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Trade liberalization and Economic Growth in Developing and Developed Countries

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Abstract

The development of international trade can provide the ground for economic growth of a country. In this research we have tried to examine the impact of trade liberalization on economic growth in two groups of developed and developing countries to account for the development level as well as income level of countries using the Sachs–Warner index of trade liberalization during 1985-2014. The results of Houseman-Taylor (HT) estimation indicate that liberalization has a positive impact on the growth of per capita GDP; however the extent of this impact differs to the stage of economic development and income level of a country .The findings also indicate that developed countries are in less advantageous position due to liberalization compared to developing countries.

Keywords: Economic Growth; Trade Liberalization; Sachs–Warner Index; Development Level.

1. Introduction

Economic growth is one of the main goals of any country and is always considered by planners and policy makers and thus investigating the causes of economic growth is of great importance. Macro-economic relationship between fiscal policies, trade liberalization and economic growth has always been of interest to economists. Economic studies show that a fully free economy most likely is superior to a hardly controlled economy. Trade liberalization and financial development policies can reduce inefficiencies in the production process and boost economic growth. This emanated from the fact that countries with greater degree of openness and more developed financial market have experienced faster economic growth. The term economic globalization, which refers to economic and welfare integration, represents the homogenization of prices, output, wages, asset prices, and so on across the world. Globalization is not a new phenomenon; it is a process that has existed since the beginning of history. Among the various definitions of globalization, "economic integration through across border markets" has also been taken into consideration.

Economic liberalization is also defined as: “the elimination of all the destruction, restrictions and barriers policymakers often create over time on the way of the natural movement of macroeconomic variables in finance markets (Rahimi Broujerdi, 2007:16).

Trade liberalization is recommended to countries as one of the main pillars of economic liberalization and as an effective tool in the economic development of the countries. During the 1970s a number of developing countries have made great efforts in the context of economic liberalization through carrying out reforms aimed at increasing the role of the market and reduce barriers to international trade and capital transfers (Rahimi Broujerdi, 2011:28).

The relationship between liberalization and economic growth is a controversial topic. Some economists and policymakers believe that trade openness macroeconomic performance will lead to better and faster economic growth. Many empirical studies support this view. International institutions like the World Bank, the International Monetary Fund and the Organization for Economic Cooperation and Development recommend this belief to their members that trade liberalization and foreign investment have a positive impact on economic growth. Even the World Bank and IMF have

put reform with market orientation and trade liberalization as the condition of their funding. Hence, in this study, we seek to examine the role of trade liberalization in economic growth in developing and developed countries using the Sachs-Warner index of liberalization. On the other hand, several studies have shown that the expansion of trade and trade liberalization will have different and inconsistency effects on the countries, given their economic status and degree of development. Thus, while investigate the effect of trade liberalization on economic growth, we focus on difference of this effect in developing countries and developed ones.

2. REVIEW OF LITERATURE

2.1. Trade Liberalization

Trade liberalization is simply the removal (decrease) of trade barriers in international trade. Although this short definition largely determine the liberalization, it needs more explain and clarification. First, trade barriers have wide variety in the international trade arena. The main trade barriers are tariffs and export subsidies, which are widely used in international exchanges. Tariffs are levied on imported goods so that the domestic price of imported goods become expensive in the importing country and thus domestic industries to be protected. Subsidies are usually set on exported goods so that domestic producers can sell their goods on world markets at lower costs and can increase their competitiveness.

There is another justification for tariff. Tariff is considered as a kind of revenue for the government which can use it in direction of its economic policies. This revenue is of particular sensitivity for developing and underdeveloped countries those does not have sufficient economic resources and therefore it is difficult to remove or even reduce it[1]. Other trade barriers are used in some cases which are economically feasible and reasonable. Usually developed as well as developing countries impose hygienic regulations to import agricultural and food commodities which typically is attitude as trade barrier, particularly for developing countries that lack the necessary capacity to promote their products.

2.2. Trade Liberalization and Economic Growth

Today, most economists consider business as the engine of growth and development of developing countries. According to economic theory, the free trade leads to formation of countries' production based on comparative advantage and this will encourage the production of goods and services that given the resources available in the country are produced at lower cost and imports is replaced with domestic production of goods and services which are produced more expensive given the resources and facilities available in these countries. Also in economic justification for reducing trade barriers, we can say that if a country is to reduce trade barriers, its economic interests reach not only to its partners, but the country will also benefit from this reduce (Behkish, 2006).

The theoretical literature of growth, pay more attention to the relationship between trade policy and growth than relationship between trade volume and growth. Therefore, the result of the relationship between trade restrictions and growth can not directly respond to the effects of changes in the volume of trade on growth. Even if these two concepts, trade volume and trade restrictions, have a close relationship, their relationship with growth likely to differ considerably. This difference is due the fact that a country's foreign sector is also affected by several other very important factors such as geographical factors, country's size and its income.

On the effects of trade liberalization on economic growth several major reviews have been published, including Edwards (1993), Krueger (1997), Rodrik (1997) and Rodriguez (1999). To provide context to our analysis, we have summarized the literature using the Sachs-Warner index of trade liberalization in Table 1.

Table 1: Summary of Literature Review on the Effect of Trade Liberalization on Economic Growth

Author (year)	Liberalization measure	Data/Methodology	Conclusion/Finding
Sachs and Warner (1995)	Sachs-Warner index of trade liberalization	Cross country regression replicating (Barro, 1991)	Open economies, on average, grow faster by about 2.45 percentage points compared to the closed economies.
S. Edwards (1998)	Sachs-Warner index of trade liberalization. Also, openness is approximated through nine variables	Cross country regression using instrumental variable based weighted least squares method	More open countries experienced faster productivity growth.

[1] In some backward African countries, tariff revenue amount to 70 to 80 percent of the government's revenue.

Greenaway et al. (2002)	Sachs-Warner index of trade liberalization and trade openness	Panel data study for a different sets of countries covering up to 73 countries for the period of 1975-1993, using dynamic growth model	Trade liberalization effect positively on economic growth but the degree of such effect may be different.
Wacziarg and Welch (2008)	Sachs-Warner index of trade liberalization, the extended version of Sachs-Warner index.	Empirical analysis based on cross country growth regression using fixed effect for period of 1970-1999 in different subsets. This study covers 141 countries.	Countries grew 1.5 percentage points faster when they followed trade liberalization, and also trade to GDP ratio was increased by about five percentage points.
Kneller et al. (2008)	Sachs-Warner index of trade liberalization averaging for five year period	Cross country growth regression using the data from 37 countries for the period 1970-1998	The trade liberalization has positive effect in growth in aggregate, but considering the heterogeneity nature of countries, one-size-fits-all policy may not applicable.
Ghani (2011)	Sachs-Warner index of trade liberalization	Cross country growth regression using the data for 41 Organization of the Islamic Conference (OIC) countries.	Trade liberalization has contributed to increase the per capita income. However, this is not true in case of imports and exports.
Falvey, Foster-McGregor, and Khalid (2013)	Sachs-Warner index of trade liberalization and trade openness	Panel data for 58 developing countries covering the period of 1970-2005	Trade liberalization has a positive impact on economic growth.

3. METHODOLOGY

We estimate the desired model within a dynamic panel framework using instrument variable approach based Hausman Taylor (HT) estimators developed in Hausman and Taylor (1981). This method is most suited in case of the growth model using the combination of time variant and time invariant variables, as is the case in this study. This estimator combines the strength of fixed effect (FE) estimator and gives estimations that address the endogeneity issue, by setting the instrument as the difference between the regressor and the mean of the regressor, (Breusch, Mizon, & Schmidt, 1989; Hausman & Taylor, 1981; Verbeek, 2008). The initial level of per capita income and initial level of education are two major time invariant variables on which situation the HT estimator gives more consistent and efficient results (Cameron & Trivedi, 2009; Paudel, 2014).

We firstly estimate the following growth model following Paudel (2014) for both developing and developed countries using HT estimation:

$$gdp_{i,t} = \beta_1 gdp_{i,t-1} + \beta_2 \ln GDP_{i,85} + \beta_3 LIB_{i,t} + \beta_4 (\frac{CAP}{GDP})_{i,t} + \beta_5 LLOCK + \beta_6 \ln POP_{i,t} + \beta_7 (\frac{TRADE}{GDP})_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where, $gdp_{i,t} = \ln GDP_{i,t} - \ln GDP_{i,t-1}$, which is growth rate of per capita GDP, as a dependent variable; $gdp_{i,t-1}$ is lag of the growth of per capita GDP to capture the dynamic impacts in the model; $GDP_{i,85}$ is real per capita GDP at 1985 to capture the convergence effect. (CAP/GDP) is the ratio of gross capital formation to GDP to proxy the capital in country, LLOCK is a dummy to capture the landlockedness impact on economic growth, and POP is the population to capture the

size of the economy. Also, TRADE/GDP is the ratio of trade to GDP in percentage term. It is noteworthy that including lags may create a correlation bias between the error term and the lagged dependent variable. Further, CAP/GDP and TRADE/GDP may have some endogeneity issues. Therefore, we preferred to rely on HT estimation, which allows us to estimate the time invariant variables and handles the doubt of endogeneity issues. Then, we estimate the model including whole dataset and dummies for low income and lower middle income countries as in equation (2):

$$gdp_{i,t} = \beta_1 gdp_{i,t-1} + \beta_2 \ln GDP_{i,85} + \beta_3 LIB_{i,t} + \beta_4 (\frac{CAP}{GDP})_{i,t} + \beta_5 LLOCK + \beta_6 \ln POP_{i,t} + \beta_7 (\frac{TRADE}{GDP})_{i,t} + \beta_8 D1 + \beta_9 D2 + \beta_{10} D1xLIB + \beta_{11} D2xLIB + \varepsilon_{i,t} \quad (2)$$

Where, D1 is a binary dummy for low income countries and D2 is also binary dummy for lower- middle income countries. Both dummies are interacted with the index of trade liberalization so that we can identify the impact of trade liberalization in these four types of countries, i.e., low income countries, lower-middle income countries, upper-middle income countries and high income countries. We expect the sign of β_2, β_5, β_6, β_8 and β_9 to be negative, and rest positive. The positive and statistically significant coefficients of the interaction terms (β_{10} and β_{11}) would indicate that these countries are in more advantageous position due to liberalization compared to upper-middle income and high income countries. The estimations have been done in the space of STATA11 software package.

4. Data Analysis

The data source used for the Sachs-Warner index of liberalization is extracted from Paudel (2014). The advantage of this index is that it takes into account five major criteria including tariffs, non-tariff barriers, black market premium, state's monopoly in major exports, and socialist economic system. We investigated the openness criteria for total of 42 countries (the statistical population of this study including 20 developed countries and 22 developing countries) and found 36 countries are open, and only 6 countries remain closed by the end of 2014. From total of 20 developed countries 18 countries are always open, other 2 countries became open by the end of 2000. Among 22 developing countries only 5 countries are always open, 11 countries became open by the end of 2001 and 6 countries remain closed by the end of 2014.

The rest major data source of this study is world development indicator – World Bank (2013) and various issues of world development report published by World Bank (World Bank, Various years).

5. Results

The results of estimation of the model for the period of 1985-2014 are reported in Table 1. The results in column 1 (developing countries) refer to the specification of the model with Sachs-Warner index of trade liberalization as in equation 1. According to this column, firstly, the sign of $gdp_{i,t-1}$ is as expected, indicating that there is a long-run dynamic impacts on growth of the variables in the model. Second, the results for the index of trade liberalization (LIB) show that, on average a liberalized country's per capita income increases by 2.04% holding other variables in the model constant, indicating that liberalization has a substantial impact on economic growth.[1] However, the immediate impact of liberalization on per capita income growth for developing countries is 1.73%. Third, based on the estimated coefficient of Lny85 the countries with low level of initial income grow faster. This result is consistent with the literature (see for example Greenaway et al. (2002); Paudel (2014)). Fourth, the variable of (LLOCK) do not has a significant impact on economic growth. Fifth, the ratio of capital to GDP (CAP/GDP) has a positive and statistically significant impact on economic growth at the 1% level of significance. Finally, the variables of Trade/ GDP and log of population does not have a significant impact in this model.

[1] Since our model is dynamic panel, the actual coefficient of trade liberalization for the long run is calculated as 1.73/(1-0.15)=2.04

Table 2: The Results of Estimating Growth Model using HT Estimator			
Dependent variable: Growth of Per Capita GDP			
Variables	**(1)** **Developing countries**	**(2)** **Developed countries**	**(3)** **Overall model**
$gdp_{i,t-1}$	0.15*** (0.04)	0.37*** (0.4)	0.07*** (0.03)
Lib	1.73*** (0.70)	0.72* (0.64)	12.12*** (2.32)
Lny85	-1.11* (0.86)	-0.02** (0.21)	-0.04* (0.66)
Llock	-3.78 (0.87)	-2.56 (0.92)	4.23** (2.17)
CAP/GDP	0.16*** (0.05)	0.09*** (0.04)	0.13*** (0.03)
Trade/ GDP	0.001 (0.01)	0.00 (0.08)	0.01* (0.09)
LnPOP	0.69 (0.98)	-0.21** (0.36)	-0.07* (0.53)
D1			-7.26** (4.81)
D2			-1.76 (2.63)
D1xLib			12.05*** (2.82)
D2xLib			2.83*** (0.82)
Number of observations	584	569	1153
Number of countries	22	20	42
Wald-statistic	55.40	135.56	324.98
P-Value	0.000	0.000	0.000
Notes: Standard errors are in parentheses, ***, **, and * indicate 1%, 5%, and 10% level of statistical significance, respectively.			

To compare the effect of trade liberalization on economic growth in developing and advanced countries, the main objective of this paper, column 2 shows the results of estimating equation 1 for developed countries using HT estimators. In this specification, all the variables have the expected sign. The long run coefficient of the index of liberalization[1] (1.14) implies that developed countries are in less advantageous position due to liberalization compared to developing countries. Also the coefficient of initial GDP at the year the country was liberalized is less than that for developing countries. However, the levels of significance are different across the two models and thus the result should be considered with caution. The result of this specification also shows that the level of population has a negative impact on growth of per capita GDP.

[1] Again, as our model is dynamic panel, the actual coefficient of trade liberalization for the long run is calculated as 0.72/(1-0.37)=1.14

Finally, to identify whether the impact of trade liberalization is different across the income level of countries at the time of liberalization column 3 (overall model) provides the benchmark estimations for the model as in equation 2. The coefficients of D1 and D2 show low income countries and lower-middle income countries at the time of liberalization grew slower compared to upper-middle income countries and high income countries. The coefficients of the Sachs-Warner index of liberalization, D1xLIB and D2xLIB are of much interest here. The results of D1xLIB show that there is positive and statistically significant impact of trade liberalization in low income countries. In other words, if a low income county was liberalized, on average its per capita income would have grown by 12.96% in the long run, the other things remain unchanged. This impact for lower-middle income countries is lower, i.e., 3.04% with same condition applied.

6. Discussion

This paper contributes to the literature on trade liberalization and economic growth in a way that it compares this relationship in developing countries and developed countries as well as it tests whether the impact of trade liberalization on economic growth differs to the stage of economic development and income level of a country.

This paper uses a dynamic growth model to estimate the impact of liberalization on economic growth in the short-run and long-run. It is important to know both of these effects as the liberalization itself is a process to impact the economic growth, which is normally judged in the long run. In this paper, the estimated results show that, overall, liberalization has a positive impact on the growth of per capita GDP, however the extent of this impact differs to the stage of economic development and income level of a country. The findings show that if a low income country becomes open, on average, it benefits at least 7% more compared to other countries, indicating not all income group countries benefit equally by the trade liberalization. Therefore, policy makers should note well this differential impact of trade liberalization on growth. Furthermore, the significance levels were different across the two models indicating the results should be considered with caution.

7. Conclusion

In this paper, we investigated the impact of trade liberalization on economic growth in two groups of countries, developing and developed countries, during the period 1985-2014. In the literature on trade liberalization and economic growth various indices have been employed to proxy liberalization, such as trade openness, descriptive analysis, tariff rates, non-tariff barriers, Binary dummy variable of trade liberalization and Sachs-Warner index of trade liberalization. In this paper we have used Sachs-Warner index of trade liberalization updated by Paudel (2014) as it is more comprehensive index. In addition, since in the model to be estimated we had some time-invariant variables such as real per capita GDP at 1985 and level of secondary school enrolment as at 1985, we preferred to rely on HT estimation, which allows us to estimate the time invariant variables and handles the doubt of endogeneity issues. To reach the goal of the study, we estimated three models for developed countries, developing countries and finally for whole model including dummy variables for low income countries and lower middle income countries as well as their interaction with trade liberalization index to account for income level in the effect of trade liberalization on economic growth. The results showed that liberalization has a positive impact on economic growth, however countries with different income level and development stage benefit differently from liberalization.

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