



Tracing Linkages Between Trade Liberalization and Economic Growth: A Study of BRICS Economies

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Abstract- The share of the BRICS countries in worldwide trade has almost doubled over past several years and this could be partially attributed to a shift in trade policies of that economies. The BRICS are now the members of World Trade Organization (WTO) and they are required to bind their tariffs. So, this recent study is about to observe influence of tariff averages on economic growth in these BRICS economies. It investigates the possible relationships among economic growth and trade liberalization for BRICS countries; Brazil, Russia, China, India and South Africa. It covers time period over 1996 to 2019. The fixed effects regression technique has been used for this study. The empirical result suggests that trade liberalization is detrimental for economic growth. The restrictive policies of trade are favorable to surge economic growth.

Key Words: BRICS countries, trade liberalization, average tariff, HCI, Fixed panel method.

I. INTRODUCTION

Trade liberalization is one of the most important issues in international economics. The relation amongst economic growth and trade liberalization has secured itself a special place in studies at micro and macro level (Hozouri, 2016). Trade liberalization is a phenomenon that could provide economic growth and development through the international division of labor and specialization among countries at the international level (Mohtasham, 2006). Trade liberalization with lower trade restrictions cause to better performance of macroeconomic and speedy economic growth. Trade liberalization has positively influenced the economic growth. Therefore, positive association amongst economic growth and free trade is a good motive for an unparalleled aspect of trade reformation (Greenaway et al., 2002). According to the research of World Bank and International Monetary Fund, absence of recent trade liberalization scheme or the restrictive trade policies cause to the lower economic growth in developing economies (Rose, 2004). Though, the results amongst economic growth and trade liberalization are inconclusive or mixed (Bhattacharyya, 2012; Rodríguez and Rodrik, 2000).

The traditional theory is focused on, the improvement in the welfare from trade liberalization appears from specialization gains. It means that the efficiency is increased related with comparative advantage. Further, the gain in consumption is in the formation of growing good's choices at lesser or competitive prices. According to dynamic trade theory, dynamic gains are reason to speed up accumulation of human capital and physical capital. This might be ascend on an account of rise in savings rate and enhancement in the transfer of technology (Baldwin, 1992; Nowak-Lehmann, 2000).

BRICS countries are emerging economies and have dynamic changes in their characteristic regarding trade activities. These countries are different in respect of their structures, environments, dependence and trade volumes. This is cause to assorted sensitivities towards tariff and trade facilitation. Brazil and Russia are exporters of 'traditional resources. So, they are little sensitive towards facilities of trade and tariff. While, China is a biggest emerging economy which is export-oriented. So, China is sensitive more, towards tariff owing to its enormous trade volume of primary goods and manufactured goods. Indian economy depends on the trade of services and commodity trade market is usually protected (Wu et al., 2013).

The share of the BRICS countries in worldwide trade has almost doubled over past several years and this could be partially attributed to a shift in trade policies of that economies. In the BRICS economies, tariff rates have been cut significantly from years past. The current rates of average tariff are 8 percent to 12 percent. In addition, the BRICS are now the members of World Trade Organization (WTO) and they are required to bind their tariffs. So, these countries could not rise their tariffs and to put a ceiling beyond (WTO,

2013). So, this recent study is about to observe influence of tariff averages on economic growth in these BRICS economies. Whether these restrictive trade policies are in favor of these economies or not? Particularly, to find out the impacts of trade liberalization and human capital index on economic growth. There is hardly found any study which has the influence of restrictive trade policies on economic growth in BRICS economies.

II. LITERATURE REVIEW

Generally, it is consensus that trade is favorable to faster the economic growth and that economies which are open to international trade is grow speedily. Also, they give their peoples more opportunities, higher incomes, improve productivity and innovation. On the other side, free trade is not good for environment, global equality and economic imbalances.

Miller & Upadhyay (2000) checked the impacts of human capital, orientation of trade and openness on total factor of productivity. This study was for a pooled cross-section, time-series sample of developing and developed states. They found that opening economy to trade usually assistances total factor productivity and experienced larger total factor productivity, over and above the encouraging effect of openness. Finally, human capital normally contributes positively to total factor productivity. Though, human capital interconnected with openness to achieve a helpful effect for poor countries.

Clemens & Williamson (2004) explored the reason behind the reverse correlation of tariff growth after 1950. They took data from 1873-1912 and 1918-1937 for small OECD countries. Before the world war II, the growth was high because of high tariff while the growth was slow afterward. The modification in the sign is due to controlling new measures of the change in world in economic environment. The outcome suggested that postwar tariffs is not need to be correlate negatively with growth in an unlimited fashion. The 4% rise in average tariff rates amongst trading partners may suffice to reverse any harmful relation among an average country's tariffs and its growth. After 1970 the rise in own tariff hurts or did not help the growth. But, whenever the tariff of trading partners has been moderately higher, it would have helped growth in a globe. The environment of the world matters and the reaction of leader country towards big event of the world matters.

Wacziarg & Welch (2008) observed the relation amongst economic growth and trade liberalization by taking 118 countries. They covered the time period of 1970 to 1989 and used random effect regression model. Their findings showed that trade liberalization positively influence the openness, investment and growth rates within the nations.

Chaudhry et al. (2010) revealed linkage amongst economic growth, trade liberalization and human capital in Pakistan by covering the period of 1972 to 2007. Co-integration and granger causality techniques has been used. The results revealed that co-integration existed between them. They show that the policies of trade and education might be possible by continuous economic growth. Causality ran from trade liberalization and human capital to economic growth.

Chaudhry (2011) examined influence of institutional quality among the relation of trade and growth. This study is focused on an economy where the sector of export is highly innovative sector. So, government that is politically threatened by innovation. They used their policy of tariff to block innovation and raise domestic revenues in that economy. Therefore, the rise in tariffs decrease the economic growth and tradeoff situation faced by government. Republics with sturdy institutions gained growth more from trade than states with frail institutions, when tariffs increased. The institutional quality in one country could spill over into another by influencing its trading partner's growth rate of income. Though, the states which had highly innovative domestic sector has an opposite outcome. So, it is "tariff-growth paradox" in which nations experienced higher growth with rising tariffs in previous stages of development. But, in later stages of development, the growth would be higher if the tariff would be less.

Manwa & Wijeweera (2016) scrutinized connotation among economic growth and trade liberalization policies in five Southern African countries. The auto regressive distributed lag and bound testing to cointegration has been used. They used two different indicators of trade liberalization for each state. The empirical findings suggested that South Africa has clearly benefited from its trade liberalizations policies in short run and long run compared to other four countries.

Mustafa et al. (2017) examined the three-way relation among economic growth, openness to trade and human development in a large panel of developing Asian economies. They covered the time period of 1970 to 2011. They used three stage least square technique. They found that growth does not have an encouraging impact on human development but human development positively contributed to fostering economic growth. Therefore, unidirectional positive association has been existed among human development and economic growth. Moreover, openness to trade had a positive influence on both human development and economic growth.

Fukuda (2018) inspected influence of upsurge in ad-valorem tariffs on the economic growth in a trade and growth model with firm's heterogeneity. The outcomes showed that rise in the ad-valorem tariffs since zero tariffs and with no value of iceberg. Moreover, the identical sunk costs for foreign and domestic markets cause to decline in the rate of growth.

Manwa et al. (2019) examined the impact among growth and trade by taking SACU countries. They used panel data for the time period of 1980 to 2011. They used fixed effect model to this study. They used four different indicators for trade liberalization. The result showed that there is a weak relation among them or a minute compelling evidence that trade liberalization might have positive influenced on economic growth in these countries.

The above literature suggests that there is a vast literature on growth and trade. Mostly the cross-country analysis finds a positive and significant relation amongst growth and trade. Some studies found inconclusive results. But there is hardly found any study which has been use restrictive policies and then find out the relation amongst trade liberalization and economic growth.

III. ECONOMETRIC MODEL AND DATA DESCRIPTION

This study has been augmented the model of Manwa et al. (2019) which is based on the standard general production function. This study examines influence of trade liberalization on economic growth for BRICS countries which are 5; Brazil, Russia, India, China and South Africa. The time period of this study is 1996 to 2019. The data has been compiled from various sources, which are, World Trade Organization (WTO), Penn World Tables and World Development Indicators.

The augmented model of this study is:

$$Y = f(L, K, HCI, TL) \quad (1)$$

The econometric model is:

$$Y_{it} = \alpha_0 + \alpha_1 L_{it} + \alpha_2 K_{it} + \alpha_3 HCI_{it} + \alpha_4 TR_{it} + \varepsilon_{it} \quad (2)$$

The natural logarithm of the model is:

$$\ln Y_{it} = \alpha_0 + \alpha_1 \ln L_{it} + \alpha_2 \ln K_{it} + \alpha_3 \ln HCI_{it} + \alpha_4 \ln TR_{it} + \varepsilon_{it} \quad (3)$$

The Y is the GDPpc which is the proxy of economic growth, L is labor and the proxy is labor force total (LFT), K is the capital stock, HCI is the human capital Index and TL is the trade liberalization. This study has been used one indicator for trade liberalization which is average tariff (TA) and the data has been collected from the World Trade Organization. The data of capital stock and human capital index has been collected from Penn World Tables while the data of labor force total and GDPpc is obtained from World Development Indicators in constant 2010 US\$.

IV. METHODOLOGY AND ESTIMATIONS

This study is based on panel data and has been strongly balanced. So, for panel data, there has been three main methods to estimate a model. The first one is the pooled regression which has not been suitable for this model because of unobserved heterogeneity rising from time specific and country specific effects. This was verified through Wald test. This confirmed that the fixed effects and random effects models have been preferred. Hausman test is used for further confirmation amongst random and fixed effects model. So, the probability value of Hausman test is less than 5 % which confirms that fixed effect is appropriate regression for this model. Afterward, some diagnostic tests have been also applied like Pesaran, Breusch-Pagan and VIF tests to confirm the results of fixed effects. so, there is no problem of heteroskedasticity and no serial correlation. The outcomes of descriptive statistics are in table 1:

Table 1: Panel data descriptive statistics

Variables	Observations	Mean	Std. Dev.	Minimum	Maximum
<i>lnGDPpc</i>	120	8.477775	.8631193	6.56978	9.482948
<i>lnK</i>	120	16.21098	1.01587	14.2712	18.36837
<i>lnLFT</i>	120	18.70647	1.335875	16.52028	20.48113
<i>lnHCI</i>	120	.8819531	.1956886	.4948811	1.241736
<i>lnTA</i>	120	6.168332	4.923037	1.83098	23.63

Source: Author's own calculations

Descriptive statistics explains the mean, standard deviation, minimum and maximum values of the variables. The table 1 shows that the average GDPpc is around 8.5 percent with 0.86 standard deviation. It means the average GDPpc of all 5 countries is 8.5%. The average capital stock is 16.21 with 1.02 standard deviation. While the average values of labor force, human capital index and average tariff are 18.71, 0.882 and 6.17 respectively. The standard deviations are 1.02, 1.34, and 4.92 respectively. More standard deviation means more variation in the data. The final results of model are given below in table to check the relationship among the variables for BRICS:

Table 2: The Results of Fixed Effects Model

<i>lnGDPpc</i>	Coefficient	Std. Err.	t stats	P > t
<i>lnK</i>	.1838469	.0396851	4.63	0.000***
<i>lnLFT1</i>	.5332261	.0370066	14.41	0.000***
<i>lnHCI</i>	3.447119	.1132866	30.43	0.000***
<i>lnTA</i>	-.0852949	.00759	-8.74	0.000***
C	-7.57494	1.243109	-6.09	0.000***
F stats	332.51***			
Hausman test	11.35	Prob	0.0229	
*** indicates significant at 1%, 5% and 10%				

Source: Author's own calculations

Human development index is positively related with economic growth which indicate that 1 percent increase in HCI rise economic growth by 344 percent. This result is consistent with (Chaudhry et al., 2010 and Mustafa et al., 2017). The tariff average is negatively related with economic growth which shows that 1 percent increase in tariff average decline economic growth by 8 percent and result is consistent with (Chaudhry, 2011). Moreover, capital stock and total force labor is favorable for fostering economic growth.

V. CONCLUSION AND POLICY IMPLICATIONS

This study is examined the impact of trade liberalization on economic growth by covering time period of 1996-2019 in case of BRICS nations. The fixed effects have been used for this study. The rise in tariff average which is the indicator of trade liberalization is hurtful for the growth of these economies. In other words, trade liberalization is harmful for economic growth in BRICS countries. Whereas, human development index is more courageous factor to boost the growth in these states. The restrictive trade policies regarding tariff is in favor of rising growth.

Policymakers might consider alternative frameworks such as deeper integration through policies. The regional human capital' development would be supported through this. Also, the support of worldwide value chains in industries and the creation of private sector business networks with a competitive advantage.

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