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ARTICLE INFO

Emmanuel Innocents Edoun and Edzisani Ellen Netshiozwi (2015). Empirical evaluation of China imports on employment in the South African textile industry. *Problems and Perspectives in Management*, 13(2), 15-26

RELEASED ON

Tuesday, 02 June 2015

JOURNAL

"Problems and Perspectives in Management"

FOUNDER

LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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Empirical evaluation of China imports on employment in the South African textile industry

Abstract

This paper is set to generate some empirical perspective on the impact of Chinese imports on employment levels in the South African textile industry. Using regression analysis as a method of inquiry, this paper critically assesses the relationship that exists between textile imports and employment levels as well as between exchange rates and employment levels. South Africa's imports data, employment data and exchange rate (South African Rand per Chinese Yuan) for the period from 1993 to 2011 are used to analyze the relationship between high level of imports from China and employment levels in the industry. Initial findings reveal that an increase in the value of textile imports from China will cause a decline in employment levels in the South African textile industry.

Keywords: South Africa, China, textile industries, imports, exports, trade agreement.

JEL Classification: C50, C80.

Introduction

Recent experience of increasing textile imports from China, followed by rising imports from other countries in response to the restrictions levied on Chinese imports during 2007, clearly demonstrates that local manufacturers cannot easily compete with low-cost producers from South and East Asia which then result in local firms going out of business, with this in turn leading to significant job losses. This study has set itself specific objectives that are closely linked to research questions in order to determine the relationship between high level of imports and growth of domestic textile industry (measured in terms of employment and production); to determine the role/impact of exchange rates to the South African textile industry (measured in terms of employment); and to determine what the underlying causes of high levels of imports from China are.

The above objectives seek to understand the following: How does high level of imported cheap textile goods affect employment in the South African textile industry? What is the impact of exchange rates in employment levels of the South African textile industry and what are the important variables and factors of production that impact on the level of imports?

The paper is divided into five major parts; it starts by positioning the problem in the introduction, followed by a theoretical consideration that engages different authors in the field under study. A comprehensive research methodology is provided

including data analysis as well as conclusion and recommendations

1. Theoretical consideration

The following review of literature tries to shed light on the impact of trade and its implication on employment locally and abroad. A number of authors conducted studies in order to investigate the implication of China trade with other countries. As a result therefore Motlanthe (2012) posits that cheap imports from China damage local industries and hurts the domestic Jobs markets. Furthermore, Autor, Dorn and Hanson (2012) convincingly assessed the effect of rising Chinese import competition between 1990 and 2007 on local US labor markets, exploiting cross-market variation in import exposure stemming from initial differences in industry specialization while instrumenting for imports using changes in Chinese imports by industry to other high-income countries. The above authors came to the conclusion that, continue exposure on Chinese imports increases unemployment, lowers labor force participation, and reduces wages in local labor markets. In line with the above findings, Rhys and Edwards (2013) also inferred that over the past decade, the increased growth of imports from China is positively correlated to the slow growth in output together with a sharp decline in employment in the manufacturing industry in South Africa. This situation has seriously affected economic growth in other African countries. In support of the above, Busse, Erdogan and Mühlen (2014) conducted a study and strongly argued that Sino-African trade results indicate that African imports from China, particularly non-resource imports, have a negative impact on economic growth in Africa. Experiences have shown that, a slow in economic growth is a sign that, the economy is experiencing financial difficulties as a result of firms struggling to maximize profits. Usually when firms

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This article is adapted from Edzisani Ellen Netshiozwi original Research work under the guidance of Emmanuel Innocents Edoun. The review of literature has tapped into some findings that were made available by the South African Department of Trade and Industry and other related sources.

are not generating enough profits to keep the companies moving, the first decision from the board is to lay off workers as a result of excessive dumping of cheap Chinese products in domestic markets. Vlok (2006) produced similar analysis. Nhlabatsi (2014) equally provides a comprehensive analysis when she posits that, the dumping of Chinese imports of cheap briefcase and school bags has seriously hampered the European domestic markets. As a result of the above, many firms were forced to close down with thousands losing their jobs.

In line with the above, Sandrey and Edinger (2011) comprehensively explained that raw material and the import of manufacturing good is the cornerstone of the relationship between China and African countries. They inferred that, the competition with the domestic manufacturing sector in Africa has a negative impact on employment. They convincingly argued that, China's devaluated currency facilitates export of what they produce in these African countries. As a consequence of this, some African countries such as South Africa have increased tariff in the textile industry in an attempt to protect local jobs from cheap imports.

Posso (2013) as well as Ashournia, Munch and Nguyen (2014) on the other hand inferred that importing from China is a challenge for manufacturing industries from the importing countries as this may have a negative impact on employment and economic growth. They further argued that the continuous implication of Chinese imports is correlated to a negative firm-level demand shock, which is biased towards low-skill intensive products. In line with this, an increase in Chinese import penetration facilitate lower wages for low-skilled employees.

A more advanced analysis was performed by Scott (2012) who comprehensively assessed the state of trade between the United States and China and strongly argued that, between 2001 and 2011, the trade deficit with China created a lost of over 2.7 million U.S. jobs. Close to 2.1 million of these jobs were identified in the manufacturing sector. A similar analysis was earlier performed by Ravenga (1992).

Lahart (2011) however conducted a study that rated every US County for its manufacturers' exposure to competition from China, and found that regions most exposed to China tended not only to lose more manufacturing jobs, but also to see overall employment decline. The study also inferred that, areas with higher exposure also had larger increases in workers receiving unemployment insurance, food stamps and disability payments. According to Flatters and Stern (2007),

the South African textile industry also benefited from a temporary export subsidy program which commenced in 1990.

From the above, it could be advised that government across the world should revise their trade policy with China, so to avoid the dumping of China cheap imports in domestic foreign markets. This measure will certainly soften competition at local level which could ignite economic growth and the creation of new employment. Foreign trade should therefore be based on the win/win situation in which the two trading countries could benefit mutually.

Although Adam Smith recognized the advantage of foreign trade which states that "*if a foreign country can supply another country with a commodity cheaper than the country can make it locally, the country can better buy it from them with some part of its own industry, employed in a way in which it has the advantage*", recent literature however indicates that when foreign firms dump their merchandise in the domestic market or receive subsidies from their government, there will be significant job losses and output reductions in import sensitive industries (Schumacher, 2012).

The evolution of today's standard theory of international trade goes back to the years between 1776 and 1826. Adam Smith's Wealth of Nations (1776) marked the evolution followed by David Ricardo's principles of economics (1951) and then the new trade theories (Sen, 2010). All these theories have contributed enormously in understanding the principles of trade related issues.

With the wave for trade liberalization, which has affected the developing world during the globalization process, certain tools were created for policymakers to justify the move for deregulation in the global economy. Trade barriers under the import-substituting regime were sought to be recognized as "social costs of protection" which were measured by "effective rate of protection that also tested the cost efficiency of domestic industries in comparison to international standards. The concept was used to categorize the goods and services which have the potential to be exported by developing countries which led to a change from import substitution to export promotion (Sen, 2010).

Economists over the years focused more on the theory of comparative advantage which placed emphasis on physical and natural influences over competitiveness, technological and human factors. The continuity of the theoretical development from the comparative advantage theory was revealed via Mill and Marshall to Heckscher, Ohlin and Samuelson model which explains the international

division of labor in terms of different endowments of different countries with two factors of production (i.e. labor and capital). The two essential premises of the standard Heckscher-Ohlin model are that factors of production are immobile between countries and that these factors are used in different combinations to produce different goods (Goldin, 1990).

As well put by Pugel and Lindert (1996), the Mercantilism thinking in line with the above might be relevant especially in relation to employment. In many industries, high level of exports leads to job creation while a high level of imports leads to job losses. This is true in the South African context, with China's dumping of cheap textile.

Drawing from the above theories of trade, it is important to determine how the South African textile industry finds expression into the trade theories outlined above. According to the DTI (2007), the South African textile industry is amongst the most labor-intensive industries employing approximately 11% of total manufacturing employment while contributing around 0.6% to the country's GDP. As it has been evident from different studies conducted on the South African textile industry, the industry has been experiencing challenges that are mostly caused by the influx in cheap imports especially from China, it is critical to understand the underlying causes which are linked to the trade theories based on empirical evidence.

Reed and Morris (2008) posit that, underinvestment in both human and physical capital in the South African textiles industry has worsened the crisis which was

mainly triggered by globalization and a weak currency as well as the incapability of the industry in dealing with the rising imports penetration.

1.1. Exchange rate and imports. The literature from DTI (2011) revealed that, the appreciating exchange rate and the economic boom afforded retailers greater buying power in international markets which led to an increased level of imports. This also coincided with the indirect impact of global Chinese textile exports. A weak rand which South Africa experienced in 2009 [hovering between 1\$ = R10-R11.80 (SARB, 2014)], however did not necessarily reduce the value of imported textile products as the value of textile imports from China increased from R7 billion in 2008 to R8 billion in 2009 (DTI, 2011).

1.2. Labor as a major factor of production in the textile industry. Reed et al. (2008) argue that even if the sector is capital-intensive, the ability to work for 24 hours is critical since textile firms incur huge costs each time a machine needs to be started at the beginning of a new shift. However, with the above unfolding and based on the empirical evidence related to the South African context, can quantitative restrictions reduce the level of imports?

The DTI (2007) explained that, the value of textiles grew from R17,460 million in 2001 to R28,800 million in 2005, which illustrates an improvement. However, the situation changed over the years when domestic demand decreased, which led to a crisis in the industry as indicated in Figure 1 below (Reed et al., 2008).



Source: DTI – using SIC codes 311, 312 for textiles.

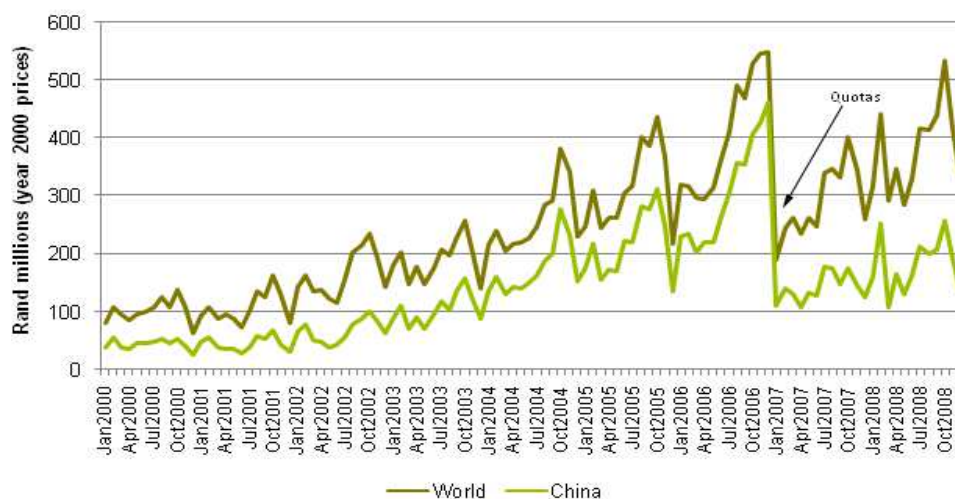
Fig. 1. Domestic demand of textile products in South Africa

Imposing quotas on one country does not really reduce the overall level of imports since other countries might view that as an opportunity for them to benefit, and increase their imports during the quota period (Woolfrey, 2009).

In a study conducted by Van Eeden and Fundira (2009), it became evident that, during the quota period, the value of Chinese imports of the targeted lines were 6% lower than in the earlier period, which represented a decline of R281 million. However, the value of overall imports of the lines which were targeted by the quotas was 33% higher during the quota period. It was

proved that imports from a number of other countries such as Bangladesh, Vietnam and Malaysia were significantly higher during the quota period.

Figure 2 below illustrates South Africa's imports of Clothing and Textiles in Quota Lines from China and the World from 2000 to 2008 (monthly). However, it is worth mentioning that, imposing quotas on one country does not really reduce the overall level of imports since other countries might view that as an opportunity for them to benefit, and increase their imports during the quota period (Woolfrey, 2009).



Source: Van Eeden (2009).

Fig. 2. South Africa's imports of clothing and textile

The above figure clearly illustrates that while quotas are identified to be an effective way of limiting imports of the targeted goods, as the Mercantilists argue, they can also be ineffective at limiting imports depending on which countries they are imposed to. If the labor costs and productivity levels are lower, it would appear that instead of turning to local manufacturers, South African retailers would simply source their goods from other low-cost producers of clothing and textiles such as Malaysia and Bangladesh which suggests that Chinese imports are not the only problem facing the local industry in South Africa (Van Eeden et al., 2009).

In supporting Van Eeden's findings, Reed et al. (2008) were rather cautious when they posit that quotas did not only fail to achieve the intended aim of improving output, employment and investment in the local industry, but also resulted in a negative overall effect, since it also damaged vital relations between local producers and retailers which are critical for the survival of the industry. What is the impact then of trade liberation of employment?

Lee (2005) defines trade liberalization as a move towards free trade through the reduction of tariff and

other related barriers. There has been increasing flows of goods and services across national borders which have been the most visible aspect of the increasing integration of the global economy in recent years. Many criticize trade liberalization and blame it for causing problems such as rising unemployment and wage inequality, increased exploitation of workers in developing countries, poor employment conditions and labor standards, de-industrialization and marginalization of low-income countries, poverty and global inequality as well as degradation of the environment. Trade liberalization if pursued without due consideration to the strategic context of a given economy, can have a negative impact on growth itself (Rahman, Bin Shadat and Raihan, 2007).

Chinembiri (2010) alluded that, South Africa is one of the countries that changed from inward looking trade policy characterized by high tariffs, quota restrictions and import substitution policies towards a liberalized export focused trade strategy. This increased openness did not provide expected rapid employment growth, but seems to have led to formal sector employment declines.

With the above in mind this study seeks to understand the real reasons for the huge influx of Chinese imports in South Africa. The following methodological approach ought to shed light on the research questions raised in the problematic.

2. Methodological approach

The study has used regression equation to analyze the data and interpret the results. This method of inquiry is set to explain each variable that forms part of the equation, this will give a clear indication to understand what constitutes endogenous and exogenous variables.

The study used the following multiple regression equation:

$$X = \alpha + \beta_1 I + \beta_2 e + \mu,$$

where X is the (endogenous variable) dependent variable. α , β_1 & β_2 are the constant variables, I & e are (exogenous) independent variables, μ is the error term which is assumed to be normally distributed and independent. The error residual consists of 3 components which are:

- ◆ random error;
- ◆ measured error; and
- ◆ effect of all other factors which are excluded from the model.

The endogenous variable X is explained by a component that varies systematically with the exogenous variables I and e and by the random error term μ , which represents all other factors affecting X .

The endogenous variable X , for the study represents the employment levels within the textile industries in South Africa and the exogenous variables are:

I – Imports in value (Special woven fabrics, tufted textile fabrics; lace tapestries; trimmings and embroidery in rand); and e – Exchange rate (South African cents to the Chinese Yuan). $\beta_1 < 0$ and $\beta_2 < 0$.

$\beta_1 < 0$: There is a negative relationship between imports and domestic industry's employment levels because an increase in the level of imports will reduce the demand of domestically produced textile goods which causes job losses.

$\beta_2 < 0$: There is a negative relationship between exchange rate and domestic industries employment because a strong rand will make imported goods to be cheap, increasing their demand and resulting to a fall in production capacity of domestic industries and thereby increasing job losses.

The study utilizes time series data that were collected over the years. Data include annual levels of employment in the textile industry, the value of imports from China and exchange rate levels (South

African Rand per Chinese Yuan). There are 19 data points or observations that were analyzed annually and the time frame of the study is from 1st January 1993 to 31st December 2011 from the Department of Trade and Industry (DTI), The Textile Federation and the South African Reserve Bank (SARB). The data are made public in the DTI and SARB websites which are open for everyone to access and are available on request from the Textile Federation.

2.1. Data collection method. The data collection method includes desk research from the DTI, Textile Federation and SARB websites. Where there were limitations in collecting data from the organizations, relevant branches within the organizations were contacted for assistance.

2.2. Method of data analysis. To analyze the impact of a high level of textile imports from China on employment levels in the South African textile industries, regression method is used. Regression analysis is a collective name for techniques for the modelling and analysis of numerical data consisting of values of a dependent variable (also called response variable or measurement) and of one or more independent variables (also known as explanatory variables or predictors).

2.3. Data validation. The current literature and theory on the impact of imports on employment provides hypotheses of what the impact is. The findings of the research are generalized since the impact of imports on employment are measured by different variables or indicators such as increase or decline in productivity and job losses (Bryman, 2012).

2.4. Hypotheses. Hypotheses established for this study are:

1. High level of cheap textile imports is associated with a decline in domestic industries productivity, measured in employment levels;
2. A strong rand is associated with high levels of imports, thereby indirectly reducing employment levels within the textile industry.

3. Presentation and analysis of data

The study uses a Statistical Package for Social Sciences (SPSS) to run frequencies, calculate Descriptive Statistics, compare Means, conduct Cross-Tabulations, conduct T-Tests, and conduct ANOVAs as well as running various types of regressions that assist in analyzing the impact of imports from China on employment in the South African textile industry.

The table below provides the data collected from secondary sources for the South African imports of textile products from China (in value), employment

levels in the South African textile industry and exchange rates (SA cent per China Yuan Middle rate). The data were collected from the Department

of Trade and Industry (imports), the Textile Federation (employment levels) and the South African Reserve bank (exchange rates).

Table 1. Employment, imports and exchange rate data

Year	Employment data in the textile industry (No)	Imports of textile from China (in value) – textile and textile articles	Average annual exchange rate (SA cent per China Yuan middle rate (R1 = 100 cents)
1993	65054	204233199	57
1994	68165	249936611	41
1995	66142	236017606	43
1996	78694	333059812	45
1997	75875	380682874	60
1998	58267	439587924	42
1999	53997	557789751	74
2000	55080	1002381156	84
2001	53384	1204676620	104
2002	54519	1829773525	127
2003	57794	2445725368	91
2004	51208	3920808284	78
2005	46518	5136624873	78
2006	46895	7522365774	85
2007	47647	6069625522	93
2008	45637	7264853044	119
2009	40207	8580876970	123
2010	36057	10011000028	108
2011	34556	11099269487	112

Variables analyzed in this study are non-stationary time series. The econometric consequences of non-stationary data can be quite severe, leading to least squares estimators, test statistics and predictors that are unreliable. A stochastic process (time series) is stationary if its mean and variance are constant over time and the covariance between two values from the series depends only on the length of time separating the two values and not on the actual times at which the variables are observed. The danger of obtaining significant regression results from unrelated data when using non-stationary series in regression analysis is obtaining spurious regression results.

3.1. Frequency tables. According to Tables 2, 3 and 4 below, the collected data (employment, imports and exchange rates) is valid at all points and there are no missing values. The data were sorted in an ascending order before the frequency tables were created using SPSS.

Table 2. Frequency table for employment levels in the textile sector

Statistics					
Employment					
N		Valid	19		
		Missing	0		
Employment in the textile industry					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	34556	1	5.3	5.3	5.3
	36057	1	5.3	5.3	10.5

40207	1	5.3	5.3	15.8
45637	1	5.3	5.3	21.1
46518	1	5.3	5.3	26.3
46895	1	5.3	5.3	31.6
47647	1	5.3	5.3	36.8
51208	1	5.3	5.3	42.1
53384	1	5.3	5.3	47.4
53997	1	5.3	5.3	52.6
54519	1	5.3	5.3	57.9
55080	1	5.3	5.3	63.2
57794	1	5.3	5.3	68.4
58267	1	5.3	5.3	73.7
65054	1	5.3	5.3	78.9
66142	1	5.3	5.3	84.2
68165	1	5.3	5.3	89.5
75875	1	5.3	5.3	94.7
78694	1	5.3	5.3	100.0
Total	19	100.0	100.0	

Table 3. Frequency table for imports

Statistics					
Imports					
N		Valid	19		
		Missing	0		
Imports of textile from China (in value)					
		Frequency	Percent	Valid percent	Cumulative percent
Valid	204233199	1	5.3	5.3	5.3
	236017606	1	5.3	5.3	10.5
	249936611	1	5.3	5.3	15.8
	333059812	1	5.3	5.3	21.1
	380682874	1	5.3	5.3	26.3

Table 3 (cont.). Frequency table for imports

	Frequency	Percent	Valid percent	Cumulative percent	
Valid	439587924	1	5.3	5.3	31.6
	557789751	1	5.3	5.3	36.8
	1002381156	1	5.3	5.3	42.1
	1204676620	1	5.3	5.3	47.4
	1829773525	1	5.3	5.3	52.6
	2445725368	1	5.3	5.3	57.9
	3920808284	1	5.3	5.3	63.2
	5136624873	1	5.3	5.3	68.4
	6069625522	1	5.3	5.3	73.7
	7264853044	1	5.3	5.3	78.9
	7522365774	1	5.3	5.3	84.2
	8580876970	1	5.3	5.3	89.5
	10011000028	1	5.3	5.3	94.7
	11099269487	1	5.3	5.3	100.0
	Total	19	100.0	100.0	

Table 4. Frequency table for exchange rates

Statistics				
Exchange rates				
N	Valid	19		
	Missing	0		
Average annual exchange rate (SA cent per China Yuan middle rate (R1 = 100 cents))				
	Frequency	Percent	Valid percent	Cumulative percent
Valid	40	1	5.3	5.3
	42	2	10.5	10.5
	45	2	10.5	10.5
	60	1	5.3	5.3
	74	1	5.3	5.3
	78	2	10.5	10.5
	84	1	5.3	5.3
	85	1	5.3	5.3
	91	1	5.3	5.3
	93	1	5.3	5.3

	104	1	5.3	5.3	73.7
	108	1	5.3	5.3	78.9
	112	1	5.3	5.3	84.2
	119	1	5.3	5.3	89.5
	123	1	5.3	5.3	94.7
	127	1	5.3	5.3	100.0
	Total	19	100.0	100.0	

3.2. Correlations analysis. Correlations in this study are run using scatter plotting and correlation tables. Correlation is measured by the correlation coefficient, which represents the strength of the putative linear association between the variables being studied. A correlation coefficient of zero indicates that no linear relationship exists between two continuous variables, and a correlation coefficient of -1 or $+1$ indicates a perfect linear relationship. The strength of relationship can be anywhere between -1 and $+1$. The stronger the correlation, the closer the correlation coefficient comes to ± 1 (Mukaka, 2012).

According to Mukaka (2012), if the coefficient is a positive number, the variables are directly related (i.e., as the value of one variable goes up, the value of the other also tends to do so). If, on the other hand, the coefficient is a negative number, the variables are inversely related (i.e., as the value of one variable goes up, the value of the other tends to go down).

Scatter plotting is normally used to examine the association of two continuous variables. A positive correlation means that as the value of one set of data increases, the other data will also increase while a negative correlation means that as the value of one set of data increases, the other data will decrease.

Figure 3 below shows a negative and linear correlation between employment and import data presented. As the level of imports increases, employment levels drop.

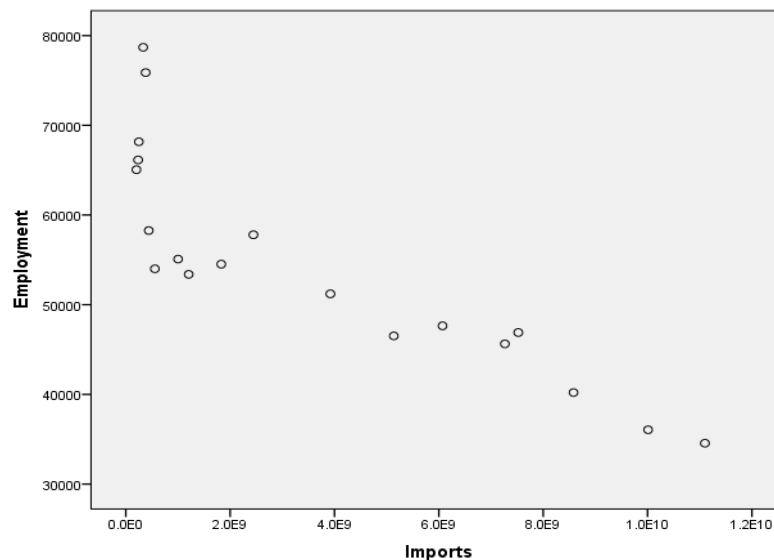


Fig. 3. Scatter plotting for employment and import levels

Figure 4 below shows that there is a negative and non linear correlation between employment and exchange rate as the data do not follow a linearity pattern.

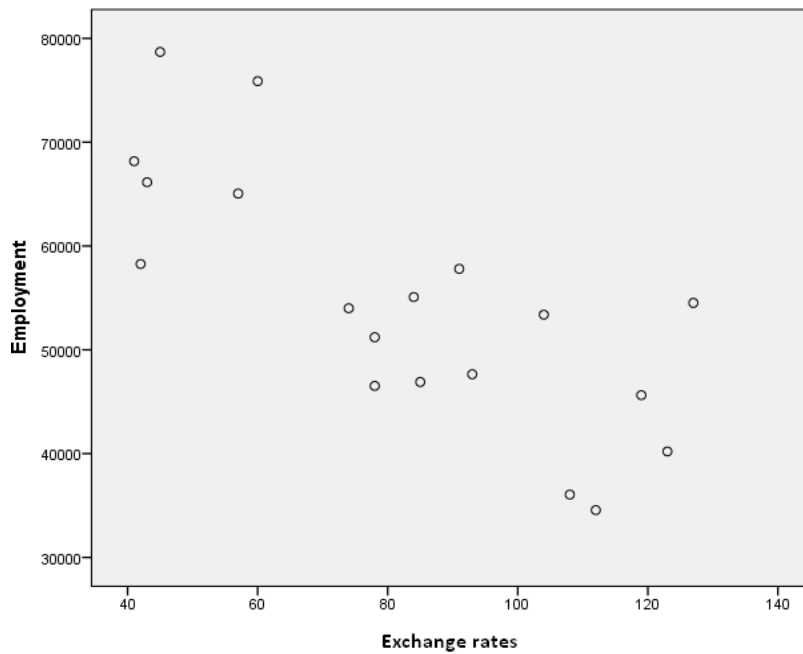


Fig. 4. Scatter plotting for employment and exchange rates

The study uses the Pearson’s correlation coefficient which measures the strength of the linear relationship between two scale (ratio or interval) variables.

Table 5 below, shows a negative correlation between employment levels in the South African textile industry and imports of textile products from China while Table 6 shows a negative relationship between Employment levels in the South African textile industry and exchange rates.

Table 5. Correlations – employment and imports

		Employment in the textile industry	Imports of textile from China (in value)
Employment in the textile industry	Pearson correlation	1	-.866**
	Sig. (2-tailed)		.000
	N	19	19
Imports of textile from China (in value)	Pearson correlation	-.866**	1
	Sig. (2-tailed)	.000	
	N	19	19

Note: ** Correlation is significant at the 0.01 level (2-tailed).

Table 6. Correlations – employment and exchange rates

		Employment	Average annual exchange rate (SA cent per China Yuan Middle rate (R1 = 100 cents))
Employment in the textile industry	Pearson correlation	1	-.765**
	Sig. (2-tailed)		.000
	N	19	19
Average annual exchange rate (SA cent per China Yuan middle rate (R1 = 100 cents))	Pearson correlation	-.765**	1
	Sig. (2-tailed)	.000	
	N	19	19

Note: ** Correlation is significant at the 0.01 level (2-tailed).

3.3. Statistical tables. Table 6 below provides the descriptive statistics which provide the mean, range and the standard deviation for employment, imports and exchange rates. The number of data points analyzed for all variables is 19. The mean explains the average in terms of the data provided for the research period while the standard deviation is the

most common measure of statistical dispersion, measuring how widely spread the values in a data set are. If the data points are all close to the mean, then the standard deviation is close to zero. If many data points are far from the mean, then the standard deviation is far from zero. If all the data values are equal, then the standard deviation is zero.

Table 7. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. deviation
Employment in the textile industry	19	34556	78694	54510.32	12253.953
Imports of textile from China (in value)	19	204233199	11099269487	3604699390.95	3732960530.313
Average annual exchange rate (SA cent per China Yuan middle rate (R1 = 100 cents))	19	41	127	82.32	28.601
Valid N (listwise)	19				

According to the results in Table 7 above, the average number of people employed in the South African textile industry between the period 1993 and 2011 is 54 510 with the standard deviation of 12 254. The average value of textile imports from China during the period of study (1993-2011) amounts to R3.6 billion with the standard deviation of R3.7 billion while the annual exchange rate (SA cent per China Yuan) is averaged at 82 cents (R0.82) with the standard deviation of 28.6.

The model summary provided in Table 8 below is used to determine how well a regression model fits the data. The “R” column represents the value of the multiple correlation coefficient which can be considered to be one measure of the quality of the prediction of the dependent variable (employment in the South African textile industry). The *R* value of

0.89, in the table below, indicates a good level of prediction. The “*R* Square” column represents the coefficient of determination, which is the proportion of variance in the dependent variable that can be explained by the independent variables (i.e., it is the proportion of variation accounted for by the regression model above and beyond the mean model). The *R*² value of 0.81 shows that the independent variables explain 81% of the variability of the dependent variable (employment).

Table 8. Model summary

Model	<i>R</i>	<i>R</i> square	Adjusted <i>R</i> square	Std. error of the estimate
1	.898 ^a	.807	.783	5706.182

Note: Predictors: (Constant), Average annual exchange rate (SA cent per China Yuan Middle rate (R1 = 100 cents), Imports of textile from China (in value)).

Table 9. ANOVA^a

Model	Sum of squares	df	Mean square	<i>F</i>	Sig.	
1	Regression	2181900532.590	2	1090950266.295	33.505	.000 ^b
	Residual	520968187.515	16	32560511.720		
	Total	2702868720.105	18			

Note: a. Dependent variable: Employment data in the textile industry; b. Predictors: (Constant), Average Annual Exchange rate (SA cent per China Yuan Middle rate (R1 = 100 cents), Imports of textile from China (in value)).

F-ratio in the ANOVA table above tests whether the overall regression model is a good fit for the data. The table shows that the independent variables (imports and exchange rates) statistically sig-

nificantly predict the dependent variable (employment).

$F(2, 18) = 33.505, p < .0005$ (i.e. the regression model is a good fit of the data).

Table 10. Coefficients

Model	Unstandardized coefficients		Standardized coefficients	<i>t</i>	Sig.	
	<i>B</i>	Std. error	Beta			
1	(Constant)	73633.313	4479.356		16.438	.000
	Imports of textile from China (in value)	-2.113E-6	.000	-.644	-4.288	.001
	Average annual exchange rate (SA cent per China Yuan middle rate (R1 = 100 cents))	-139.785	64.310	-.326	-2.174	.045

Note: a. Dependent variable: employment.

Unstandardized coefficients in Table 10 above indicate how much the dependent variable varies with independent variables, when all other independent variables are held constant. The unstandardized coefficient, *B*₁, for imports is equal

to -2.11 which means that for each R1 million increases in textiles imports value, there is a decrease in employment levels of 2.11. Furthermore, for every R1 increase in the South African rand (appreciation of the rand), employment

in the textile sector decrease by 140 due to the fact that a strong rand makes imported goods to be cheaper, leading to an increased demand of such products thereby reducing employment levels in the industry. Table 10 above also shows that there is a

negative but significant relationship between employment in the textile sector and imports from China. There is also a negative and significant relationship between employment in the South African textile sector and exchange rate.

Relationship between textile imports and employment levels

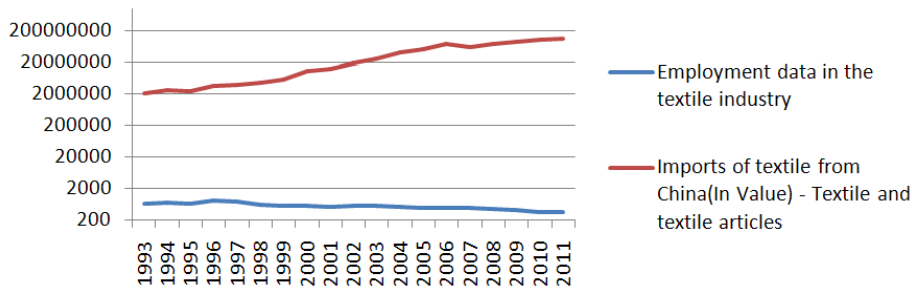


Fig. 5. Graphical presentation of the relationship between exchange rates and employment

Figure 5 above illustrates the relationship between employment levels within the South African textile industry and exchange rates (South African cent per China Yuan). The graph shows a negative but indirect relationship between employment levels within the textile industry and exchange rates, as a strong rand contributes to an increase in imported textile goods thereby negatively impacting on employment levels within the industry as shown in Figure 5 above, notwithstanding other underlying factors that impact on the level of imported goods such as labor costs, tariff levels and trade rules.

In 1996, the rate to exchanging 1 Chinese Yuan in South Africa was 45 cents which weakened to R1.12 in 2011. During the same period, the textile imports value from China increased from R300 million in 1996 to R11 billion in 2011 while employment levels decreased from 78 thousands in 1996 to 34 thousands in 2011. Further analysis also shows that a weak rand does not necessarily have a positive relationship since the level of imports continued to increase even when the rand weakened.

3.4. Research findings. The hypothesis established for the study was confirmed in the research findings based on the analyzed data and literature reviewed. The confirmed hypothesis is as follows:

- ◆ High level of imported cheap textile products is associated with a fall in employment levels within the textile industry. As the demand for locally produced goods drops due to an increase in demand for imported goods, local firms are forced to reduce their supply or close down, thereby reducing employment levels as people lose their jobs.

- ◆ There is a negative but significant relationship between employment in the textile sector and imports from China. There is also a negative and significant relationship between employment in the South African textile sector and exchange rate.

Conclusion

The South African textile industry has experienced various periods of growth and decline. As proven by many studies conducted on the textile industry, cheap imports from China have negatively impacted the industry which led to different interventions by Government. Literature shows that underlying factors that impact the industry by increasing imports are fluctuating currency, import quotas, high labor costs and lack of a comprehensive industrial and sectorial policy which resulted in uncoordinated and fragmented response to the challenges that face the textile industry.

It also appears that the evolution of trade theory, from old trade doctrines to the new trade theories has impacted policy on the continuing support of the free trade doctrine to determine policy for developing areas, which is pushed mainly by advanced nations. Furthermore, policies that are pursued by advanced nations rely more on the new trade theories doctrine of strategic trade.

The recognition of the difference between trade policy and policy of trade liberalisation is more critical. By adopting an analytical policy regime, effective support to the growth and development of small and informal sector activities with substantial employment and poverty alleviation effects can be provided, although such opportunities seems to have been missed to a large extent in many countries.

Limitations to the study. There are no observed limitations in the study although it was challenging to obtain historical data for employment in the textile industry. Most of the available historical data is a total for the clothing and textile industries which makes it difficult to observe a trend over the years. The study could only receive data up till 2011 and not beyond. This study did not use a mixed method as it solely followed a quantitative analysis approach. The researchers therefore felt that it was not necessary to use qualitative approach in this study.

Recommendations. Dealing with the problems experienced by the South African textile industry requires collective efforts by all stakeholders (i.e. Government, firm owners, investors and consumers) aiming to accomplish a common vision. The interventions that the Government put in place must be of a national interest and linked to the long-term plan of the country which is the National Development Plan. This also applies to the entire

value chain including interest groups. It is important to note that one action cannot address the challenges that the industry is confronted with, as other factors must also be taken into consideration. Moreover, clear coordination between the Government and other role players within the industry is critical to ensure that effective actions are implemented. This research report shows a negative impact of imports from China on employment in the textile industry therefore, the government and trade policy makers could work to minimize this impact. It is important that the Government ensure that the legal, regulatory, accounting, tariffs and supervisory systems are in place. Although the South African Government is giving a helping hand to sinking industries through different programs, if the problem is not solved from the trade policy perspective, it will be difficult to realise improvements. For protectionism sake therefore Rowley (2002) efficiently supports the above measures.

References

1. Ashournia, D., Munch, J., Nguyen, D. (2014). *The Impact of Chinese Import Penetration on Danish Firms and Work*. Discussion Paper No. 8166, Social Science Research Network (SSRN).
2. Autor, D., Dorn, D., Hanson, G. (2012). *The China Syndrome: Local Labor Market Effects of Import Competition in the US*, National Bureau of Economic Research.
3. Bryman, A. (2012). *Social Research methods*, 4th edition, Oxford University Press.
4. Busse, M., Erdogan, C., Mühlen, H. (2014). *China's Impact on Africa: The Role of Trade, FDI and Aid*, Working Paper, Social Science Research Network (SSRN).
5. Chinembiri, E. (2010). *An Empirical Assessment of the Impact of Trade Liberalization on Employment in South Africa*, A paper for Trade and Industrial Policy Studies, Australian Government. Retrieved from: www.tips.org.za.
6. Democratic Alliance, textiles sector crisis – the DA's 8-step solution. Retrieved from: http://www.da.org.za/docs/591/textilesectorcrisis_document.pdf.
7. Flatters, F., Stern, M. (2007). *Trade and Trade Policy in South Africa: Recent Trends and Future Prospects*, 2019 Scenarios Research, Development Network Africa. "Geekonomics", Business Day, 5 March 2007.
8. Goldin, I. (1990). *Comparative Advantage: Theory and application on developing country agriculture*, OECD development centre, Working Paper No. 16, (Formerly Technical Paper No. 16).
9. Jenkins, R., Edwards, L. (2013). *Is China "crowding out" South African exports of manufactures*, Working Paper Series Number 107, Southern Africa Labour and Development Research Unit.
10. Lahart, J. (2011). Tallying the toll of US-China Trade, *The Wall Street Journal*. Retrieved from: <http://www.cut.ac.za/departments/department-of-government-management/>.
11. Lee, E. (2005). *Trade Liberalization and Employment*, DESA Working Paper No. 5, available at: http://www.un.org/esa/desa/papers/2005/wp5_2005.pdf.
12. Mukaka, M. (2012). A guide to appropriate use of Correlation coefficient in medical research, *Malawi Medical Journal*. Retrieved from: <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3576830/>.
13. Motlanthe, K. (2012). South Africa: Cheap imports from China damage local industries and cost jobs, *Africa Research Bulletin: Economic, Financial and Technical Series*, 49 (11), pp. 19758A-19758C.
14. Nhlabatsi, R. (2014). Cheap Chinese import in Africa: implication and remedies (1). Wednesday, 05 March 2014. Retrieved from: <http://www.consultancyafrica.com/>.
15. Posso, A. (2013). Enter the Dragon: Have Imports from China Hurt Wages in Manufacturing, *Asian Economic Journal*, 27 (3), pp. 307-321.
16. Pugel, T., Lindert, H. (1996). *International Economics*, 10th edition, Irwin, United States of America.
17. Ravenga, A. (1992). The Impact of Import Competition on Employment and Wages in U. S. Manufacturing, *The Quarterly Journal of Economics*, 107 (1), pp. 255-284.
18. Rowley, J. (2002). *Trade Protectionism*, For the Encyclopedia of Public Choice, Duke University
19. Rahman, M., Shadat, W., Raihan, S. (2007). *The impact trade liberalisation on employment in Bangladesh*, Centre for Policy Dialogue (CPD) and International Labour Organization (ILO). Retrieved from: http://www.cpd.org.bd/downloads/Summary_TL%20and%20employment.pdf.

20. Reeds, G., Morris, W. (2008). *A Sectoral Analysis of Skills Gaps and Shortages in the Clothing and Textile Industry in South Africa*, Policy Research in International Services and Manufacturing (PRISM), School of Economics, University of Cape Town, South Africa.
21. Sandrey, R., Edinger, H. (2011). *China's Manufacturing and Industrialization in Africa*. African Development Bank – Working Paper Series No. 128.
22. Schumacher, R. (2012). Adam Smith's theory of absolute advantage and the use of doxography in the history of economics, *Erasmus Journal for Philosophy and Economics*, 5 (2), pp. 54-80. Retrieved from: www.cyclopaedia.de/wiki/Absolute_Advantage.
23. Scott, R. (2012). *Trade and Globalisation "The China toll"*. Economic Policy Institute (Washington D.C.).
24. Sen, S. (2010). *International Trade Theory and Policy: A Review of the Literature*, Working Paper No. 635, Levy Economics Institute of Bard College.
25. Textile Federation (2007). Textile Industry Statistics. Retrieved from: <http://www.textfed.co.za/>.
26. Van Eeden, J., Fundira, T. (2009). *South African quotas on Chinese clothing and textiles: 18 month economic review*, Tralac Working Paper No 08/2008.
27. Vlok, E. (2006). *The Textile and Clothing Industry in South Africa, the Future of the Textile and Clothing Industry in Sub-Saharan Africa*, Bonn, Friedrich-Ebert-Stiftung.
28. Woolfrey, S. (2009). *An assessment of the trade measures proposed as part of the Department of Trade and Industry's Draft Rescue Package for the clothing and textile industry*, Working Paper No 5/2009, Stellenbosch, Tralac.
29. Wolmarans, F. (2011). *The impact of trade policies on the South African clothing and textile industry: a focus on import quotas on Chinese goods*, Stellenbosch University, South Africa
30. The Department of Trade and Industry. Available at: www.thedti.gov.za/Tradepublications.
31. Resbank. Available at: <http://www.resbank.co.za/Research/Statistics/Pages/OnlineDownloadFacility.aspx>.