

Effect of Openness to Trade and FDI on Industrial Sector Growth: A Case Study for Pakistan

Faiza Umer¹
Shaista Alam²

This present paper is analyzing the effect of trade openness and foreign direct investment (FDI) on industrial sector growth in Pakistan. This paper is examined that Pakistan's industrial growth is affected by trade openness through a number of channels including monetary policy, fiscal policy, and Fdi. This study is employs Johansen and Juselius co-integration technique and Vector Error Correction Mechanism approach to estimate short run as well as long run relationship using annual time series data for the period 1960-2011. The study found that the relevant macro economic indicators Fdi and Real Gdp have positive and significant long run relationship with industrial sector growth while Trade openness and Inflation have negative long-run relationship with industrial sector growth also Real effective exchange rate have statistically insignificant results in long-run, on the other hand in short run lagged value of own industrial sector, Fdi, Reer, Real

¹**Faiza Umer**, Economist at Applied Economics Research Centre (AERC) University of Karachi. Postal address: Applied Economics Research Centre (AERC) University of Karachi. Karachi- 75270. Pakistan. Email: faizaumer@live.com

²**Shaista Alam**, Assistant Professor at Applied Economics Research Centre (AERC) University of Karachi. Postal address: Applied Economics Research Centre (AERC) University of Karachi. Karachi- 75270. Pakistan. Email: shaista_ag@yahoo.com

GDP have positive and significant impact on industrial sector growth. While inflation and trade openness shows insignificant relationship and Ec (-1) confirms long-run relationship among all independent variables.

Keywords: Industrial Sector Growth, Johansen-Juselius Cointegration Test, Vector Error Correction Mechanism.

JEL Classifications: O14, C20

Introduction

Openness to trade and foreign direct investment are important for enhancing industrial sector growth and attracting more technological innovations and spillovers, along with its increasing demand for capital equipment and raw materials, size and geographical location. It is also useful to increase the resource endowments of the economy, the level of economic development and to improve the industrial base of a country. There is need to search for new markets for Pakistani products through international publicity and interaction with other countries, especially with less developed and regional countries. International trade plays a crucial role in the development of country's industrial sector. Moreover, in the process of development of a country brings some changes in trade composition on the basis of resource endowments and comparative advantage (Hultman, 1967).

Pakistan experienced severe economic crises during couple of decades. When there were low real growth rates, huge deficit in balance of payments, worsening terms of trade, heavy burden of external debt burdens, poor government policies, high population growth rates and pervasive poverty. Foreign competition use to enhance technical efficiency and knowledge which leads income growth so, in the process of industrialization, trade openness and foreign direct investment are measured critical. There is need to create an investors and exporters friendly environment that could boost country's industrial sector.

The impact of Fdi on the domestic industrial sector depends on the variety of specialized inputs and the relative strength of the competition. This is thus beneficial to the domestic economy as a whole (Rodríguez-Clare 1996). In fact, one can consider that the competition effect may condition the way FDI affect the local industry. Such a competition effect is explicitly examined in the model by Markusen and Venables (1999). The results revealed that FDI may have two main effects on domestic industry: The linkage effect through intermediate demands and the product competition effect through which multinationals may force domestic firms to exit the market.

Foreign investment discussed by many Economists and policymakers they contributed significantly towards the expected growth and industrial transformation. However the contribution of gross investment is low in foreign direct investment, but its considered as an important means of getting technical well being, managerial skills, and access to external markets. If developing countries are successful in attracting considerable foreign investment inflows, they could accelerate the growth process of their industrial sector and restructure their market mechanism. There is need to formulate market based policies to create investors friendly environment. So in industrial sector growth depends upon the execution of foreign direct investment sources and wide exports through using efficient scarce resources.

The objective of the study is to empirically analyze the impact of trade openness and foreign direct investment along with other relevant factors on Pakistan's industrial sector growth during the annual time period from 1965–2011 using the Johansen-Juselius Co-integration & Vector Error Correction Mechanism framework. The remainder of the paper is organized as follows. Section 2 discusses the review of relevant literature. The theoretical framework of the study is presented in Section 3. Section 4 illustrates data sources. Section 5 demonstrates

econometric techniques. In section 6 the empirical results are reported and discussed. Concluding remarks and policy implications are given in Section 7.

Literature review

Many empirical studies examined the relationship between trade openness, foreign direct investment and industrial sector growth such that Adenikinju and Olofin (2000) recommended that industrial sector development can be achieved by trade openness and policies of trade through scale efficiency. Lucas, 1988, Grossman and Helpman, 1989; 1991; and Romer, 1990 explained that an open trade regime omit hurdles caused by foreign exchange as observed in case of developing nations.

Ahmad and Dutta (2006) described in his empirical analysis the relationship between growth of industrial sector and trade sector policies for Pakistan for period 1973-1995. The study applying the co-integration and error correction methods of estimation. His major findings support a long run and stable relationship among industrial value added, capital stock, real exports and import tariff on collection rate and ratio of secondary school enrollment. Njikam (2009) explained the trade openness and development of industrial performance in Cameroon, he trying to discover whether a relation exists between infrastructure and industrial performance during the two time periods, before and after trade openness this study utilized the annual values during the import-substitution era (1986-1994) and immediately after trade reform (1995-2003) for a sample of 29 industrial sectors. Through panel data techniques this study found that productivity of industrial sector depends upon development in infrastructure.

Barua and Chakraborty (2006) analyzed in their study about the industrial sector and exports performance for India through high market and openness. According to their study trade liberalization

increase cost of production and decrease industries output, decline producer surplus and increase consumer surplus through price decline. The trade openness raises competition which increased efficiencies, and technical know how, total factor productivity and reduce costs of production, gross domestic product, foreign direct capital investment, and improve equal way in to limited economic as well as other resources which improves productivity and eliminates corruption in the system [Smith, 1776; Ricardo, 1817; Mishimizu and Robinson, 1986; Nishimizu and Page, 1991; Tybout, 1992; Helleiner, 1989, 1994]. Lall, (1992) defines Incentives play an important role in industrial performance through trade approach and government interventions possess a crucial role in the incentive structure. neutrality of incentives between import substituting and export activities have the potential of producing both short run and long run trade profit.

By analyzing the theoretical as well as empirical side we can conclude that literature recognized strong evidence in the favor of link between foreign direct investment and openness to trade. Industrial growth is enhancing mostly by these two factors. Competitive economy along powerful government cooperation enhances industrial sector growth.

Theoretical framework

The theories of FDI suggest that generally the interaction of social, political, economic, and risk factors are essential in determining the direction of international capital flows as influenced by supply and demand forces. In general, FDI flows to countries with higher prospects of net gain on investment which is an indication that the associated benefits exceed the costs of foreign investment. Developing countries accept as challenge to implement economic policies that will raise income in real per capita terms through rapid industrial growth as so a low-income traditional economy is metamorphosed into a high-income industrialized economy as recommended by Lewis (1954), Rostow (1960), Harrod (1948) and Domar (1947).

The effects of trade openness on domestic industrial sector have remained ambiguous in many developing countries. Trade liberalization exemplifies openness, outward orientation and a liberal economic system measuring the degree of integration of a domestic economy with the global economic forces. A liberal trade regime occurs when there is elimination or reduction of trade intervention by governments so that the liberal trade environment has become synonymous with free trade. According to Dean, *et al.* (1994) trade openness enhances the integration of a nation's trade regime into the global economy requiring opening up of the external sector to the international community and the dismantling of international trade barriers.

Based on the preceding discussion, the theoretical framework for this empirical study is set as follows:

$$\ln INS_t = a_0 + a_1 \ln CPI_t + a_2 \ln TO + a_3 \ln FDI + a_4 \ln GDP_t + a_5 \ln REER_t + u_t \quad (1)$$

t = 1, 2,T

Where,

INS is industrial sector growth or industrial sector value-added as a percentage of GDP.

GDP is Real Gross Domestic Product.

TO = (X+M/GDP), where X and M denote as export and import respectively. TO represents trade openness as trade to GDP ratio.

FDI is Net Flows of investment from foreign countries.

REER is real effective exchange rate based on index 2005

CPI is consumer price index based on 2005.

α_0 is a constant and u is the white noise error term at time t .

From the theoretical point of view GDP, FDI, TO, REER and CPI have positive effect on industrial sector growth. For that reason expected signs should be $\alpha_1, \alpha_2, \alpha_3, \alpha_4$ and $\alpha_5 \geq 0$.

DATA SOURCES AND VARIABLE DESCRIPTION:

The industrial sector growth is measured as the share of the industrial sector value added to total Gross Domestic output (as %), Real GDP is taken at constant price of local currency in order to identify real growth, openness to trade computed as the sum of exports and imports as a percentage of GDP which is the traditional and the most widely used index for trade openness, FDI is define as net flows of investment from foreign countries, Real effective exchange rate is comprises the weighted real exchange rate of the trading partners currencies of taking 2005 as base year, consumer price index computed as the rate of growth in consumer price index taking 2005 as base year. All these variables data taken from secondary data sources and obtained from world development indicators, International Financial Statistics and IFS-CD ROM.

5.0 ECONOMETRIC TECHNIQUES:*5.1 Unit Root Test:*

Unit root test being use to check stationarity and non stationarity of the series of variable to be integrated of order d (Engle and Granger 1987). All the series are tested for the possible order of difference stationarity by using the augmented Dickey-Fuller (ADF) tests. ADF test is a standard unit root test, it analyze order of integration of the data series.

5.2 Co integration Test:

In the event of the stationarity of the given variable series which is used in present study “Effect of Openness to Trade and FDI on Industrial Sector Growth: A case Study for Pakistan”, long run relationship determine through Johansen-Juselius procedure. The problem of spurious correlation gives defeat by Johansen (1988) and Johansen-Juselius (1992, 1999). The basic idea behind co-integration is that if two or more series move together in the long-run, even though the series themselves are trended, the difference between them is

stationary, and it is possible to regard these series to have a long-run equilibrium relationship. This procedure is viewed as a generalization of the DF testing procedure to the multivariate case.

The model is written as follows:

$$\Delta Y_t = \delta \sum_{i=1}^{k-1} \Gamma_i \Delta Y_{t-i} + \Pi Y_{t-k} + \varepsilon_t \dots \dots \dots (2) \quad \text{where}$$

Y_t is a column vector of the m variables, Γ and Π represents coefficient matrices, Δ is a difference operator, k denotes the lag length, and δ is a constant. The Johansen-Juselius procedure involves the identification of rank of the m by m matrix Π (or the number of its characteristic roots Eigen values). If Π has zero rank, there is no co-integrating vector and it is the usual Vector Auto regression Model (VAR) in first difference form. If the rank r of Π is greater than zero, there are multiple co-integrating vectors, and Π may be decomposed into two matrices α and β such that $\Pi = \alpha\beta'$. In this version, β contains the coefficients of the r distinct co-integrating vectors giving $\beta'Y_t$ stationary (Y_t may not be stationary) and α contains the speed-of-adjustment coefficients. There are two tests to determine the number of co-integrating vectors namely, the trace test and the maximum eigenvalue test. They are defined as follows:

$$\lambda_{\text{trace}}(r) = -T \sum_{i=r+1}^n \ln(1 - \lambda_i) \dots \dots \dots (3)$$

$$\lambda_{\text{max}(r,r+1)} = -T \ln(1 - \lambda_{r+1}) \dots \dots \dots (4)$$

where $\hat{\lambda}_i$ is the estimated value of the characteristic roots, T is the number of usable observations, and r is the number of distinct co-integrating vectors. In the trace test, the null hypothesis (H_0) is there is at most r co-integrating vectors (i.e. $r = 0, 1, 2, \dots$) is tested against a general alternative. Alternatively, in the maximum eigenvalue test, the null hypothesis ($H_0: r = 0$) is tested against an alternative ($H_1: r = 1$) followed by ($H_0: r = 1$) against ($H_1: r = 2$), and so on. The critical values for both these tests were tabulated by Johansen and Juselius (1990). The distribution of the statistics depends on the number of non-stationary components under the null hypothesis and whether or not a constant is included in the co-integrating vector.

5.3 Vector Error Correction Model (VECM):

A Vector Error Correction Model (VECM) will employ in study for to check short run relationship among industrial sector growth, openness to trade, foreign direct investment, real effective exchange rate, consumer price index, and Real GDP.

Long-run equilibrium find in the study that means variables are co-integrated but they may still be in disequilibrium in the short run. Therefore error correction model (ECM) is use to resolve the short run dynamic of the system. Equations of VECM are given below.

$$\begin{aligned} \Delta \ln INS_t = & \alpha_0 + \sum_{i=0}^k \alpha_1 \Delta \ln CPI_{t-i} + \sum_{i=0}^k \alpha_2 \Delta \ln TO_{t-i} + \sum_{i=0}^k \alpha_3 \Delta \ln FDI_{t-i} + \\ & \sum_{i=0}^k \alpha_4 \Delta \ln GDP_{t-1} + \sum_{i=0}^k \alpha_5 \Delta \ln REER_{t-i} + \sum_{i=1}^k \alpha_6 \Delta \ln INS_{t-i} + \omega_1 \\ & \dots \dots \dots (5) \end{aligned}$$

Where Δ is used as difference operator, $t-i$ is lag value of variables used in study $i=1$ to k is time series data of variables use in study.

6.0 EMPIRICAL RESULTS:

To check the order of integration, the study employed apply the Augmented Dickey fuller (ADF) test to determine the order of integration by using without constant, constant and constant with trend Assumptions. The result as presented in table 1 below show that generally all the time series under consideration are stationary at first difference i.e I (1) with respect to all three assumptions.

Table1

ADF TEST RESULTS

Variables	Without intercept	With intercept	Intercept and trend
At Level			
Lncpi	-0.83	-0.83	-2.61
Lnfdi	-1.35	-1.79	-2.66
Lnins	-0.29	-2.08	-2.89
Lnreer	-1.89	-1.89	-1.06
Lnrqdp	-1.83	-1.86	-1.51
Lnto	-0.45	-2.34	-2.29
At First difference			
Lncpi	-3.86	-3.86	-4.79
Lnfdi	-4.68	-5.06	-5.16
Lnins	-6.75	-6.64	-6.55
Lnreer	-5.98	-6.41	-6.51
Lnrqdp	-4.45	-4.03	-4.8
Lnto	-5.57	-5.50	-5.58
<p><i>With out intercept the critical value of ADF is 1.612229 at 10% level of significance, -1.95 at 5% level of significance and the critical value of -2.6 at 1% level of significance.</i></p> <p><i>With intercept the critical value of ADF is 2.60 at 10% level of significance, -2.95 at 5% level of significance and the critical value of -3.62 at 1% level of significance.</i></p> <p><i>With intercept and trend the critical value of ADF is 3.18 at 10% level of significance, -3.6 at 5% level of significance and the critical value of -4.24 at 1% level of significance.</i></p>			

Table 2

JOHANSEN'S COINTEGRATION TEST:

Trace test			Maximum Eigen value test		
Null Hypothesis	Alternative hypothesis	Test statistics	Null Hypothesis	Alternative hypothesis	Test statistics
R=0	R=1	351.02** (95.75)	R=0	R=1	120.0042** (40.077)
R≤1	R=2	230.03** (96.82)	R≤1	R=2	95.273** (33.876)
R≤2	R=3	134.75** (47.86)	R≤2	R=3	73.489** (27.584)
R≤3	R=4	61.27** (29.79)	R≤3	R=4	34.236** (21.13)
R≤4	R=5	27.034** (15.49)	R≤4	R=5	18.66** (14.26)
R≤5	R=6	8.367** (3.84)	R≤5	R=6	8.3675** (3.8414)

*Note: ** denotes co-integration at 5% level and inside the brackets presents critical values at 5% level of trace statistics. The critical values in all brackets are lower than test statistics and for that reason we accept the alternative hypothesis. The critical values of Maximum Eigen value test statistics are written in brackets at 5% level. We reject the null hypothesis and accept alternative hypothesis of co-integration at 5% level of significance.*

The study tested model to find out the existence of number of co-integrating equations through Johansen's techniques. We find six co-integrating vectors. The results of Johansen's co-integration test are presented in table 2.

Both the trace and eigenvalue statistics reject the null hypothesis of no co-integration at 5% level of significant against the alternative hypothesis. On the other hand, higher critical value than trace as well as eigenvalue test statistics clearly indicate that the null hypothesis of existence of five or more co-integrating equations ($R \leq 1$, $R \leq 2$, $R \leq 3$, $R \leq 4$ and $R \leq 5$) is rejected. So the alternative hypothesis i.e., $R=1$, $R=2$, $R=3$, $R=4$, $R=5$, $R=6$ is established implying the existence of six co-integrating vectors in our model. Besides, the existence of six co-integrating vectors implies that there exists a significant long-run relationship among all the variables under consideration.

Table 3

**NORMALIZED COINTEGRATING COEFFICIENTS ON
LINS**

Variables	lcpi	Lfdi	lreer	lrgdp	lto
Coefficient	-1.742*	0.484*	0.009	1.264*	-2.347*
Standard error	0.0914	0.0311	0.0375	0.0914	0.1002
t-statistics	-19.059	15.563	0.235	13.825	-23.424

**show significant at 1% level*

Normalized co-integrating vectors in Table 3 show that, in the long run, coefficients of FDI, Real effective exchange rate and real GDP are 0.48, 0.0098 and 1.26 respectively, and showing positive and statistically significant. These coefficients suggest that 1% increase in foreign direct investment and real GDP contributes 0.48, and 1.26 percent to industrial sector growth also 15.6 and 13.38 t-statistics values of foreign direct investment and real GDP showing positive sign also statistically significant long run relationship with industrial sector growth and these two variables are the main source of growth for the industrial sector of Pakistan.

On the other hand the normalized coefficient of Real effective exchange rate which is the nominal effective exchange rate (a measure of the value of a currency against other major foreign currencies) divided by a price deflator reveals positive sign but statistically insignificant effect on industrial sector growth which determines this variable is excluded when compare growth of the industrial sector of Pakistan. The long run coefficient of trade openness shows negative sign but significant revealed that trade openness policy is not useful for high growth in the industrial sector of Pakistan. Whereas the effects of inflation on industrial sector growth is negative and statistically significant implies that inflation is a big hurdle in the growth of industrial sector that's why study conclude that

Government should take measures to keep inflation low through open market operation, tight monetary and fiscal policy.

Table 4

VECTOR ERROR CORRECTION MODEL

Variable	coefficient	t-statistics	probability	f-statistics
C	-0.043	-1.536688	0.1352	
Dlins(-1)	0.295	1.682136	0.1033	3.575*
Dlins(-2)	0.198	1.118588	0.2725	(0.016)
Dlfdi	2.06E-05	1.447958	0.1584	2.1378***
Dlfdi(-1)	-3.16E-05	-1.431931	0.1629	(0.058)
Dlfdi(-2)	4.11E-06	0.376566	0.7092	
Dltreer	-0.078	-1.115223	0.2739	2.544***
Dltreer(-1)	0.119	2.066599	0.0478	(0.074)
Dltreer(-2)	0.112	2.200347	0.0359	
Dlrgdp	0.549	2.004069	0.0545	2.593**
Dlrgdp(-1)	0.140	0.520991	0.6063	(0.04)
Dlto	0.104	1.863612	0.0725	0.0175
Dlto(-1)	0.139	1.693795	0.1010	(0.21)
Dlcpi	0.137	0.683587	0.4997	
Ec(-1)	-0.810*	-3.852187	0.0006	
R ²	0.8536			

Vector Error Correction model is used to check the short-run impact of the real GDP, trade openness, real effective exchange rate, consumer price index and foreign direct investment on industrial sector growth. But a Vector Error Correction term confirms a long-run relationship among given variables. The error correction term {Ec(-1)} which is negative and statistically significant and according to its t-value -3.85 which determines the long run relationship among the variables. According to F-statistics values which are 2.13, 2.544 and 2.59 in VECM model shows Real GDP, foreign direct investment and real effective exchange rate have short run significant effect on industrial growth. The VECM reveals that changes occur in industrial sector growth not only depends upon lagged changes in independent

variables but also its own lagged. The f-statistics of industrial growth lagged also highly significant and describe short run relation ship. It means previous year industrial growth rate puts effect upon current year industrial growth.

Although on the other side f-statistics and t-statistics values of trade openness and consumer price index are 0.0175 and 0.68 and showing insignificant and have no effect on industrial sector growth in the short run (see Table 4). One of the reasons behind is electricity and energy crises, we are live in consumption base society that's why our imports high exports less, also food and gold prices bring inflation in the economy cost of production also increasing day by day that's why our industrial sector growth highly effected.

Conclusions

The specific purpose of this study is to examine the effect of foreign direct investment, trade openness, real GDP, consumer price index and real effective exchange rate on industrial sector growth of Pakistan. In doing so the study uses application of Johansen's (1988, 1991) Full- Information Maximum Likelihood Method and Vector Error Correction procedure. The results of the Johansen's co-integration tests evidence that trade openness and inflation possesses negative long run equilibrium relationship with industrial sector growth.

The study further demonstrates that strong factors that could stabilize and boost industrial sector growth are attracting foreign direct investments and growth of real gross domestic product. On the other hand in short-run VECM results shows that industrial sectors growth own lagged value, Fdi, Reer and RGDP have positive and statistically significant relationship with industrial sector growth rate but TO and inflation have insignificant or no impact on industrial sector growth rate, and Ec (-1) confirms long-run relationship among industrial sector growth with TO, inflation Fdi and RGDP.s

Policy Findings

Developing countries particularly Pakistan experiencing severe economic crises. The major reasons of this situation is Low real economic growth rate, huge balance of payments deficits arising from deteriorating terms of trade, giant population problem, natural disasters, many Government and politics corruption issues like inadequate education facility, inequitable income distribution, deficiency of providing housing, health and medical facility and many more .

It would therefore be recommended that effective policies should be formulating to stabilize the macro economic conditions and to reduce lending rates, give credit to agricultural sector through which they increased supply of raw materials to the industrial sector and reduce inflation. It would be also recommended that policymakers should plan and execute practical policies that would properly manage domestic capital to finance industrial activities rather than over-relying on FDI.

The findings of the present study though trade openness appears to exert strong negative long run impact on industrial growth in Pakistan. It is possible that some conditionalities that are often associated with official trade openness to developing countries might not be directly favourable to initiating higher industrial growth. In order to achieve a high industrial growth, there is the need to implement careful macroeconomic policies to that guaranteed the availability of raw materials and at the same time there is need for the economy to exhibit signs of robust growth and growing domestic market for industrial products through real economic growth.

Moreover, the long-run, inflation has a consistent negative impact on industrial growth in Pakistan, whereas in short run it has shown no effect on industrial sector growth. In this regard the study suggests that the moderate inflation rate is necessary to improve the long-run industrial growth in Pakistan. As the rate of inflation is made moderate

and manageable, lending rates of commercial banks must be significantly reduced to attract investors to seek additional working capital for expansion and propelling higher industrial performance.

Acknowledgements

I am sincerely grateful to my supervisor Dr. Shaista Alam for her precious help in provisions of support, guidance and encouragement, without her the doing well performance and completion of the paper work was not possible. I also recall, with thoughtful appreciation, the support provided by Sabibuddin Butt, the M.Phil Assistant, concerning the methodologies makeup, inside of the study that proved reasonably helpful.

Last but not the least; I am enormously grateful to my Sister Ghazala Arif, and brother, Ahsan Umer who always encouraged me when I write paper description.

References

- Adenikinju and Olofin (2000). Economic Policy and Manufacturing Sector Performance in Africa. *The Nigerian Journal of Economic and Social Studies*. Vol. 42, No. 1, pp. 1-22.
- Rodríguez-Clare, “Multinationals, linkages, and economic development,” *American Economic Review*, 86 (1996), pp. 852–873
- Barua A. and Chakraborty D (2006) “Liberalization, Trade and Industrial Performance: An Empirical Analysis of India”
- Dean, Judith M., Seema Desai, and James Riedel (1994), “Trade Policy Reform in Developing Countries since 1985: A Review of the Evidence,” *World Bank Discussion Paper*, 267.
- Dutta, D. and Ahmad, N. (2004) “Trade Liberalization and Industrial growth in Pakistan: a Cointegration analysis,” *Applied Economics*, Vol. 36, pp. 1421-1429.
- Elbadawi, I.A. (1992), “Have World Bank-Supported Adjustment Programs Improved Economic Performance in

Sub-Saharan Africa?” Policy Research Working Papers, Washington DC: Country Economics Department.

- Granger, Clive W.J. (1969), “Investigating Causal Relations by Econometric Models and Cross Spectral Methods,” *Econometrica*, 35: 424-438.
- Granger, C.W.J. and Newbold, P. (1986) *Forecasting Economic Time Series*, Academic Press, Orlando, FL.
- Granger, Clive W.J. and P. Newbold (1974), “Spurious Regressions in Econometrics,” *Journal of Econometrics*, 2: 111-120.
- Grossman, G. and E. Helpman (1991), *Innovation and Growth in the Global Economy*, The MIT Press, Cambridge, MA.
- Grossman, G.M. and Helpman E. (1989). *Growth and Welfare in a Small Open Economy*. NBER Working Paper No. 2970, July. National Bureau of Economic Research, Cambridge, Massachusetts.
- Guerrieri, p. caratelli, I. EU’S Regional Trade strategy, The challenges Ahead: The International Trade journal, volume no.2, summer 2006
- Harrod, Roy F. (1948), *Towards A Dynamic Analysis*, London: Macmillan
- Helleiner, Gerald K. (ed.) (1994), *Trade Policy and Industrialization in Turbulent Times*, London: Routledge.
- Hulton C. W. (1967). “Exports expansion and economic growth: A survey, *Land Economics*, Vol. 43, pp. 148-157.
- Johansen, Soren (1988), “Statistical Analysis of Cointegrating Vectors”, *Journal of Economic Dynamics and Control*, 12: 231-254.
- Johansen, Soren and Katarina Juselius (1990), “Maximum Likelihood Estimation and Inference on Cointegration with

- Applications to Demand for Money,” Oxford Bulletin of Economics and Statistics, 52: 169-210.
- Johansen and Juselius, K. (1992), Testing Structural Hypothesis in a Multivariate Cointegration Analysis of the PPP and UIP for UK,” *Journal of Econometrics*, 53:211-244
 - J.R. Markusen, A. Venables,” Foreign direct investment as a catalyst for industrial development” *European Economic Review*, 43 (1999), pp. 335–356
 - Lucas, R. E. (1988), “On the Mechanics of Development Planning,” *Journal of Monetary Economics*, 22: 3-42.
 - Markusen, J.R. and A.J. Venables, 1999, Foreign Direct Investment as a Catalyst for Industrial Development, *European Economic Review* 43, 335-356.
 - Lall, Sanjaya (1992), “Technological Capabilities and Industrialization,” *World Development*, 20(2): 165-186
 - Lall, S., and R. Narula (2006) ‘Foreign Direct Investment and its Role in Economic Development. Do We Need a New Agenda?’. In R. Narula and S. Lall (eds), *Understanding FDI-Assisted Economic Development*. Milton Park: Routledge
 - Lewis, Arthur W. (1954), “Economic Development with Unlimited Supplies of Labour,” *Manchester School of Economic and Social Studies*, 22(May): 139-191.
 - Lewis, Arthur W. (1954), *Economic development with unlimited supplies of labour*,” *Manchester School of Economics and Social Studies*.
 - Lundvall, B. A. (1992) *National Systems of Innovation: Towards a Theory of Innovation and Interactive Learning*. London: Pinter
 - Nishimizu, M. and S. Robinson (1986), “Productivity Growth in Manufacturing,” in Hollis Chenery, S. Robinson, and M.

- Syrquin (eds.), *Industrialization and Growth: A Comparative Study*, Oxford: Oxford University Press: 283-308.
- Nishimizu, M. and J.M. Page, jr. (1991), "Trade Policy, Market Orientation, and Productivity Change in Industry," in *Trade Theory and Economic Reform*, Jaime De Melo and Andre Sapir (eds.), Oxford: Basil Blackwell: 246-264.
 - Njikam, O. 2003. *The Effects of Trade Liberalization on Productive Efficiency: Some Evidence from the Electrical Industry in Cameroon*. Research Paper African Economic Research Consortium, Nairobi
 - Njikam O. (2009). "Trade Liberalization, Infrastructure and Industrial Performance in Cameroon"
 - Ricardo, David (1817), *On the Principles of Political Economy and Taxation*, London: John Murray.
 - Romer P.M. (1990) *Endogenous Technological Change*. *Journal of Political Economy*, 98 Rostow, Walt W. (1960), *The Stages of Economic Growth: A Non-Communist Manifesto*, London: Cambridge University Press.
 - Smith, Adam (1776), *Wealth of Nations*, New York: Random House. Sindzingre, Alice (2005), "Explaining Threshold Effects of Globalisation on Poverty: An Institutional Perspective," UNU-WIDER Research Paper, 2005/53.
 - Tybout, J.R. (1992), "Researching the Trade-Productivity Link: New Directions," PRE Working Paper 638, Washington DC: World Bank.

