Arshad Dudhia, Musa Dudhia & Co (2012).

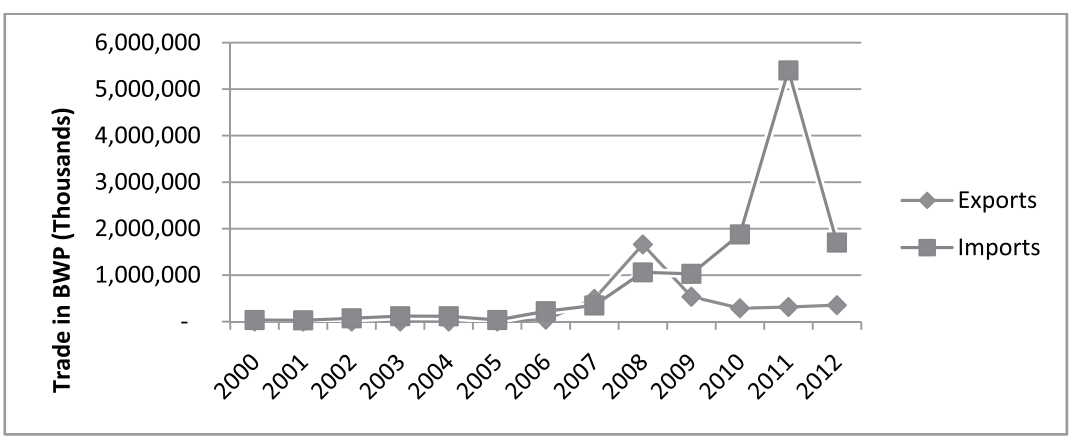
China's exports to third markets have also crowded out many of the exports of manufactured goods from developing countries. Countries affected are characterized by declining exports while China's exports are rising in these third markets. Studies by Jenkins & Edwards (2013) and Giovannetti & Sanfilippo (2009) highlight the link between rising exports from China and declining exports in Africa.

Having examined the literature on the impacts of China on developing countries, there have been no studies exploring the trade relations specifically between Botswana and China. Consequently, a detailed empirical analysis can provide more insight into the impact of China's trade on the Botswana economy. The next section discusses the bilateral trade linkages by mainly analyzing the structure of trade between the two countries.

3. Botswana-China Trade Linkages

The Botswana-China diplomatic relations date back to 1975 and it has been strengthened greatly by trade in goods, as well as service provision over the past decade. China is now Botswana's fastest growing trading partner. Total trade between the countries surged from nearly zero 30 years ago to BWP34 million in 2000, BWP265 million in 2006, and BWP2.1 billion in 2012. Botswana's total imports from China increased from BWP33.82million in 2000 to BWP1.74 billion in 2012, while Botswana's exports to China increased from BWP25 thousand in 2000 to BWP 353 million in 2012 (Figure 1)[9].

Figure 1: The bilateral trade trends, 2000-2012



Source: Comtrade data

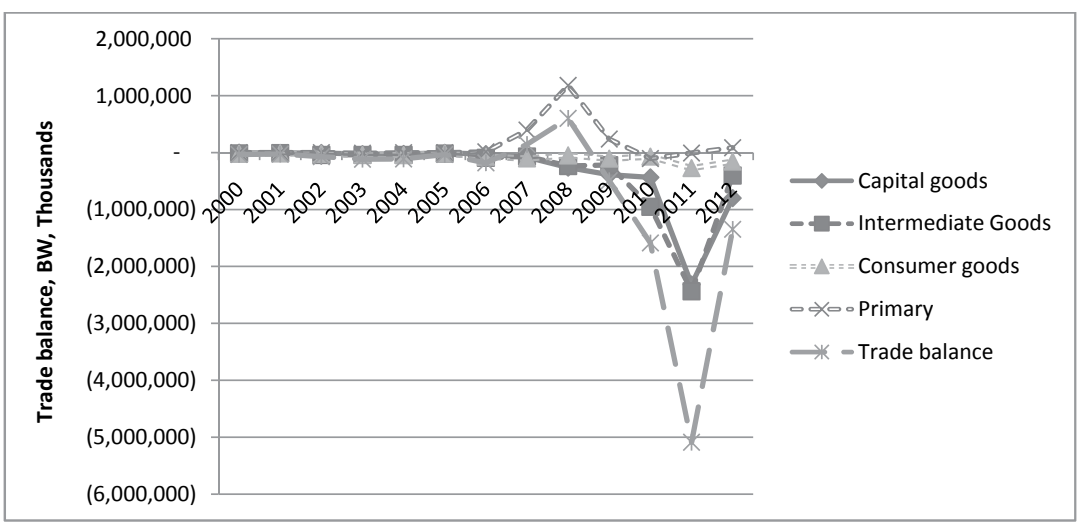
The remarkable growth in imports from China started somewhat earlier than that of exports. The share of imported goods from China in Botswana's total imports has increased from less than 0.5% in 2000 to a maximum of 10.9 % in 2011, whereas the

[9] The highest bilateral trade volume was realized in 2011 at BWP5.7 billion due to high importation of capital goods from China.

share of exported goods from Botswana to China increased from a negligible 0.0002% in 2000 to a maximum of 5 % in 2008.

China's ranking as Botswana's export market and as a source of imports has significantly improved over the years. In 2000, China ranked 50th as Botswana's export market and the 12th Botswana's source of imports. These rankings changed drastically especially during the 2007-2009 period[10] due to the growing demand for primary commodities (e.g. copper and nickel) by China and price boom in those commodities. The importation of intermediate and capital goods by Botswana from China had also increased significantly as the Botswana government embarked on major construction projects, frequently undertaken by Chinese firms. Today, China is Botswana's 12th largest export market and the 3rd most important source of imports, after South Africa and United Kingdom[11]. Throughout the period under analysis, Botswana has run a trade deficit with China except in 2007 and 2008 (Figure 2). The observed Botswana's trade surplus with China occurred because during these years Botswana had exported copper and nickel mattes which were selling at high prices[12].

Figure 2: Bilateral trade balance by end use classification, 2000-2012



Source: Comtrade data

[10] In 2008, China was ranked as Botswana's third export market and second source of imports.

[11] It should be noted that the rise of United Kingdom as the second source of imports was mainly due to the importation of diamonds for further processing. This would end with domestication of diamond trading in Botswana in 2013.

[12] According to the data collected from Index mundi website the world copper and nickel prices were high during 2006-2008. See Annex 1.

3.1 Botswana's Export Structure with China

Botswana's exports to China in the period under analysis exhibit two distinguishing characteristics; first, they are mainly primary goods and intermediate goods, most with a low level of processing (Table 2); and second, they are highly concentrated in a few products including non-industrial diamonds, crude, vegetables, materials and works of art. Botswana's exports of non-industrial diamond to China have shown an upward trend since 2004 and today accounts for 92% of Botswana's total exports to China (Table 3). By contrast, the share of Botswana's exports of textile, footwear and clothing to China has collapsed. In 2006, the Botswana TCF exports to China accounted for 35% of Botswana's total exports destined to China while in 2012 they accounted for a negligible 0.04%. It is not known as to why Botswana's TCF sector export TCF goods to China, given that China have a competitive advantage in the production of these goods. The rise in non-industrial diamonds exports to China from Botswana is a direct result of the rise in diamond cutting and polishing in China.

Table 2: Composition of Botswana's exports to China by end-use classification, 2000-2012 (% share)

	Exports		
Products	2000	2006	2012
Primary	0	64.4	25
Intermediate Goods	100	0.1	74
Consumer Goods	0	35.5	0
Total	**100**	**100**	**100**

Source: Comtrade Data

Table 3: Botswana's main exports to China, 2006 and 2012

		Exports, BWP		Share in Total exports (%)	
Commodity Code	**SITC Description**	**2006**	**2012**	**2006**	**2012**
667	Pearls, Precious stones	24,709,068.84	324,783,529.27	64	92
292	Crude Vegetables materials	-	25,811,734.77	0	7
65/84/85	Textile, footwear and clothing	13,591,816.99	18,907.00	35	0
	Other exports	463,678.31	2,412,053.53	1	1
	Total exports	38,764,564.15	353,026,224.56	100	100

Source: Comtrade Data

At present China cannot be said to be an important driver in the development of high value added exports in Botswana. This is not a surprising result taking into account the typical bias of Botswana's exports towards resource-based products.

3.2 Botswana's Import Structure with China

China's exports to Botswana are at present composed not only of consumer goods, as may have been the case in the past, but also of intermediate and capital goods (Table 1 & 3). Taking into account the period under analysis, it can be seen that while in 2000 consumer goods (e.g. footwear, textile, clothing, televisions) represented more than 50% of Botswana's total imports from China, in 2012 this proportion shrank to 10% as can be seen in Table 4. However, China's exports into Botswana's market of consumer goods have increased in absolute terms.

Table 4: Composition of Botswana's imports from China by end-use classification, 2000 and 2012

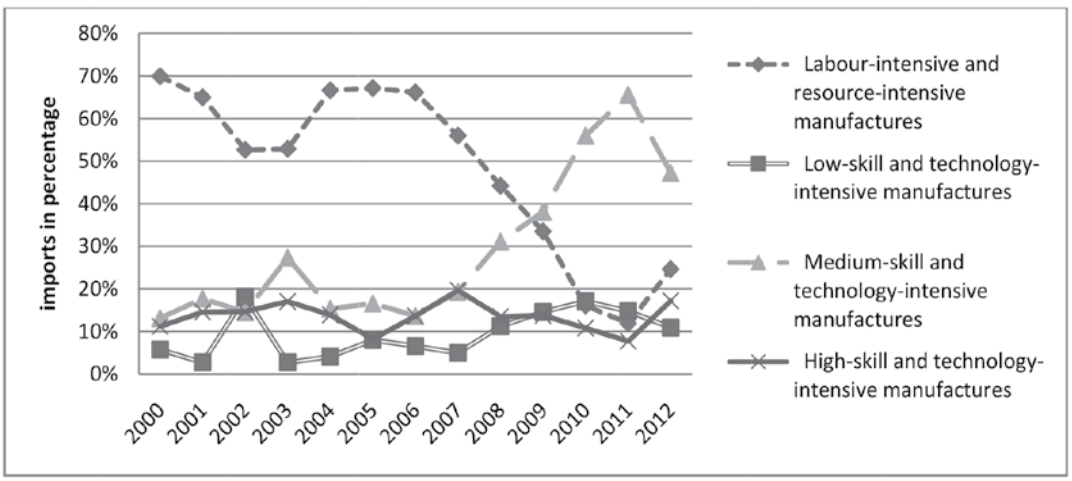
	Imports (%)		
Products	2000	2006	2012
Primary	0	28	0
Intermediate Goods	38	40	41
Consumer Goods	55	6	10
Capital Goods	6	26	49

Source: Comtrade Data

By contrast, imports of capital goods are today the main category of products imported from China, which reinforces the idea that China is gaining footing as a global provider of machinery and equipment. Unlike in the past, the main imports from China to Botswana are intermediate and capital goods (machinery and equipment, iron and steel products) (Table 4), which are mainly used as inputs in the infrastructural development projects in Botswana. As mentioned earlier, the increase in importation of these goods from China can be partly explained by China's relative competitiveness as a supplier.

The technological sophistication of goods imported from China by Botswana has also evolved over time (Figure 3). Taking into account the period under analysis, it can be seen that while in 2000 labour–intensive and resource–intensive manufactures represented more than 70% of Botswana's total imports from China, by 2011 this proportion shrank to less than 13%, and stayed at 25% in 2012. By contrast, medium-skill and technology manufactures increased substantially since 2008 onwards and today is the main category of products imported from China.

Figure 3: Composition of China's exports to Botswana by technological sophistication, 2000-2012



Source: UNCTAD data

3.2.1 Product and Industry Analysis of Botswana Imports from China

China rose from being Botswana's 12th largest import partner for goods with a share of total imports of less than 0.5% in 2000 to its third largest import supplier in 2012 with a share of about 4% after South Africa and United Kingdom. Much of the growth in imports from China has been driven by the importation of new products. For example, the number of products imported from China using SITC, Rev 3 at 3 digit level, increased from 96 products in 2000 to 203 products in 2012. In 2012, China was the leading supplier of man-made fibers suitable for spinning (78.2%)[13], steam turbines and other vapor turbines (93.8%), and rotating electric plant (76.1%). In overall, the market share of products (imported from China) in the Botswana sectors have increased over the years.

Industries that have had the highest share of imports from China include travel goods and handbags (40%), textile and clothing industry (SITC 26+65+84) (26%), footwear (25%), furniture (24%), telecommunication and sound recording (25%) machinery and equipment (SITC 7) (12%). By contrast exports from Botswana's traditional trading partner, South Africa have diminished as a share of total imports (Table 5).

[13] It is part of the Textile fibres (other than wool tops and other combed wool) and their wastes (not manufactured into yarn or fabric)

Table 5: The Share of products imported from China and South Africa to Botswana by product, 2000, 2006 and 2012

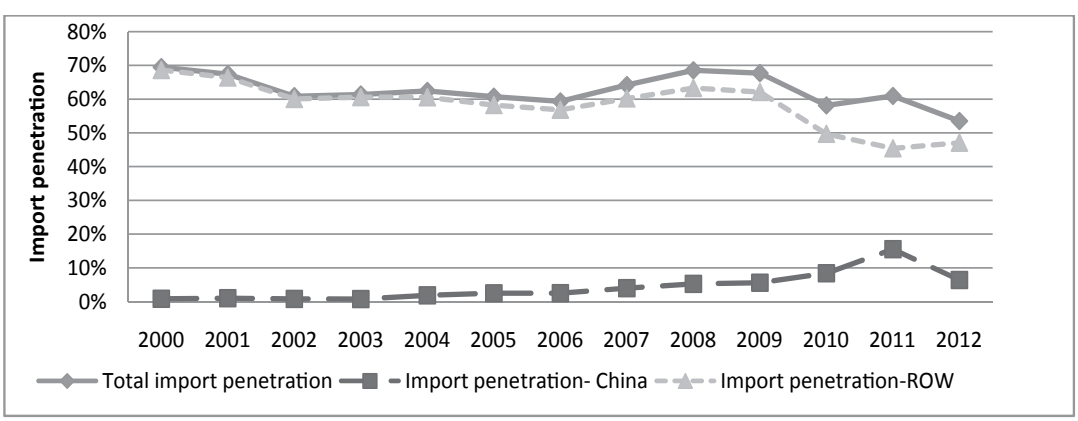
		China			South Africa		
	Industry/ Product	2000	2006	2012	2000	2006	2012
	Dairy products and birds' eggs	0%	1%	0%	77%	90%	90%
	Cereals and cereal preparations	0%	0%	0%	77%	95%	83%
	Vegetables and fruits	0%	5%	0%	97%	93%	92%
	Coffee, tea, cocoa, spices	0%	0%	0%	75%	90%	81%
	Miscellaneous edible products and preparations	0%	0%	0%	94%	96%	89%
	Beverages	0%	0%	0%	95%	84%	64%
	Crude rubber (including synthetic and reclaimed)	0%	1%	5%	54%	94%	35%
	Textiles fibres and their wastes	0%	6%	21%	41%	26%	43%
	Organic chemicals	2%	0%	11%	79%	80%	60%
	Inorganic chemicals	0%	1%	7%	94%	67%	48%
	Dyeing, tanning and coloring materials	0%	0%	10%	93%	94%	83%
	Medicinal and pharmaceutical products	1%	0%	1%	69%	78%	42%
	Essential oils for perfume materials and cleaning preparations	0%	0%	1%	97%	97%	89%
	Plastics in primary forms	0%	0%	3%	85%	94%	82%
	Plastics in non-primary forms	0%	1%	11%	79%	95%	70%
	Chemical materials and products	0%	9%	14%	82%	77%	67%
	Leather, leather manufactures and dressed furskins	0%	0%	1%	89%	92%	77%
	Rubber manufactures	3%	8%	17%	74%	67%	69%
	Cork and wood manufactures (excluding furniture)	0%	1%	4%	84%	83%	51%
	Paper and paper manufactures	0%	1%	3%	94%	92%	86%
	Textile yarn and related products	5%	26%	22%	52%	49%	48%
	Non metallic mineral manufactures	0%	1%	1%	58%	37%	13%
	Iron and steel	0%	5%	14%	78%	76%	79%
	Non-ferrous metals	0%	2%	6%	63%	74%	35%
	Manufactures of metal	1%	1%	12%	81%	90%	61%
	Power generating machinery and equipment	0%	1%	63%	57%	60%	24%
	Specialised machinery	0%	2%	3%	32%	66%	41%
	Metal working machinery	1%	1%	8%	64%	29%	32%
	Other industrial machinery and parts	0%	1%	14%	88%	85%	62%
	Office machines and automatic data processing machines	0%	1%	2%	66%	63%	37%
	Telecommunication and sound recording apparatus	1%	7%	25%	38%	42%	17%
	Electrical machinery, apparatus and appliances	1%	1%	14%	56%	84%	52%
	Road vehicles	0%	1%	2%	70%	77%	51%
	Other transport equipment	0%	0%	0%	9%	15%	20%

	Prefabricated buildings, sanitary, heating and lighting fixtures,	0%	3%	20%	92%	87%	68%
	Furniture and parts thereof	1%	1%	24%	89%	17%	66%
	Travel goods, handbags	20%	33%	40%	55%	61%	54%
	Articles of apparel & clothing accessories	13%	30%	29%	73%	60%	58%
	Footwear	11%	21%	21%	73%	74%	73%
	Professional and scientific instruments	0%	0%	8%	63%	56%	38%
	Photo apparatus, optical goods, watches and clocks	0%	2%	5%	80%	81%	68%
	Miscellaneous manufactured articles	0%	3%	12%	63%	64%	54%
	Manufactured goods (SITC 5 to 8 less 667 and 68)	1%	4%	12%	65%	67%	52%
	Machinery and transport equipment (SITC 7)	0%	2%	12%	55%	68%	43%
	Textile fibres, yarn, fabrics and clothing (SITC 26 + 65 + 84)	9%	28%	26%	62%	55%	54%

Source: Comtrade Data

The extent of the impact of imports from China on Botswana's productive sectors is also reflected in the rising share of the imported goods from China in domestic consumption. In aggregate, imports of manufactured goods from China rose from a negligible 1% of domestic consumption in 2000 to 6% in 2012 with much of the increase occurring after 2006 (Figure 4). Although the aggregate imports from China represented only around a sixtieth of total consumption of manufactures in Botswana in 2012, this average could have masked considerable differences between industries. However, due to lack of disaggregated data on the manufacturing output for industries, it was not possible to compute import penetration for each subsector.

Figure 4: The share of imports from China in Botswana's domestic consumption, 2000-2012*



Source: UNCTAD Data * Total import penetration is calculated as the ratio of total imports to total consumption, with the latter calculated as the total manufacturing gross output plus total imports minus total exports.

As shown in figure 4, the rise in imports from China in Botswana's domestic consumption in the recent past has evolved rather differently from that of the rest of the world (ROW). The import penetration from China has shown an upward trend while the import penetration from the ROW has shown a downward trend. The increase in the observed level of import penetration from Chinese goods into Botswana domestic consumption is expected since China exports low-priced consumer and intermediate goods, which encourages consumers to opt for Chinese consumer and intermediate goods. Imports from China still represent a small proportion of aggregate domestic consumption, suggesting that domestic factors such as real wage levels, technology and investment flows may dominate output and trade flows, including imports from China.

4. The Impact of Import Penetration from China on Domestic Production

This section of the paper analyses the specific role played by imports from China in relation to Botswana's manufacturing output. In order to analyze the relative significance of increased import penetration in domestic production, the sources of manufacturing output growth were decomposed by applying the Chenery-style decomposition technique (1979). This technique separates manufacturing output growth into domestic consumption, exports expansion and import penetration. The approach has been subject to methodological criticisms, including the arbitrariness of the decomposition involved and the fact that since they derive from basic accounting identities, they cannot be interpreted in a causal way. Nevertheless, despite these limitations, growth accounting has been extensively used in the literature, both in developed and developing countries, and as such provides a useful first approximation when considering the impact of import penetration on domestic production.

The standard Chenery-style analysis starts from the basic accounting identity that

$$Q_{it} = D_{it} + X_{it} - M_{it} \quad (1)$$

Where D_{it} is domestic absorption of industry *i* at time *t*; Q_{it} is domestic production of industry *i* at time *t*; X_{it} is exports of industry *i* at time t; and M_{it} is imports of industry *i* at time *t*;

Defining import penetration in industry *i* at time *t* as:

$$m_{it} = M_{it} / D_{it} \quad (2)$$

Then a change in production in industry *i* between base year (0) and current year (1) can be decomposed as:

$$\Delta Q_{it} = (1 - m_{io})\Delta D_i + \Delta X_i + (m_{i0} - m_{i1})D_{i1} \quad (3)$$

Since we are interested in the impact of imports from China on domestic production, then it is necessary to disaggregate the trade data between imports from China and imports from the Rest of the World.

$$\Delta Q_{it} = (1 - m_{io})\Delta D_i + \Delta X_i + (m_{ci0} - m_{ci1} + m_{Ri0} - m_{Ri1})D_{i1} \quad (4)$$

Where m_{ci} is the share of Chinese imports in total domestic absorption and m_{Ri} is the share of imports from the Rest of the World.

This was done for two main periods under investigation; 2001-2006, when bilateral trade was minimal and 2007-2012, when bilateral trade increased significantly. The summation of domestic demand, export expansion and increased import penetration should be equal to the changes in manufacturing output. The sign (-/+) reflects the direction of the influence.

Table 6 shows the relative importance of factors influencing Botswana's manufacturing output growth in the two periods under study. Firstly, the increase in Botswana's manufacturing output is influenced by domestic demand during the two periods. Secondly, the export expansion contributed positively to changes in manufacturing output in the first period while in the second period it reduced it. The decline in exports during the later period was expected owing to the 2008-2009 global financial crises[14]. The size of the decline in exports during the period under study implies that Botswana's export competitiveness was weak. Thirdly, the decline in total import penetration is associated with an increase in manufacturing output while increased import penetration from China is associated with reduced manufacturing output. Although increased import penetration from China is associated with reduced manufacturing output, it does not offset the decline in the level of import penetration from the rest of the world (ROW).

Table 6: Chenery decomposition of changes in Botswana's manufacturing output, 2001-2012 (BWP Pula)

	2001-2006	2007-2012
Increased Domestic Demand	1,849,657	6,917,688
Exports expansion	466,111	(246,027)
Increased Import penetration	1,556,448	4,772,403
Of which IP(CHINA)	(282,823)	(1,082,908)
Changes in Manufacturing Output	**3,872,216**	**11,444,064**

Source: CSO & UNCTAD Data * IP represent import penetration whereas ROW represents Rest of the world.

[14] The demand for Botswana's primary commodities (Copper and nickel matte) by China failed to offset the decline of other goods exported during this period, hence the decline in Botswana's export expansion is expected.

As mentioned earlier, an increased import penetration from China can come at the expense of either domestic production or imports from other countries (or both). It is therefore necessary to divide the total increase in import penetration from China into that part which substituted for imports from other countries and that which reduced the market share of domestic producers.

Below are the assumptions used when estimating the displacement of both domestic production and imports from other countries by imports from China:

i. In industries where both import penetration from China and from other importers are increasing, the entire increase in import penetration from China come at the expense of domestic producers.

ii. Where the share of other importers into the Botswana market has fallen, then part of the increase in import penetration from China has been at the expense of other importers. If the share of local production in domestic demand has increased, then it is assumed that the growth of Chinese import penetration has been entirely at the expense of other importers.

The estimated impact on domestic producers and other importers is as follows:

i. If Δm_{ci} and Δm_{Ri} in industry *i* are both positive (and negative), the loss (gain) by domestic producers to (from) China is $\Delta m_{ci} D_{i1}$

ii. If import penetration by China and the Rest of the World change in opposite directions then the impact of China on domestic producers depends on whether or not the total share of imports increases or falls, that is

- If $\Delta m_{ci} + \Delta m_{Ri} \rangle 0$, $\Delta m_{ci} \rangle 0$, and $\Delta m_{Ri} \langle 0$, and the share of local production to domestic demand increase, the loss is entirely at the expense of ROW = $(\Delta m_{ci} - \Delta m_{Ri}) D_{i1}$

- If $\Delta m_{ci} + \Delta m_{Ri} \rangle 0$, $\Delta m_{ci} \rangle 0$ and $\Delta m_{Ri} \langle 0$, and the share of local production to domestic demand decreases, the loss is entirely at the expense of local producer = $(\Delta m_{ci} - \Delta m_{Ri}) D_{i1}$

Table 7 shows the estimates on the impact of imported goods from China on domestic producers and imports from ROW during two periods. The Chinese import penetration is mainly at the expense of the imports from the rest of the world and the loss has been growing over the period under investigation.

Table 7: Aggregate loss of market share by domestic producers and other importers in Botswana market, 2001-2012 (BWP)

	2001-2006	2007-2012
Loss by Rest the World to China	2,122,095	6,938,220
Loss by domestic producers to China	-	-
Total gain	2,122,095	6,938,220

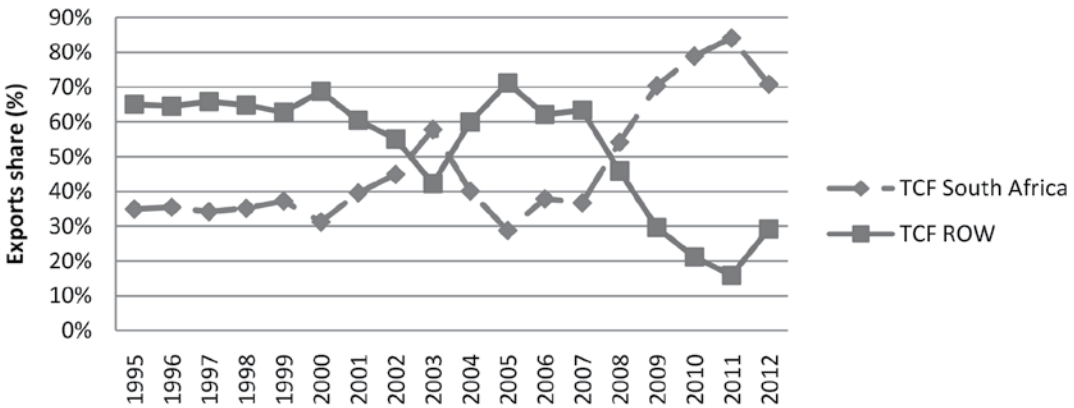
Source: CSO & UNCTAD Data

5. Botswana and China's Exports in Third Markets

The rapid growth of exports of manufactured goods from China has been associated with the loss of market by exporters of manufactured goods (especially the textile, clothing and footwear) from other developing countries in third markets. China's TCF exports are seen as threat to the exports of other developing countries since it has had a competitive advantage in this sector. For this study, the paper estimates the loss/ gain of market by Botswana's exports of TCF to China's exports in the South African (SA) market. Unlike other Botswana's major trading partners, South Africa consumes more than 70% of Botswana's total TCF exports (Table 8). Consequently Botswana's TCF exports are likely to lose market share to China in the SA market, where China is the dominant supplier of TCF products[15]. Botswana exports other goods such as meats, grains and food products to South Africa, however, China's exports of these goods are minimal. This section will therefore consider the extent to which Botswana has lost/gained market share in TCF products to/from China in the SA market . It will also consider whether the impact of China on Botswana's export in SA market increased over time or not. Lastly, the section will estimate the impact of China's exports to SA on SACU members in SA market for comparison purposes.

[15] See Edwards & Jenkins (2013). TCF sub sectors that had the highest change in import penetration from China in the SA market between 2001 and 2010 include knitted and crocheted fabrics (35.5%), clothing (21.94%), and footwear (21.71%).

Figure 5: Botswana's TCF exports to the world market, 2000-2012



Source : Comtrade Data

To estimate the loss of market share to China in SA market, the study uses an extension of Constant Market Share (CMS) analysis by Batista (2008). Unlike other approaches, derived from comparative advantage theory, which only correlates export structures of two countries to determine the extent of competition, this approach goes further to consider their share in the world market. Thus this approach emphasizes "competitive advantage" as opposed to 'comparative advantage' of a particular producer. The CMS analysis assumes that gains/losses of market shares between countries are related to their relative growth. In other words, countries gain from those countries whose exports are growing more slowly and lose to those that are growing faster than their own counterparts.

The loss/gain of market share by a country (B) to China (C) , in a particular product *i* is defined as:

$$K_{Bci} = \Delta K_{Bci} K_{ci}^{t} - \Delta K_{ci} K_{Bi}^{t} \quad (5)$$

Where: K_{Bi} is the share of Botswana in total imports of good i by the destination market at time *t*, $K_{ci}$is the share of China in total imports of good *i* by the destination market at time *t*; superscript *t* represents the initial year of the period.

Summing over all products gives the aggregate loss/gain of market share to China;

$$\sum \Delta K_{Bci} = \Sigma \Delta K_{Bci} K_{ci}^{t} - \Sigma \Delta K_{ci} K_{Bi}^{t} \quad (6)$$

Although the CMS framework provides an efficient method of attributing losses/ gains of market share between countries, it is not a casual analysis and it does not, in itself, identify the reasons behind a change in country's export performance identified by their export differential, such as changes in domestic cost structure or the exchange rate[16]. It should be noted that the decomposition is based on accounting identities, and one should therefore be careful in making causal inferences from it.

The TCF Exports (651-659,841-848, and 851- SITC. Revision 3 at 3-Digit level) was used to estimate the loss of market share by Botswana to China in the SA market. The data was collected for two periods under investigation: 2001-2006 and 2007-2012. The period from 2001-2006 reprensents the early years following China's accession to the World Trade Organization (WTO), a period coupled with massive trade reforms and the ending of Multi-Fibre Agreement (MFA)[17], which increased TCF exports from China to both developed and developing countries (Ramos, 2008).The period from 2007-2012 shows the effects of full integration of China into the global economy.

The analysis presented in Table 8 shows the products that have had the highest loss/ gain of market share to/from China during two periods in SA market. TCF products that lost at least 1% of their market share to China during the 2001-2006 period in the SA market include; women's clothing, of textile, knitted or crocheted (5.6%), made-up articles of textile materials (1.8%), men's clothing of textile fabrics, not knitted (1.6%), articles of apparel fabrics (1%). Few products gained market share from China during the same period but these were insignificant.

The aggregate market loss by Botswana's TCF exports in the SA market to China did increase over time, but statistically it was not significant. During the 2001-2006 period Botswana's TCF exports lost 0.66 % of its market share to China in SA market as compared to 1.11 % in 2007-2012 period.

[16] The results of CMS analysis can be combined with those generated by other methods, such as regression analysis, to provide a more rigorous investigation of a national's international competitiveness. The paper did not perform the regression analysis due to lack of data.

[17] The Multi Fibre Arrangement (MFA) governed the world trade in textiles and garments from 1974 through 2004, imposing quotas on the amount developing countries could export to developed countries. It expired on 1 January 2005.

Table 8: Botswana's loss/ gain to (from) China's market share in the SA market

	Losses (%)		BWP, Thousands	
Product-SITC , 3	2001-2006	2007-2012	2001-2006	2007-2012
[844] Women's clothing, of textile, knitted or crocheted	-5.585	-1.482	(11,148)	(36,551)
[841] Men's clothing of textile fabrics, not knitted	-1.593	-3.958	(6,825)	(72,560)
[845] Articles of apparel, of textile fabrics, n.e.s.	-0.973	-3.404	(9,753)	(146,222)
[658] Made-up articles, of textile materials, n.e.s.	-1.834	0.321	(7,689)	5,676
[655] Knitted or crocheted fabrics, n.e.s.	-0.345	-0.033	(2,757)	(215)
[843] Men's or boy's clothing, of textile, knitted, croche.	-0.101	-2.596	(2,901)	(39,898)
[656] Tulles, trimmings, lace, ribbons & other small wares	-0.104	6.173	(144)	17,913
[654] Other textile fabrics, woven	0.007	0.073	7	165
[846] Clothing accessories, of textile fabrics	0.026	-0.214	38	(841)
[848] Articles of apparel, clothing access., excluding textile	0.054	-0.132	188	(1,590)
[842] Women's clothing, of textile fabrics	0.518	-5.563	2,219	(116,254)
Aggregate loss/ gain	0.66	1.11		

Source: UNCTAD Data and author's calculation NB .Catergorisation by UNCTAD at 3-digit level of SITC .* The aggregate loss of market share by Botswana is the summation of the losses of each product multiplied by its weight in the SA total imports from the World in the base year, i.e, . for the 2001-2006 period, the base year is 2001

For the purpose of comparison, the study also estimated the loss of market share by SACU members to China in the SA market. During the first period it shows that Swaziland was the most affected followed by Botswana, while in the second period Botswana suffered more losses in absolute terms. By a way of contrast, Lesotho gained market share from China in the SA market, implying that Lesotho is a relatively competitive producer of TCF products in comparison to Botswana.

Table 9: SACU'S loss/gain to/from China's market share in SA market (selected products)*

	Botswana	Namibia	Swaziland	Lesotho
[842] Women's clothing, of textile fabrics	-5.56 (0.52)	-0.05(-0.08)	-2.159 (-0.22)	9.35 (-0.03)
[841] Men's clothing of textile fabrics, not knitted	-3.96(-1.59)	-0.06 (-0.16)	-0.63 (0.95)	5.21(0.05)
[845] Articles of apparel, of textile fabrics, n.e.s.	-3.4 (-0.97)	-0.03 (-0.06)	-0.90 (-21.74)	-3.27(0.00)
[843] Men's or boy's clothing, of textile, knitted, croche.	-2.6 (-0.1)	-0.26 (-0.51)	-0.52 (-26.55)	-0.49(0.00)
[844] Women's clothing, of textile, knitted or crocheted	-1.48 (-5.58)	-0.08(-0.15)	-0.62 (-18.60)	0.19
[659] Floor coverings, etc.	-0.3 (0.01)	-0.01(0.00)	-0.29 (0.01)	0.42
[851] Footwear	-0.22 (-0.04)	-0.05(-0.04)	-0.01 (-0.03)	11.85 (0.00)
[846] Clothing accessories, of textile fabrics	-0.21 (0.03)	-0.24(-0.10)	-0.01 (-0.14)	7.50
[653] Fabrics, woven, of man-made fabrics	-0.21 (0.07)	0.01(0.00)	0.00 (0.00)	7.90
[848] Articles of apparel, clothing access., excluding textile	-0.13 (0.05)	-0.02(0.00)	0.00 (-0.01)	7.67 (0.00)
[655] Knitted or crocheted fabrics, n.e.s.	-0.03 (-0.34)	0.00(0.00)	-0.01 (-0.01)	10.88
Aggregate loss/gain	**-1.11(0.66)**	**-0.01(-0.004)**	**-0.1(-19.70)**	**0.1 (0.00)**

Source: Own Elaboration from UNCTAD Data. Catergorisation by UNCTAD at 3-digit level of SITC. *Numbers in brackets represent the losses/gains by a specific country during the 2001-2006 period whereas numbers not in brackets represent the losses/gains by a specific country during the 2007-2012 period.

The result above on Botswana's export performance in the SA market in relation to China's exports is not surprising. The performance of Botswana's TCF industry is considered to be low and the industry's continued existence has been associated with dependency on government support and preferential agreements put forth by USA, Europe and SACU[18]. Labor productivity in businesses in Botswana is also considered to be low as compared to other middle income countries. An inappropriate work ethic, the education system, along with a mismatch of skills, low investment in training, lack of training incentives and schemes are the main reasons identified by BOCCIM for low labour productivity in Botswana.

[18] See Motswapong & Grynberg. (2013). Key issues in the textile and clothing sector in Botswana. BIDPA Working Paper No. 34.

China's TCF's commercial advantage stems from various factors. China has managed to integrate into the global production networks and updated to more advanced and sophisticated production[19]. Secondly, productivity is a major driver of its competitive advantage and has been a central issue in China's industrial policy (Worldbank, 2007). It also has lower manufacturing overheads[20]. China's TCF Industry and many other industries receive generous government support[21] to improve production, develop new technology, improve product quality and undercut price. If Botswana wishes to improve competitiveness of its manufacturing sector, the key lesson that it can derive from China's government is to have systematic policies and incentives directed towards improving productivity and competitiveness.

6.0 Conclusions

The paper has considered the impact of trading with China on Botswana by examining the impact of China's exports on domestic production as well as on third country suppliers and markets. The paper also analysed the trade structure of the two countries. Botswana, which is a primary product exporter, exports mainly primary and some intermediate goods such as non-industrial diamonds, copper and nickel ores, while China mainly exports intermediate and capital goods (such as machinery and equipment, steel and iron), which play a major role as inputs in the infrastructural development projects in Botswana. Although the share of consumer goods in Botswana's total imports from China has declined, its value in absolute terms has remained stable.

The technological sophistication of goods imported from China has evolved over the years. In 2000, almost 70% of the total imports sourced from China by Botswana were defined as labor-intensive and resource-intensive manufactures and in 2012 these accounted for 25% (Figure 3). Although Botswana has almost invariably had a trade deficit with China, in 2007-2008 it had a trade surplus as a direct result of high demand for basic commodities in China and increased prices of those commodities (Figure 1 & 2).

The share of imports from China in total domestic consumption has evolved differently from that of the share of imports from the rest of the world. The share of Chinese imports in Botswana's domestic consumption was 1% in 2000 and 11 % in 2011 while the share from the rest of the world accounted for about 70% in 2000 and 45 % in 2011(Figure 4). This may imply that Botswana is opting for relatively low cost Chinese goods.

One of the objectives of the paper was to identify industries experiencing high import penetration in Botswana, however this was not done because of the unavailability of

[19] See Lall (2005) and Broadman (2007)

[20] Garment firms in Madagascar, Kenya, Ghana, Mozambique and Lesotho, for example, produce at unit labor cost up to 60% lower than those of Chinese firms from export processing zones. Indirect costs for manufactured exports in Africa account for more than 20% of total costs whereas in China they represent less of 10% of trade costs. See Giovannetti & Sanfilippo (2009).

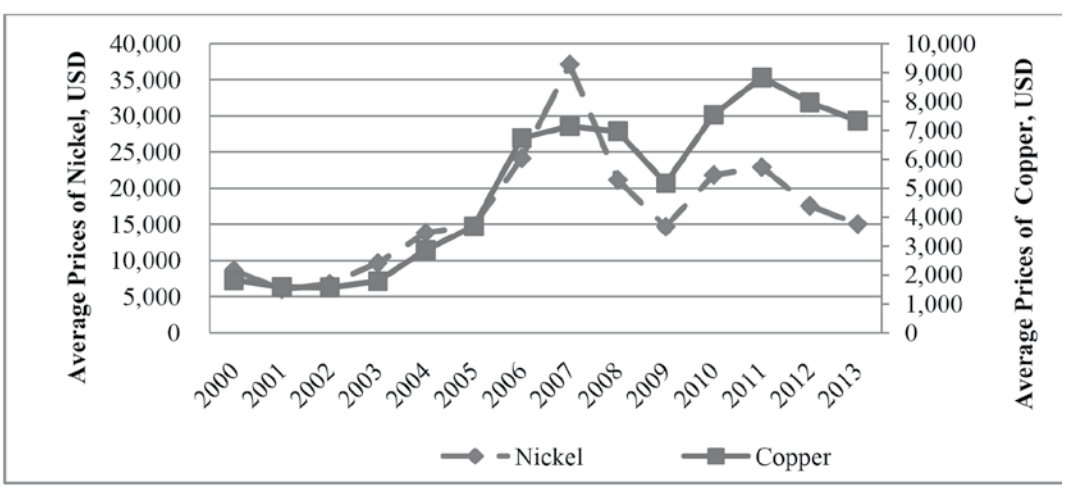
[21] China government support towards industry is usually outlined in its five-year plans or revitalization plans such as the 2009 revitalization plan for 10 selected industries (including iron and steel, automobiles, shipbuilding, petro chemical, textile and clothing, light industry, non-ferrous metals, equipment manufacturing, electronics and information industry and logistics sector).

subsector gross output data. The analysis does show that increased imports from China were associated with reduced domestic manufacturing output and this trend has strengthened over the period under study. Although increased import penetration from China was associated with reduced domestic manufacturing output, it was insufficient to offset the observed decline in import penetration from the rest of the world (Table 6).

The paper has also estimated the impact of competition from China's TCF exports on Botswana's TCF exports into the SA market. The SA market consumes more than 70% of Botswana's TCF exports whereas China is the main supplier of TCF products to South Africa. Thus, China's increasing competitiveness poses a threat to exports of Botswana to third country markets. The analysis has shown that Botswana's TCF exports into the SA market has lost market share to China in almost all TCF products. The loss of market share has increased over time. However, it is very small (Table 9). By way of contrast Lesotho gained market share from China in the SA market, implying that Lesotho is a relatively competitive producer of TCF products in comparison to Botswana (Table 10). The study did not measure the positive impact of trading with China on production costs as well as consumer surplus due to lack of data. However, this effect on increasing competitivess from cheaper imports should not be underestimated.

It should be noted that the growth of exports of manufactured goods from Botswana explained only a small proportion of the changes in the total domestic manufacturing output. This implies that the export sector has not been the driving force of the Botswana manufacturing sector and it is globally uncompetitive. Thus there is a need to consider ways of enhancing export competitiveness and there are many lessons to be learnt from China in relation to enhancing productivity in the TCF industry and increasing export competitiveness.

Annex 1: World average prices of nickel and copper, 2000-2012



Source: Index mundi Website. http://www.indexmundi.com/commodities/?commodity=copper&months=60

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