INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN ECONOMICS & MANAGEMENT SCIENCES

OPEN ACCESS JOURNAL

Vol 3, Issue 5 , (2014) E-ISSN: 2226-3624

Impact of FDI Inflows, Trade Openness and Inflation on the Manufacturing Export Performance of Tanzania: An Econometric Study

Kenani Mwakanemela

Assistant Lecturer: Tanzania Institute of Accountancy (TIA) MSc-Finance and Investment, BA Economics

To Link this Article: http://dx.doi.org/10.6007/IJAREMS/v3-i5/1198 DOI:10.6007/IJAREMS/v3-i5/1198

Published Online: 02 January, 2014

Abstract

This paper investigates the impact of foreign direct investment (FDI), trade openness, inflation rate on the manufacturing exports performance of Tanzania over the period of 1980–2012 using the Ordinary Least Square (OLS) method and Vector Error Correction (VEC) model under the time series framework. The Augmented Dickey Fuller (ADF) and Philip-Perron (PP) tests were employed to test for the stationarity of the variables while the Johansen test was employed to test for co-integration relationship between variables, followed by the VEC regression model. The empirical results trace a long-run equilibrium relationship in the variables. The results of unit root suggested that both variables in the model were stationary after first difference. The results from regression analysis revealed that FDI inflows and trade openness have positive impact on manufacturing exports performance of Tanzania while inflation rate negatively affect manufacturing export performance. Since, FDI, Trade oppennes, and inflation rate were found to be important factors in explaining the changes in manufacturing exports both in the short run and long-run, the study concludes that Tanzania should formulate FDI and trade oppenness-led polices and reduce inflation rate to enhance its manufacturing exports performance.

Keywords: Manufacturing Exports, Fdi, Inflation, Trade Openness, Dickey-Fuller, Phillip-Perron, Co-Integration And Vector Error Correction Model.

Introduction

This study analyses the impact of foreign direct investment inflows, trade openness, and inflation on manufacturing exports performance in Tanzania. Several factors motivated this study. It will be recalled that manufacturing exports is one component of exports that plays an important role in the process of growth as it generates scarce foreign exchange that is necessary for financing imports, thus easing pressure on the balance of payments. In addition, they create employment opportunities. Manufacturing exports-led growth strategy provides incentives for producers to focus on production for export beyond domestic markets. This increases the capability of producing goods and services that can compete in the world market using advanced technology (Eita and Jordan, 2007).

In Tanzania manufactured export products include processed primary products such as processed coffee, made tea, cashew kernels , canned beef , sisal twine, textiles, cigarettes, cotton seed cake, pyrethrum extract, and leather products. Other manufacturing products are import substituting (IS), which include cement, radio batteries, wood products, and other products. These industries usually rely on imported inputs and high protection (Semboja, 2010).

Tanzania's manufacturing performance has been low even by comparison to Sub-Saharan Africa countries. The contribution of the sector to GDP has been at 9.0 percent for most years. In the region Tanzania's performance is low compared to Kenya and Uganda for example with 15 percent and 10 percent contribution respectively in the same period. This suggests the challenge for Tanzania to take-off and transform its economy from traditional agriculture to a modern economy. The per capita Manufacturing Value Added (MVA) is one of the lowest in sub-Saharan Africa, and has remained almost the same or dropped during the last fifteen years, (Semboja, 2010).

Due to this challenge several macroeconomic policy reform measures have been undertaken since 1986. Initially, the reform programs were part of the economic reforms aimed at reducing parastatal dominance while improving the use of domestic resources. Their implementation was supported by structural adjustment loans to facilitate the program and put in place the essential macro-economic environment, including a sound legal and regulatory framework plus an institutional base.

The Public Sector Reform Commission (PSRC) divestiture program targeted manufacturing sector, reducing the large number of non-performing parastatal enterprises in order to eliminate subsidies extended to them. In addition, programs to stimulate private investment and participation, with a view to stimulating economic growth were pursued.

In collaboration with the private sector, the government launched Sustainable Industrial Development Policy (SIDP) 1996-2020. The main objective of SIDP was to accommodate the shift from a centrally planned economy to a more market oriented one whereby the private sector, as an engine of economic growth, was to play a dominant role. The overall mission of industrial development in Tanzania was spelt out as contributing towards achievement of the overall national long-term development goals: human development and creation of the employment opportunities, economic transformation, environmental sustainability and equitable development. The major economic indicators for the industrial sector were specified as; rate of growth, value added contribution to GDP, exports and employment. The SIDP had short, medium and long term policy objectives and strategies.

During 2000s, manufacturing activities in Tanzania recorded high growth (with some fluctuations), registering average annual growth of 7.2 percent between 2000 and 2009. Contribution to GDP has averaged 8.8 percent over the 2000-09 period with most activities concentrated on manufacture of simple consumer goods such as food, beverages, tobacco, textiles, and furniture and wood- allied products. The value of manufactured exports increased from US$ 83.8 million in 2003 to about US$ 195.8 million in 2006 and further to US$ 309.2 million in 2007. The significant growth of manufactured exports during this time was attributed to increasing contribution of new manufacturing firms and dynamic activities and products (URT 2009). Table 1.1 in the appendix presents the summary of manufacturing export performance from 1986 to 2009.

Selected Empirical Literature Review

The empirical works on the link between Foreign Direct Investment Inflows, Inflation rate, Trade openness and Exports performance on the manufacturing sector tend to be confounding. For instance, a positive relationship between trade openness and exports performance was documented by Papageorgiou (1991), Weiss (1992), Santos-Paulino (2000), Niemi (2001) and Babatunde (2009), while a negative relationship was uncovered by Agosin (1991), Greenaway and Sapsford (1994), Shafaeddin (1994), Moon (1997), and Morrissey and Andrew (2006).

Likewise, a positive link between Foreign Direct Investment Inflows and manufacturing export was revealed by Dritsaki et al. (2004), Sharma (2000), Liu et al. (2001), Xing (2006), and Xuan and Xing (2008) while Sevensson (1996) documented a negative association between them. In addition, Petri et al. (1988) and Hsiao and Whsiao (2006) unveiled an insignificant relationship between them.

It is pertinent to point out that many studies find that FDI promotes the manufactured exports of recipient countries (Athukorala and Menon 1995; Zhang and Song 2001; Zhang and Felingham 2001; Zhang 2005; Banga 2006; Piamphongsant 2007; Kohpaiboon 2008). But, the pattern of manufacturing export success in the developing world is highly skewed. A small number of countries dominate manufactured export activity, with concentration level rising by level of technological sophistication. Balasubramanyam and Sapsford (2006) find the effect of FDI on average growth rate for the period 1970-85 for the cross-section of 46 countries as well as the sub-sample of countries that are deemed to pursue export-oriented strategy to be positive and significant but not significant and sometimes negative for the sub-set of countries pursuing inward-oriented strategy. Similar findings have been shown by Athukorala and Chand (2000) and Kohpaiboon (2003, 2006a,b).

To sum up, empirical studies do not have consensus over the relationship between FDI, trade openness, inflation rate, and manufacturing exports. These non-consensus views are primarily attributed to the authors' perspectives, sample selection, measurement of variables, inclusion of other variables, econometric models, and analytical tools applied in studies . Besides, the country-specific characteristics such as the degree of technological, economical, infrastructural, and institutional developments are responsible to have these controversial results.

Thus, this paper aims at accumulating empirical knowledge by investigating the nexus between FDI, trade openness, inflation rate, and manufacturing exports performance in the context of Tanzania, which is a growing economy in sub-saharan Africa.

Methodology and Sources of Data

The analysis in this study is based on time series data for Tanzania's Manufacturing Exports (MEX), Foreign Direct Investment inflows (FDI), Trade Openness (TO) and Cunsumer Price Index (CPI) which is used as a proxy for Inflation. Due to the linear nature of the economic relationship, Ordinary Least Square (OLS) estimation method was employed in obtaining the numerical estimates of the coefficients in the model. Secondary data mainly from the UNCTAD Statistics and IMF World Economic Outlook were used. The model sought to investigate the impact of FDI inflows, trade oppenness and inflation rate on the manufacturing exports performance of Tanzania during the period between1980 and 2012.

Method of data analysis

In this study, two methods were employed, namely the Ordinary Least Squares (OLS) and Vector Error Correction Model. Both methods were run using STATA with Manufacturing Exports (MEX) as dependent variable while Foreign Direct Investment (FDI), Trade Openness (TO) and Cunsumer Price Index (CPI) as independent variables. The error term, ℓ_i is incorporated in the equation to cater for other factors that might have a significant impact on dependent variable (manufacturing exports) but they were not included in the model.

Model specification

The primary model showing the relationship between Manufacturing Exports (MEX) as dependent variable and Foreign Direct Investment Inflows (FDI), Trade Openness (TO) and Cunsumer Price Index (CPI) as independent variables is specified, thus:

MEX = f (FDI, TO, & CPI)……………………………………………………… (1)

The above model in its explicit form is written as:

$$MEX_t = \beta_0 + \beta_1 FDI + \beta_2 TO + \beta_3 CPI + \ell_t \text{..} (2)$$

Where

MEX = Manufacturing Exports

FDI = Foreign Direct Investment Inflows

TO = Trade Openness

CPI = Consumer Price Index which is used as a proxy for Inflation rate

β_0 is the Constant term, ***'t'*** is the time trend, and 'ℓ'is the error term while the coefficient of regression, ***β_1***, ***β_2***, and ***β_3*** indicates how a unit change in the independent variables, affects the dependent variable (MEX).

Estimation Techniques

Unit Root Test for Stationary of Data

The major purpose for conducting unit root test is that if we use the time-series data without checking their stationary properties, the results derived from the regression models would produce the so called spurious results (Datta and Kumar, 2011). Before estimating our modified model in the equation (2) it was very important to test out stochastic properties of the variables to be estimated. Habitually this task is realised by conducting unit root test. However, one of the weaknesses of unit root test is related to small number of observations and that a minimum number of 20 observations are required so as to get reliable results which can be made inference (Gujarati and Porter, 2009; Gujarati, 2004). The analysis was done using the Augmented Dickey-Fuller (ADF) and Phillips-Perron unit root test. The study proceeded with the estimation of the model in equation (2). The null hypothesis for the two tests was unit root or the time series was non-stationary (i.e. $\delta = 0$) while the alternative hypothesis states that there is no unit root or the time series was stationary (i.e. $\delta \neq 0$).

Co-integration Test

Two variables are said to be co-integrated if they have a long-term, or long run equilibrium, relationship between them. If two variables, dependent and an independent, are individually non-stationary but their residual (combination) is stationary, those variables are co-integrated on the long run (Gujarati, 2004). In this case the study employed the Johansen co-integration test to test co-integration since it is the only test which can estimate more than one co-integration relationship if the data set contains two or more time series as well as gives the maximum rank of co-integration (Ssekuma, 2011).

Data Analysis, Interpretation and Discussion

The study analyzed Unit root tests, co-integration test, and empirical impact of FDI inflows, trade oppenness and inflation rate on the manufacturing exports performance of Tanzania during the period between1980 and 2012 by using Ordinary Least Square method and co-integration technique. Data analysis followed chorological order of the objectives stated above starting stationarity test by applying Unit root test results.

Unit Root Test Results

Before testing for co-integration, unit root test on the variables under study was conducted to establish the stationarity properties of the data. Augmented Dickey-Fuller tests and Phillips-Perron tests were employed on each of the two time series variables. The results for the two tests are presented in Table 1 and 2.

Table-1

Results: Unit Root Test (Level variables)

	Augmented Dickey-Fuller		Phillips-Perron	
Variable	Test Statistics	Critical value at 5%	Test Statistics	Critical value at 5%
MEX.	-2.479	-2.980	-2.362	-2.980
FDI.	-0.764	-2.980	-0.121	-2.980
TO.	-0.382	-2.980	-0.521	-2.980
CPI.	-1.361	-2.980	-1.277	-2.980

Source: Author's calculation (2014)

Table-2

Results: Unit Root Test (First Difference)

	Augmented Dickey-Fuller		Phillips-Perron	
Variable	Test Statistics	Critical value at 5%	Test Statistics	Critical value at 5%
MEX.	-3.293	-2.983	-5.558	-2.983
FDI.	-3.292	-2.983	-7.362	-2.983
TO	-3.236	-2.983	-4.621	-2.983
CPI	-6.983	-2.983	-8.253	-2.983

Source: Author's calculation (2014)

From Table 1, the results reveal that all variables are non-stationary at two lags. This is because the computed absolute values of the *tau* statistics (|τ |) do not exceed the ADF (or MacKinnon) critical *tau* values, which led a study to fail (or not) to reject the null hypothesis (δ = 0) that there is unit root or the time series is non-stationary. The same applied to Phillips-Perron test where by the computed absolute values of the *tau* statistics (|τ |) do not exceed the DF critical *tau* values (Gujarati, 2004). The study employed two tests for comparison purposes, as Phillips-Perron (PP) test uses non parametric approach while ADF test uses parametric measures. On the other hand, Table 2 shows that all variables became stationary after first difference as the computed absolute values of the *tau* statistics (|τ |) exceeded the ADF (or MacKinnon) critical *tau* values, which led a study to reject the null hypothesis (δ = 0). This as well, means that all variables are integrated of order one, [*I (1)*].

Co-integration Test

According to Engel and Granger (1987), if two time series variables are integrated of order one, *I (1)*, there could be a linear combination between them which may be integrated of order zero, *I (0)*, (Green, 2002). This therefore, necessitated the test for presence of co-integration in the variables. The test was conducted by using Johansen co-integration test (Green, 2002). Table 3 presents the results of the test.

Table-3

Results: Johansen Tests For Co-Integration

Johansen tests for cointegration

Trend: constant — Number of obs = 31
Sample: 1982 – 2012 — Lags = 2

maximum rank	parms	LL	eigenvalue	trace statistic	5% critical value
0	20	-575.06479	.	47.9712	47.21
1	27	-560.98757	0.59675	19.8167*	29.68
2	32	-553.91352	0.36643	5.6686	15.41
3	35	-551.08163	0.16698	0.0048	3.76
4	36	-551.07921	0.00016		

Source: Author's calculation (2014)

From Table 3, the test reveals that there is co-integration and there is only one maximum rank of this co-integration. This is because the first significant values where trace statistic is less than critical value at 5 percent were found at maximum rank of one. This suggests that there is one co-integrating equation which requires the study to run an Error Correction Model (ECM).

This is because the Johansen's test for co-integration is based on maximum likelihood estimation and two statistics: maximum eigenvalues and a trace statistics, and that if the rank is zero means there are no co-integration relationship. If the rank is one there is one, if it is two there are two (Parlow, 2010). The inclusion of lags is often necessary in order for the regression model to be able to predict the future, that is, to predict what will happen in the period (*t*) based on knowledge of what happened up to (*t-1*) (see Ernst et al. 2005).

Vector Error Correction Model

To run the VEC model, the appropriate lag-length of the variables has been selected through (Akaike, 1969). The results from Appendix III reveals that a long-run equilibrium relationship exists among the variables. This has been observed by the estimated parameter of the error correction term, which is negative as expected. In addition, FDI is found to have a significant long-run impact on the export performance of Tanzania. Also , a short-term negative relationship is found to run between inflation rate, trade openness and exports, as their parameters are traced significant approximately at the 5% level of significance. Such negative relationship is probably due to the high imports demand of Tanzania, which caused the trade balance of the country to be negative for most of the years since the 1990s.

As a whole, the VEC model shows that a long-run equilibrium relationship exists between FDI inflows, trade openness, inflation rate and manufacturing exports performance of Tanzania without having any noticeable bi-directional causal relationship.

Model Diagnostic Tests and Interpretation of the Results

Various model diagnostic tests were performed and the results showed that the model is well specified with no omitted variables (Ramsey RESET test) at ten percent level, with 0.112 probability value of F-statistic. Breusch-Godfrey LM test as well, suggested that there was no serial correlation (with chi^2 value of 0.121 at maximum lag of three). There was also no heteroskedasticity problem (Breusch-Pagan / Cook-Weisberg test, with p-value of 0.3141 of chi^2). There was no multicollinearity problem within the independent variables, as well as in the general model (VIF 2.25 lower than 10).

Empirical Results and Their Interpretations

To estimate the impact of FDI inflows, trade oppenness and inflation rate on the manufacturing exports performance of Tanzania during the period between1980 and 2012, two tier analysis were undertaken: the first tie provided graphical presentation while the second tier estimated regression equation using OLS.

The study started with graphical presentation as it provided quick and fast reference of the tendency or outside appearance of variables under study.

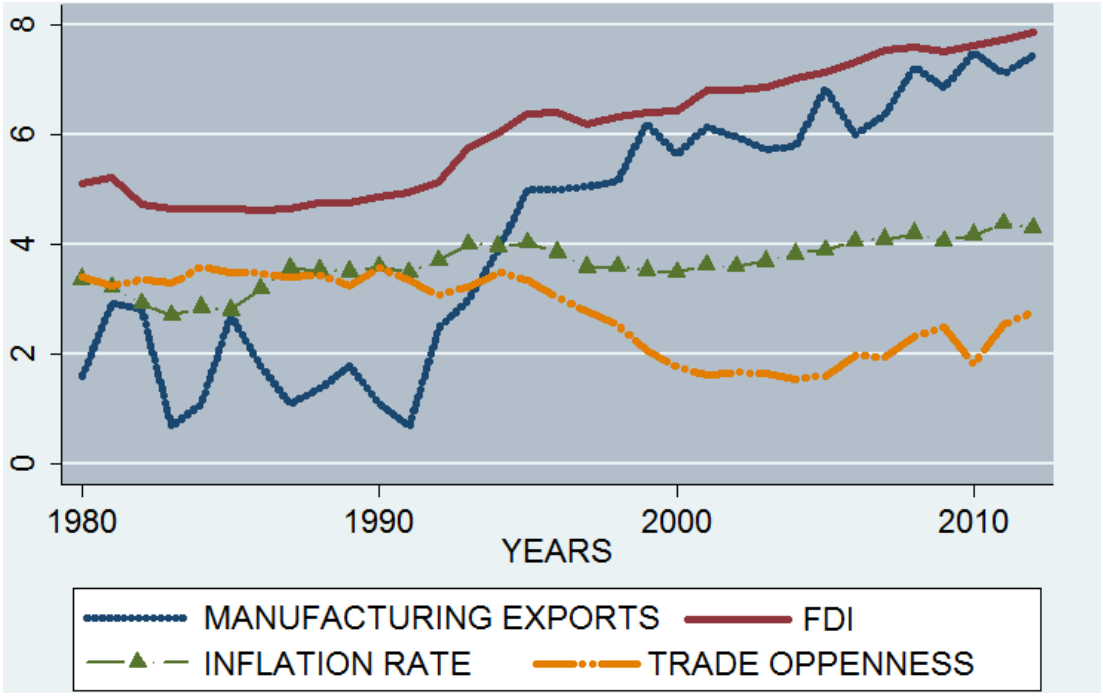

Figure 4: Manufacturing exports, FDI Inflows, Trade openness and Inflation rate of Tanzania (1980-2012)

Source: Author's calculation (2014)

Graphical presentation of Manufacturing exports, FDI inflows, trade openness and inflation rate on the vertical axis and number of years on the horizontal axis uncovered that, in average the FDI inflows and trade openness are positively related to manufacturing exports in Tanzania, while inflation rate seemed to move in an opposite direction with manufacturing exports in Tanzania over the period of study. To quantify the extent of the impact of FDI inflows, trade openness and inflation rate on manufacturing exports, the study employed Ordinary Least Square method below.

$$\hat{MEX}_t = \beta_0 + \beta_1 0.81 FDI + \beta_2 15.57 TO - \beta_3 13.05 CPI + \ell_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

t = (2.84) (6.67) (4.55) (-3.13)

R^2 = 0.93

$F_{(3, 29)}$ = 129.60

The estimated equation (3) revealed that, the impact of FDI inflows, trade openness and inflation rate on manufacturing exports can be interpreted that, As the foreign direct investment inflows increases by one unit, manufacturing exports (MEX) also increased by 0.8. Also an increase in country's trade openness (TO) has resulted into about 15.5 increases in manufacturing exports.

An increase in the general price levels (CPI) by one unit has reduced the country's capacity to export its manufacturing products by 13.1. This may be due to the fact that an increase in domestic prices tends to discourage external buyers from buying our products.

The coefficient of determination (R^2) = 0.93 implied that 93% of the variations in Manufacturing exports have been explained by FDI inflows, trade openness and inflation rate and about 7% was captured by error term to include other factors which might have a substantial influence on manufacturing exports but were not included in the model. Since the large percentage of variations in Manufacturing exports have been explained by FDI, trade openness and inflation rate, this means that our model has a good fit (Gujarat, 2004)

Moreover, the summary of the results showed that each independent variable (FDI, trade openness and inflation rate) is individually statistically significant at 5 percent level for their respective absolute t-values are greater than two (Gujarati, 2004).

The F-Statistic is also relative higher indicating that, FDI, trade openness and inflation rate are jointly statistically significant at 5 per cent level. The results for equation (3) are shown in appendix II.

Conclusion of the Findings

The main objective of this study was to examine the impact of foreign direct investment inflows, trade openness and inflation rate on manufacturing export performance in Tanzania. Annual time-series data for the period of 1980-2012 were employed.

The diagnostic tests carried out for all variables were all satisfied, that is, no serial correlation and heteroskedasticity were observed, implying that the estimates are reliable and therefore can be relied upon.

The methodology employed in this study included the regression analysis to examine the impact; stationary test was carried out using the Augmented Dickey-Fuller technique and Phillips-Perron (PP) test. The results of unit root suggested that both variables in the model were stationary after first difference. The results from regression analysis revealed that FDI inflows and trade openness have positive impact on manufacturing export performance of Tanzania while inflation rate negatively affect manufacturing export performance. These results are in line with the results found by Santos-Paulino (2000), Niemi (2001), Babatunde (2009), Dritsaki *et al*. (2004), Liu *et al*. (2001) and Xuan and Xing (2008) in other countries.

Policy Implications and Recommendations

The policy implications of this study can be summarized in the following points. First, there exists a long-term link in the nexus of foreign direct investment, inflation rate, trade openness, and manufacturing exports performance of Tanzania. This relationship indicates that the Government of Tanzania should utilize the above factors carefully on a long-run perspective to capitalize the benefits of the nexus properly.

Second, since FDI, trade oppenness, and inflation are important factors in explaining the changes in manufacturing exports performance. Thus, an FDI and trade oppenness-led growth policy can be advocated to increase the country's overall manufacturing exports performance.

Third, since it has been revealed that any high inflation rate has a significant negative impact on manufacturing exports performance, measures for its stabilization are important to be considered. Permanent solution to energy crisis, such as using gas as an alternative to rains, is of importance for production.

Strategies such as improving economic productivity by improving infrastructure and provision of labour force training should be encouraged as well. Promotion of small and medium manufacturing firms, on the other hand, should be given priority as they constitute most part of Tanzanian manufacturing sector and as they contribute to an increase of GDP. Strategies like loan provision schemes with affordable interest rates and establishment of permanent markets for their products should be undertaken. Moreover, policies and plans to formalize informal sector in Tanzania should be continuously designed as the sector constitute the large part of the economy.

References

Agosin, M (1991), "Trade policy reform and economic performance: A review of the issues and some preliminary evidence," UNCTAD Discussion Papers 41, UNCTAD, Geneva, Switzerland.

Akaike. H (1969) "Power spectrum estimation through autoregressive model fitting," *Annals of the Institute of Statistical Mathematics*, vol. 21, no. 1, pp. 407–419.

Athukorala P, Chand S (2000) Trade Orientation and Productivity Gains from International Production: A Study of Overseas Operation of United States TNCs. *Transnational Corporations*, 9: 1-27.

Athukorala P, Menon J (1995). Developing with Foreign Investment: Malaysia. *Australian Economic Review*, 28: 9-22.

Babatunde, M (2009) "Can trade liberalization stimulate export performance in Sub-Saharan Africa?" *Journal of International and Global Economic Studies*, vol. 2, no. 1, pp. 68–92.

Balasubramanyam VN, Sapsford D (2006). Foreign Direct Investment, Technology Transfer and Growth. In: Suresh D Tendulkar, Arup Mitra, K Narayanan, Deb Kusum Das (Eds.): *India: Industrialisation in a Reforming Economy, Essays for K L Krishna.* New Delhi: Academic Foundation, pp. 373-408.

Banga R (2006). The Export-diversifying Impact of Japanese and US foreign Direct Investments in the Indian Manufacturing Sector. *Journal of International Business Studies*, 37: 558-568.

Datta, K. and Kumar, C. (2011) 'Relationship between Inflation and Economic Growth in Malaysia'. *International Conference on Economics and Finance Research* IPEDR Vol. 4, No. 2, pp. 415-16.

Dritsaki.M, Dritsaki.C , and Adamopoulos. A, (2004) "A causal relationship between trade, foreign direct investment, and economic growth for greece," *American Journal of Applied Science*, vol. 1, no. 3, pp. 230–235.

Eita, J. H. and A. C. Jordaan (2007), "South Africa Exports of Metal and Articles of Base Metal: A Gravity Model Approach" *A research article in Studies in Economics and Econometrics,* Volume 31, No. 3.

Engle, R. F. and Granger, C. W. J. (1987) Co-integration and Error Correction: Representation, Estimation and Testing. Econometrica, Vol. 55, No. 2, pp. 251-276.

Ernst J, Nau, G.J. and Bar-Joseph, Z. (2005) Clustering Short Time Series Gene Expression Data, Bioinformatics, Vol. 00, No. 00, pp. 1-9.

Green, H. (2002) 5thedn. Econometric Analysis. New Jersey: Prentice Hall- Upper Saddle River.

Greenaway, D and Sapsford, D (1994) "What does liberalisation do for exports and growth?" *Weltwirtschaftliches Archiv*, vol. 130, no. 1, pp. 152–174.

Gujarati D.(2004), Basic Econometrics, McGraw-Hill.Inc.4th ed.

Gujarati, N. and Porter, D. (2009) 3rd edn. Basic Econometrics. US: The McGraw-Hill.

Hsiao. F and Hsiao. M (2006), "FDI, exports, and GDP in East and Southeast Asia-Panel data versus time-series causality analyses," *Journal of Asian Economics*, vol. 17, no. 6, pp. 1082–1106.

Kohpaiboon A (2003). Foreign Trade Regime and FDIGrowth Nexus: A Case Study of Thailand. *Journal of Development Studies*, 40: 55-69.

Kohpaiboon A (2006a). Foreign Direct Investment and Technology Spillover: A Cross- Industry Analysis of Thai Manufacturing. *World Development*, 34: 541- 556.

Kohpaiboon A (2006b). *Multinational Enterprises and Industrial Transformation: Evidence from Thailand*. Cheltenham: Edward Elgar

Kohpaiboon A, Ramstetter ED (2008). Producer Concentration, Conglomerates, Foreign Ownership, and Import Protection: Thai Manufacturing Firms a Decade after the Crisis. *ICSEAD Working Paper*,(5).

Liu.X , Wang. C, and Wei. Y, (2001) "Causal links between foreign direct investment and trade in China," *China Economic Review*, vol. 12, no. 2-3, pp. 190–202.

Moon, B (1997) *Exports, Outward-oriented Development, and Economic Growth*, Department of International Relations, Leigh University, Bethlehem, Pa, USA.

Morrissey, O and Andrew, M (2006) "Explaining Africa's Export Performance-Taking a New Look.

Niemi, J (2001) "The effects of trade liberalization on ASEAN agricultural commodity exports to the EU," in *Proceedings of the 77th European Association of Agricultural Economists Seminar, No. 325 (EAAE '01)*.

Papageorgiou, D (1991) *Liberalizing Foreign Trade: Lessons of Experience in the Developing World*, Blackwell, Oxford, UK.

Parlow, A. (2010) Introduction to VEC-Models in Stata, UWM Economics Department.

Petri. A, Plummer .G, and Bergstrand. H (1988), "The determinants of foreign direct investment: a survey with applications to the United States,".

Piamphongsant T (2007). *Thai Manufactured Exports: Performance and Technological Change Since the 1997 Crisis.* Ph.D. Thesis, Unpublished. London: University of London.

Santos-Paulino, U (2000) "Export response to trade liberalization in Bangladesh: a cointegration analysis," *Applied Economics*, vol. 32, no. 8, pp. 1077–1084.

Santos-Paulino, U (2000), "Trade liberalization and export performance in selected developing countries," Studies in Economics 0012, Department of Economics, University of Kent, Canterbury, UK.

Semboja H. H. H. (2010), "The Study on Emerging Enterprises in Manufacturing Sector Data and Policy Analysis" *Report to be submitted to MITM and JICA.*

Shafaeddin,M (1994) "The impact of trade liberalization on export and GDP in least developed countries," UNCTAD Discussion Papers 85, UNCTAD, Geneva, Switzerland.

Sharma. K, (2000) "Export growth in India: has FDI played a role?" Economic Growth CenterWorking Paper 816, Yale University, Connecticut, Conn, USA.

Ssekuma, R. (2011) A study of Co-integration Models with Applications, University of South Africa, South Africa.

Svensson. R (1996), "Effects of overseas production on home country exports: evidence based on Swedish multinationals," *Weltwirtschaftliches Archiv*, vol. 132, no. 2, pp. 304–328.

URT (2007), "Industrial Sector Performance in Tanzania", *National Bureau of Statistics, and Ministry of Planning, Economy and Empowerment.*

Weiss, J (1992), "Export response to trade reform: recent Mexican experience," *Development Policy Review*, vol. 10, no. 1, pp. 43– 60.

Xing. Y, (2006) "Why is China so attractive for FDI? The role of exchange rates," *China Economic Review*, vol. 17, no. 2, pp. 198–209.

Xuan, N and Xing. Y (2008), "Foreign direct investment and exports The experiences of Vietnam," *Economics of Transition*, vol. 16, no. 2, pp. 183–197.

Zhang KH (2005). How Does FDI Affect a Host Country's Export Performance? The Case of China. *Paper presented in International Conference of WTO, China, and the Asian Economies, III*. In Xi'an, China, June 25-26.

Zhang KH, Song S (2001). Promoting Export: The Role of Inward FDI in China. *China Economic Review*, 11: 385-396.

Zhang Q, Felmingham B (2001). The Relationship between Inward Direct Foreign Investment and China's Provincial Export Trade, *China Economic Review*, 12: 82-99.

Appendicies

Appendix I:

Manufacturing exports performance from 1986 to 2009

Year	% Contribution to GDP (at 1992 and 2001 prices)	Growth in Manufacturing Activities (at 1992 and 2001 prices)	% Contribution to Total Exports	% Contribution to Non-traditional Exports	**% Change in industrial Exports**
1986	9.1	0.1	10.7	45.5	**19.2**
1987	9.2	4.1	17.8	43.1	**16.1**
1988	9.1	3.1	18.9	48.8	**14.4**
1989	9.3	5.2	21.2	51.4	**18.9**
1990	9.2	4.1	23.8	48.9	**13.3**
1991	9.1	1.9	19.4	43.7	**-27.7**
1992	8.6	-4.0	16.0	36.4	**-8.7**
1993	8.6	-0.6	11.8	28.4	**-19.0**
1994	8.4	-0.2	14.8	42.2	**48.1**
1995	8.2	1.6	16.0	36.5	**41.9**
1996	8.3	4.8	14.5	32.8	**1.6**
1997	8.1	5.7	17.0	31.1	**-9.2**
1998	8.4	8.0	19.0	33.4	**10.3**
1999	8.3	3.6	12.0	34.1	**-19.1**
2000	8.5	4.8	6.5	11.7	**44.2**
2001	8.4	5	7.2	9.1	**29.4**
2002	8.4	7.5	7.4	8.5	**17.3**
2003	8.6	9	6.8	8.4	**27.2**
2004	8.7	9.4	8.3	9.4	**31.4**
2005	8.9	9.6	9.3	11.8	**41.8**
2006	9	8.5	11.2	13.3	**25.4**
2007	7.8	8.73	14.5	18.01	**57.9**
2008	7.8	9.9	13.6	29.2	**113.8**
2009	9.2	6.9	19	17.9	**9.96**

Source: Economic Survey 1999, 2008, URT and URT 2010 “Macroeconomic Policy Framework for the Plan/Budget 2010/11-2012/13” Ministry of Finance and Economic Affairs.

Appendix II

Source	SS	df	MS	Number of obs =	33
				F(3, 29) =	129.60
Model	17033812.1	3	5677937.37	Prob > F =	0.0000
Residual	1270493.78	29	43810.1302	R-squared =	0.9306
				Adj R-squared =	0.9234
Total	18304305.9	32	572009.559	Root MSE =	209.31

exportsusm~l	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
fdinetinfl~l	.806407	.1208819	6.67	0.000	.5591758	1.053638
tradeopenn~s	15.57354	3.424017	4.55	0.000	8.570635	22.57644
inflationr~e	-13.05	4.163824	-3.13	0.004	-21.56597	-4.534021
_cons	69.9892	160.9311	0.43	0.667	-259.1518	399.1302

Source: Author's calculation (2014)

Appendix III

Vector error-correction model

Sample: 1982 - 2012 No. of obs = 31
AIC = 37.93468
Log likelihood = -560.9876 HQIC = 38.34181
Det(Sigma_ml) = 6.14e+10 SBIC = 39.18364

Equation	Parms	RMSE	R-sq	chi2	P>chi2
D_exportsusmill	6	91.646	0.6806	53.26381	0.0000
D_fdinetinflow~l	6	225.807	0.5790	34.38354	0.0000
D_tradeopenness	6	6.87148	0.1378	3.995233	0.6773
D_inflationrate	6	4.48251	0.2392	7.86008	0.2485

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
D_exportsu~l						
_ce1						
L1.	-.2751406	.0724116	-3.80	0.000	-.4170646	-.1332165
exportsusm~l						
LD.	.3034978	.185121	1.64	0.101	-.0593326	.6663282
fdinetinfl~l						
LD.	-.2882674	.0685261	-4.21	0.000	-.422576	-.1539587
tradeopenn~s						
LD.	-.5022622	3.454273	-0.15	0.884	-7.272513	6.267988
inflationr~e						
LD.	3.788821	3.935977	0.96	0.336	-3.925551	11.50319
_cons	24.61114	21.14095	1.16	0.244	-16.82436	66.04663

Source: Author's calculation (2014)