Impact of Trade and Human Capital on Economic Growth of India: An Empirical Analysis

Majid Karimzadeh [1]
Behzad Karimzadeh [2]

Trade is the principal channel through which the flow of ideas, knowledge and technology will take place. But it is not clear to what extent the recipient country can take advantage of these variables. Adoption, imitation and production process, by and large, depend on human capital in the recipient country, and also on how the different components of human capital (e.g. on-the-job-training versus academic training) are distributed. This paper uses Ordinary Least Square to investigate relationship between trade, human capital and economic growth. The empirical result shows that there is a significant relationship between trade, human capital and economic growth. The study shows that any progress in human capital will positively affect economic growth. In turn, higher economic growth will lead to more employment, higher income and profit, which means more investment in human capital.

Keywords: Trade, Human Capital, Economic Growth, India

[1] **Majid Karimzadeh,** P.h.D scholar**,** Economics Department, Aligarh Muslim University, India, Karimzadeh111@yahoo.com
[2] **Behzad Karimzadeh,** M.A. Economics scholar, Economics Department, Sistan and Balochistan University, Iran, behzadkarimzadeh@yahoo.com

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1. Introduction

Economic growth is the result of many domestic and external factors. Trade and human capital cannot be detached from economic growth. Their link is indispensable. Human capital and foreign trade would reinforce the process and the size of economic growth. Foreign trade will affect domestic markets and human capital plays a complementary role to trade. Education as indicator of human capital is one of the main factors which influences the development of trade and is one of the building blocks of productivity of factors of production. A workforce with higher education will have more potential for change and for being innovative. Human capital and foreign trade are complementary factors. They interact with each other and work together to strengthen the force of further economic growth and development.

The basis for international trade is the same as for trade within a country. Many economists argue that opening to international trade accelerates economic growth. The growth may be a transitory stage but nevertheless it will pave the path for future growth rate. Clearly, the transition takes time. That could be couple of decades or more. It is not unreasonable to speak of opening ones borders to international trade as a cause of accelerating economic growth (Dollar and Kraay, 2001).

India is one of the most ancient trading nations. Due to its vast diverse land and its location, it initiated many trading routes and also traded in many goods for millennia. But during the latter half of the 19th century is the beginning of its modern trade policies. During 1894-1900, India's foreign trade received a temporary setback. This was due to re-imposition of import duties in 1894, trade depression abroad, famines and plague. The period of 1900-1914 again witnessed remarkable expansion in India's foreign trade. It was a period of

world-wide prosperity and favorable monsoons in the sub-continent. The rise in the output of such commercial crops as oilseeds, cotton, jute and tea was largely due to a flourishing export trade. Direction of India's foreign trade also witnessed a remarkable change and share of non-empire countries increased in India's exports and imports (Bhasin, 2005,p.5).

India's foreign trade was severely hit by the 1929 great depression. The value of total trade in 1932-33 was less than half of what it was in 1929-30. The impact of depression began to subside after 1932 and India's foreign trade showed some sign of improvement. During the Second World War, exports increased rapidly, particularly to Britain. Britain and USA accounted for the bulk of India's exports. India enjoyed export surplus in her foreign trade during the last one hundred years of British rule. But the continued surplus in its balance of trade didn't lead to any real gain and used to pay for its invisible imports and debt servicing obligations (Bhasin, 2005,p.7).

Since independence the number of changes has been taken place in almost all sectors of the Indian economy. As far as foreign trade is concerned India has adopted an inward-oriented restrictive trade policy till 1960's. Since 1960's, India has adopted the import substitution policy. The Indian foreign liberalisation era started in 1970's but only half-heartedly. In the late 1980's and early 1990's more drastic changes have taken place as far as Indian foreign trade is concerned. Indian economy has shifted towards greater openness and recognizing the impacts of globalization trend (Shinde, 2010).

India has been implementing policies in favour of trade liberalization but domestically and internationally. These policies have brought tremendous changes in Indians foreign trade and human capital. The purpose of this study is to examine the impact of foreign trade and human capital on India economy for the period of 1980–2011.

2. Literature Review

Economists have always been aware of the importance of economic growth and development. Economic growth is the backbone of any national economic activity. Generally speaking, economic growth is a result of greater quantity and better quality of natural, human, and capital resources, and also technological advances that boosts productivity (Chen and Gupta, 2006).

Harrison (1991) conducted an empirical study looking the relationship between trade liberalization and the rate of economic growth. She concluded that correlation is positive. The more open is an economy, the higher is the growth rate or the more protected is the local economy, the lower the growth rate seems to be.

Grossman and Helpman (1992) suggested that a country`s policy in opening its borders to trade plays a pivotal role in her technological progress. Hence, since opening of an economy to foreign trade would result in greater economic activities and more jobs and income that will improve the standard of living and the quality of life of residents of that nation. It will enable them to import more goods and services from abroad and also export more goods to other countries.

Krueger (1997) finds a strong association between export and economic growth. In his comprehensive study, he examines the role of exports on the economic growth of 10 countries from 1954 – 1974.

Isaksson (2002) concluded in his study that trade is important for transporting growth-enhancing factors like technological advances and knowledge. The author also argues that the positive impact of international trade can be much greater if countries engaged in trade had the same high level and quality of human capital. Many third world countries or economies that are experiencing their transitional period cannot take advantage of the full benefits of international trade because of poor and low quality and quantity of human capital.

Wacziarg and Welch (2003) showed that trade liberalizing countries comparatively tend to have higher volumes of trade, higher investment

and economic growth. These authors have also highlighted another effect of trade liberalization. In their work it has been implied that political stability is one of the consequences of trade liberalization, which in turn will affect economic growth positively.

Söderbom and Teal (2004) ask the question "Do openness to trade and higher levels of human capital promote faster productivity growth?" To answer this question authors used panel data on 93 countries for the 1970-2000 periods. Their findings show that there is a significant correlation between trade openness and the rate of economic productivity. The study shows that if the level of openness is doubled the underlying rate of technical progress will increase by 0.8 per cent per annum.

Chang et al. (2005) states, opening the economy to foreign trade will promote the efficient allocation of resources. This is because comparative advantage allows the dissemination of knowledge and technological progress and encourages competition in domestic and international markets. Chen and Gupta (2006) examined the impact of trade openness on economic growth for the SADC region in Africa over the period of 1990 to 2003. The results of their study confirm that trade openness have a strong positive impact on economic growth in this region over this period. The study also highlights the role of education in strengthening the effect of openness on sustainable growth via better absorption of knowledge and technological spillovers from trade liberalization.

Tanna and Topaiboul (2005) found in their study that there are significant effects of domestic investment and trade openness on import-led economic growth in Thailand. They concluded that trade openness has played a greater role than FDI in influencing Thai economic growth. At the same time their study reveals a subtle role for technology. It is transferred by means of the complementary mechanism of trade, FDI and government expenditures.

Obadan and Elizabeth (2010) showed in their paper that trade openness positively impacted the Nigeria's economic growth. Maksymenko and Rabbani (2011) conducted a research about the role of economic reforms and human capital accumulation in the post-reform economic growth in South Korea and India. They have detected a significant positive correlation between human capital accumulation and trade liberalization in both India and South Korea.

3. Data and Model Specification

In this study an attempt has been made to examine the effect of foreign trade and human capital on economic growth of India. Data of the study were taken from hand book of Indian economy and economy survey and were collected from period of 1980 to 2011 to show impact of foreign trade and human capital on economic growth. To determine the existence or nonexistence of the relationship between the variables in the model and also to find out whether this relationship is linear or non-linear, this study adopted the Ordinary Least Squares method (OLS). Model for testing this relationship is as follow:

Growth= f (Openness, Human Capital, FDI, Exchange Rate, Domestic Investment)

The linear expression of the above function can be present as:

$$\boldsymbol{Y = \propto + \beta_1\, Opennens + \beta_2\, HC + \beta_3 FDI + \beta_4\, ER + \beta_5\, DI + e}$$

Where:

Y is dependent variable and growth rate of Gross Domestic Product (GDP) is used as dependent variable in this study.

Openness: The openness variable is measured as exports plus imports divided by GDP (X + M / GDP). It is used as proxy for the level of trade between the economy and the rest of the world. It is expected to have a positive effect on growth as drawn from various works that we have reviewed earlier (Harrison, 1991, Sachs and Warner, 1997, Obadan and Elizabeth, 2010). India's foreign trade is regulated by the

1992 foreign trade act, which replaced the 1947 import and export act. The act of 1992 empowers the central government to formulate and announce from time to time the export and import policy and to amend it in like manner. New trade policy in 1992 made a conscious effort to dismantle various protectionist regulations and policies to accelerate India's economic integration to global markets.
HC: Investment expenditure in education is used as proxy of human capital and it is believed that human capital has positive influence on economic growth. Human resource development is the key player of economics development and without this resource process of growth and development will be longer. Trade has a conditional impact on growth and can be said that trade has a pro-growth influence. Foreign trade plays a major role in diffusion of new technology but to what extent a relatively less developed country can take advantage of new technology through trade is difficult to measure. It appears that direct adoption of relatively advanced technology, as well as imitation requires a certain level of capital and skills in the recipient country (Issakson, 2002).Therefore, development of human capital through promoting education and skills would result in promoting more exports and trade.
FDI: Foreign direct investment is used to show the role of external factors on economic growth. FDI helps economic growth through diffusion of technology and development of human capital (Shan, 2002; Burridge and Sinclair, 2002; Kim and Seo, 2003). In India, prior to economic reforms that were introduced in 1991, FDI was discouraged by (a) imposing severe limits on equity holdings by foreigners and (b) by restricting FDI to the production of only a few well protected sectors of the economy. Developing countries adopted their liberalization and deregulation policies and hence their foreign investment policy as dynamic and efficient vehicle to secure and develop their industrial technology, managerial expertise and marketing know-how and networks so that they will maintain a steady

economic growth, employment, productivity and export (Gakhar, 2006).

ER: Exchange rate: It is expected at lower exchange rate, growth rate will be higher. Frequent fluctuation and poorly managed exchange rate has disastrous impact on economic growth but more flexible exchange rate in economies that are tend to be more market oriented usually experience higher economic growth.

DI: Gross domestic capital formation is used as proxy of domestic investment. Economic growth needs capital investment. The problem of low marginal propensity to save in developing countries is one of the main obstacles of economic growth. There is need for resources, to be employed efficiently, to achieve a target rate of growth in any countries. These resources can be mobilized through both domestic and foreign resources (Tang et al., 2008 and Tawiri, 2010).Therefore, it is expected that an increase in domestic investment will have a positive impact on economic growth in the same way as foreign investments but may not to the same scale.

e: Error term.

4. The Tests and the Outcomes

In order to identify the stationary of the variables under study we start our analytical part by applying the Augmented Dickey-Fuller (ADF) test.

Table 1

Unit Root Test

Variables	t-statistic	Lag	Critical Value %1	Critical Value %5
GDP	-4.392975	-	-3.670170	-2.963972
Openness	-4.684136	1	-3.679322	-2.967767
EE	4.650429	-	-3.689194	-2.971853
FDI	6.726945	-	-3.752946	-2.998064
ER	3.824597	1	-3.699871	-2.976263
GDCF	3.626648	-	-3.711457	-2.981038

Table 1 shows the result of unit root test. From this table it can be seen that openness and ER (exchange rate) variables were not stationary but when we convert these series into first difference these variables became stationary. We will use these variables with one year lag in model of study to find the affect of these variables on economic growth.

Table 2

Dependent Variable Growth

Variables	Coefficient	Prob.
Openness (-1)	29.85621	0.0288
EE	2.18E-05	0.0001
FDI	2.50E-05	0.0009
ER (-1)	0.140916	0.0009
GDCF	6.69E-06	0.0025
C	0.315149	0.8742
R-square	0.71540	
Adjusted R-square	0.66320	
F-statistic	4.990150	
D_W	2.442424	

Table 2 presents the result of the regression analysis of the study. The value for the R-squared in the model is 0.71 which shows that 71 per cent of the variation in the dependent variable is explained by the independent variables of the model. The 29 per cent variation in the dependent variable remains unexplained by the independent variables of the study. The value for the F-statistic is 4.99 and is significant. It is endorsing the validity and stability of the model relevant for the study. The Durbin-Watson statistic (2.44) also shows that there is no autocorrelation in the model.

The results of variables suggest that the openness has significant positive impact on economic growth as dependent variable. This result confirms the importance of foreign trade on expansion of Indian

economy. Same results have been found by Harrison (1991), Sachs and Warner (1997), Obadan and Elizabeth (2010).
Investment expenditure on education also has a positive and significant impact on economic growth in India. Human capital plays a central role on endogenous economic growth. Knowledge and the ability to invent and innovate are considered the key determinants of economic development in all types of economic system (Sunde and Vitcher, 2012, p.51). This result is consistent with the conclusion of earlier studies [(Tayebi et al, 2005), (Soderbom and Teal., 2003), (Isaksson, 2002)].
FDI shows significant positive impact on dependent variable. FDI is one of the important vehicles for the transfer of technology, management skill and development of human capital. FDI has played an important role in economic growth in India. This result corresponds with the findings of other scholars that have conducted their research in the same field about Indian economy and positive impact of FDI on economic growth such as Ray (2012) and Agrawal and Aamir Khan (2011). The result of both studies confirmed that there is positive relationship between foreign direct investment (FDI) and GDP and vice versa.
Exchange rate shows positive and significance impact on dependent variable. In India the foreign exchange market has originated in 1978 beginning with the banks to undertake intra-day trade in foreign exchange. Before the liberalization reforms the Indian foreign exchange system was experiencing regular instability and fluctuation. In the 1990s the Indian foreign exchange market witnessed far reaching changes along with the shifts in the currency regime. Following the recommendations of Rangarajan Committee on Balance of Payments, the exchange rate of the rupee that was pegged earlier was floated partially in March 1992. Then they adopted a fully flexible exchange rate system in March 1993.

The unification of the exchange rate was instrumental in developing a market-determined exchange rate regime. Following the recommendations of O.P.Sodhani Expert Committee, which were proposed in 1996, wide-ranging reforms have been undertaken for deepening and widening of the Indian foreign exchange market. An Internal Technical Group on the Foreign Exchange Market was constituted in 2005 to undertake a comprehensive review of the measures initiated by the Reserve Bank. These measures were taken in order to identify the areas for further liberalisation or relaxation of restrictions up to the medium-term. These efforts have resulted in the momentous developments in the enhanced risk-bearing capacity of banks along with rising foreign exchange trading volumes and small margins in the foreign exchange dealings. In this way the foreign exchange markets in India acquired greater scope and depth in the last couple of decades (Arabi, 2007).

As we have indicated in many occasions before domestic investment (GDCF) has also a significant positive impact on economic growth in India. This result demonstrates the essential place of domestic investment for economic growth. Investment is the engine of economic growth and it can be from domestic or as foreign direct investment. Either way it acts as the force of economic growth. This result is in agreement with findings of Tawiri (2010) which showed that domestic investment plays an important role in to stimulate economic growth rates in Libya, especially with the policy of openness. That might be possible if government encourage more domestic private investment projects which should not be neglected at the expense of trend towards FDI.

5. Conclusion

In this study we have assessed the impact of foreign trade and human capital on economic growth in India. The result of our study shows that economic growth in India is affected by many factors and India

has benefited extensively from foreign trade, human capital, FDI and domestic investment ever since she has adopted policies that leaned towards these aspects of the economy. Foreign trade and human capital factors are very significant variables in determining both the rate and size of economic growth in any given country for any given time .Investing in human capital improves workforce knowledge and skills and subsequently the economic productivity of the nation. Trade liberalization on other hand is expected to re-direct resources from activities with positive price distortions towards activities that are either undistorted or negatively distorted. Those decades that are characterized by greater economic liberalization of India's foreign trade are also the decades that India has experienced its highest rates of economic growth. In this study we have shown that foreign trade has improved economic growth in India. Study corroborates the hypothesis that an economy that opens its borders to foreign trade can be more effective. It brings more stability and certainty in the markets. A country can be benefited from international trade when it has high capacity of human capital with high level of knowledge and expertise. Investment in human capital and promotion of greater international trade have acted as two most primary catalysts in India's high economic growth rate in the recent decades and will continue to do so in the future.

References

- Arabi, U. (2007), "Foreign Exchange Market Behaviuor and Its Managemnt in The Post-Reform Period: The Indian Experiences", Available at :www .Igidr .Ac.In /Money /Mfc_10 /Arabi % 20U _Submission_19.Pdf, Accessed on October 2012.
- Agrawal, G and Aamir Khan, M. (2012), "Impact of FDI on GDP growth: A Panel Data Study", European Journal of Scientific Research, 57(2):257-264.

- Bhasin, N. (2005), "External Sector Reform in India: 1991-2005", New Century Publication, New Delhi.
- Chen, P. P. and Gupta, R. (2006), "An Investigation of Openness and Economic Growth Using Panel Estimation", Working Paper: 2006-22.
- Dollar, D and A. Kraay (2001), "Growth is Good for the Poor", World Bank Research Working Paper.
- Grossman, G. and Heolpman, E. (1991), "Innovation and Growth in the Global Economy" Cambridge: MIT Press.
- Harrison, A. (1991), "Openness and Growth: A Time Series, Cross Country Analysis for Developing Countries", World Bank Policy Research Papers, No. 809, Washington DC.
- Isaksson, A. (2002), "The Importance of Human Capital for the Trade - Growth link", Statistics and Information Networks Branch of UNIDO.
- Krueger, A. O. (1997), "Trade Policy and Economic Development: How We Learn", American Economic Review, 87 (1): 1 – 21.
- Maksymenko,S. and Rabbani, M. (2011), "Economic Reforms, Human Capital, and Economic Growth in India and South Korea: A Cointegration Analysis", Journal of Economic Development, 36(2): 39-59.
- Ray, S (2012), "Impact of Foreign Direct Investment on Economic Growth in India: A Co integration Analysis", Advances in Information Technology and Management 2(1):187-201.
- Shinde, B. K.(2010), "Trends in India's Foreign Trade Policy Since Planning Period", International Research Journal, 2(11-12): 61-63.
- Söderbom, M. and Teal, F. (2004), "Openness and Human Capital as Sources of Productivity Growth: An Empirical

Investigation", Available at: www.unido.org. Accessed on October 2012.

- Sachs, J and Warner, A. N. (1997), "Sources of Slow Growth in African Economies", Journal of African Economics, 6: 1-54.
- Soderbom, M and Teal, F. (2003) "Trade and Human Capital as determinant of Growth", department of economics, University of Oxford.
- Sunde, U. and Vitcher, T. (2012), "Beyond balanced growth: The effect of human capital on economic growth reconsidered". In: Mennillo, G. (eds.), Balanced Growth: Finding Strategies for Sustainable Development, Management for Professionals, Springer-Verlag Berlin Heidelberg. pp: 48-55.
- Obadan, M. and Elizabeth, O.I. (2010), "Empirical Analysis of the Impact of Trade on Economic Growth in Nigeria", Jos Journal of Economics, 4(1): 1-23.
- Tanna, S. and Topaiboul, K. (2005), "Human Capital, Trade, FDI and Economic Growth in Thailand: What causes What?", Available at: http:// ideas.repec. org /p / deg / conpap / c010 _046.html. Accessed on October 2012.
- Tang, S. E., Selvanathan, A. and Selvanathan, S. (2008), "Foreign Direct Investment, Domestic Investment, and Economic Growth in China", Research Paper No. 2008/19.
- Tayebi, S, K., Emadzadeh, M. and Shekhbahai, A. (2008),"Impact of Trade and Human Capital on Economic Growth in OIC Countries , Tahghighat Eghtesadi Journal, 32(1), 55-75.
- Tawiri, N. (2010), "Domestic Investment as a Drive of Economic Growth in Libya", International Conference on Applied Economics – ICOAE 2010, 759-767.
- Wacziarg, R. and Welch, K. H. (2003), "Trade Liberalization and Growth: N