Trade liberalization and its economic impact on developing and least developed countries

Shujaat Abbas
Department of Economics, University of Karachi, Karachi, Pakistan

Received 26 June 2013
Revised 16 April 2014
Accepted 13 July 2014

Abstract

Purpose – This paper aims to investigate the impact of trade liberalization on economic growth of selected developing and least developed economies by augmenting standard production function.

Design/methodology/approach – The panel fixed effect model is used to estimate impacts of macroeconomic variables on economic growth. Real GDP million US$ is taken as proxy for economic growth. The capital stock series for each cross-section is generated from gross fixed capital formation. The total trade to GDP is taken as proxy for trade liberalization.

Findings – The result shows significant positive impact of selected macroeconomic variables on economic growth, except trade liberalization index. The one unit increase in trade liberalization deteriorates economic growth, of developing countries by −280.86 million US$ and least developing by −3555.09 million US$.

Research limitations/implications – The significant negative impact indicates the relatively greater share of import than exports. The developing nations should develop production side and adopt export promotion policies besides managing imports for the achievement of sustainable growth.

Originality/value – This study uses augmented production function and constructed capital stock for individual countries. The total trade to GDP is taken as index for trade liberalization and was found to have significant negative impact.

Keywords Developing countries, Trade liberalization index, Exports, Investment level, Economic growth

Paper type Research paper

1. Introduction

The developing and least developing nations are persistently facing unfavorable trade balance for several decades due to high import demand and lower export growth. The trade balance has a strong positive impact on national income. The standard trade theories argue free trade flow and propose market-oriented, competitive strategies for trade and economic development. The increase in trade deficits has deteriorated foreign debt standings. Developing and least developing nations owe more than billions of US$, and debt service payments have emerged significantly in national income accounts.

The idea that foreign trade is engine for economic growth is very old, going back to the early work of Adam Smith's The Wealth of Nations in 1776. The world economies

JEL classification – F14, F43, C23

The authors thank Prof Dr Abdul Waheed, Department of Economics, University of Karachi, for assistance and encouragement, and anonymous referees of *Journal* for their useful comments and suggestions.

Journal of International Trade Law and Policy
Vol. 13 No. 3, 2014
pp. 215-221

1477-0024
DOI 10.1108/JITLP-06-2013-0018

are striving for better trade performance to increase economic prosperity. The developing economies are, however, facing inverse impact, due to the persistent trade deficit. The developing nations got independence after the Second World War in 1945. These newly established economies initially adopted import substitution industrialization and protected domestic producers under the infant industry argument during 1950 to 1970. These policies laid foundation of industrialization in these economies. The influence of these protective policies diluted significantly with unsatisfactory economic performance and the debt crisis of developing economies during 1980s.Balassa (1978) argues favor of trade liberalization policies for economic growth, based on findings showing a positive relationship between export and economic growth. Feder (1983) and Abbas (2012) argue that domestic supply constraints of developing nations determine export growth. Developing economies maintained protective policies until late 1990s. These nations had to liberalize their trade in early 2000s under the agreement of structural reforms and trade liberalization signed while joining the World Trade Organization in 1995. These economies lack specialization level in production, and trade liberalized resulted in significant increase in imports, whereas imports remain persistently sluggish. The developing economist considers high trade restrictions on agriculture and related products responsible for the post liberalization trade performance, besides domestic supply constraints. Developing nations argue the removal of trade barriers on export of agriculture and related manufacturing sectors.

The early empirical literature on trade liberalization on economic growth shows mixed response. The studies with negative impacts of trade liberalization justify it by attaching with lack of specialization level. These nations have infinite resources in the form of labor and agriculture, with lack of capital required to exploit them. The capital is deficient in these economies, which has been significantly distorted by persistent high trade deficit.

This study investigates the impact of trade liberalization on economic growth of selected developing and least developing countries, using the standard production function. The data for this study are taken from world development indicators (WDIs) published by the World Bank. The real data of capital stock of selected countries are generated using the perpetual inventory method. Following Carbaugh (2009), total trade (exports plus imports) to GDP is taken as proxy for trade liberalization. The real export is also included in the regression model to investigate its impact on respective growth performances.

The rest of this study is organized as follows: Following the introduction in Section 1, Section 2 reviews selected empirical literature. Section 3 discusses modeling and data. The results are presented in Section 4, whereas Section 5 concludes the study.

2. Review of empirical literature

The empirical literature on trade and economic growth became significantly important in developing economies during early 1980s. The economic meltdown and severe debt crises in developing countries in 1982 significantly diluted influence of protectionist. The empirical literature suggests a positive relationship between trade and economic growth. Frankel and Romer (1999) investigated whether trade causes economic growth and found a significant positive relationship. Ekanayake (1999) analyzed the causal relationship between exports and the economic growth in eight Asian developing economies, using cointegration and error correction model. His results show

bi-directional causality and stable long-run relationship between export growth and economic growth.

Favorable expansion of trade balance depends on efficient import management and market-oriented, competitive strategies for export expansion. The liberalization of trade increases competition level, efficiency and productivity of domestic production sectors. Dornbusch (1992) argues that trade liberalization benefits economies by improving resource allocation in line with social marginal cost and benefits, proving access to better technology and inputs, making economies enable to take advantage of economies of scale and scope and providing favorable growth.

The empirical literature regarding the impact of trade liberalization shows contradictory results. Many developing economists argue mixed impact over individual countries or groups. Greenaway *et al.* (1997) investigated the impact of trade liberalization on economic growth of selected 74 developing countries. He used dummy variables to investigate the impact of trade liberalization. The findings of this study provide mixed response. He concludes that, on average, trade liberalization seems to have been associated with deterioration in economic growth. The findings of Santos-Paulio (2002) show that trade liberalization (reduction in tariffs) has strong positive impact over import growth. Onafowora and Owoye (1998) analyzed the impact of export, investment and trade policies on economic growth of 12 sub-Saharan African countries, using a vector error correction model (VECM). The result suggests outward-oriented trade policy for export and economic growth. Kim (2000) investigates the impact of trade liberalization on market competition, productivity and scale efficiency of Korean manufacturing industries, using panel data of 36 industries, for the period of 1966 to 1988. The result shows that the trade liberalization has significantly increased competition and productivity and promotes scale efficiency.

Parikh and Shibata (2004) investigate whether liberalization of trade and financial sector converge or diverge per capita income in selected developing economies of Africa, Asia and Latin America. Their results show that trade liberalization accelerates convergence in real per capita income level in Asia and Latin American countries. Liberalization depicts divergence of real per capita income in the case of African countries. The findings simply suggest that trade liberalization affects economic prosperity positively in Asia and Latin America and negatively in Africa. Hasan *et al.* (2012) analyzed the impact of trade liberalization on the unemployment level (state and Industry) in India. The finding shows a significant positive relationship between trade liberalization and industrial-level unemployment. The state-level analysis, however, shows significant negative impact on unemployment.

The above empirical literature shows mixed impact of trade liberalization on economic growth of developing economies. Yanikkaya (2003) argues that trade liberalization does not have a simple and straightforward relationship with economic growth. The present study augmented standard production function by real exports and trade liberalization. Total trade to GDP is taken as measure for trade liberalization. Capital stock for individual country is derived from available real gross fixed capital formation.

3. Modeling and data

This study investigates the impact of export and trade liberalization on economic growth, measure of real GDP, of selected four developing and least developed countries

each, using standard production functions. The production growth is a function of real capital stock and labor force. The separate models have been estimated for each developing and least developed country. The developing countries included in this study are Pakistan, Turkey, Indonesia and Philippines, whereas least developed countries include Bangladesh, Botswana, Mauritius and Morocco.

The production function used in this study is presented as:

$$GDP = \beta_0 + \beta_1 K_t + \beta_2 LF_t + \beta_3 X_t + \beta_4 TL_t + \mu_t \quad (1)$$

Where: K_t presents real capital stock, LF_t is millions of labor force, X_t presents exports and TL_t is index for trade liberalization.

The capital stock data of selected countries are not available at any sources. The perpetual inventory method is used to generate capital stock series from constant gross fixed capital formation data.

The technique used to generate capital stock is presented as:

$$KS_t = KS_{t-1} - \gamma K_{t-1} + GFKS_t = (1 - \gamma) KS_{t-1} + GFKS_t \quad (2)$$

Where: K_t is level of capital stock at time t. GFK_t is gross fixed capital formation, and γ is rate of depreciation of capital stock. Four per cent depreciation on capital assets is charged following Hall and Jones (1999):

$$K_0 = GFK_0 / \gamma + g_{GFK} \quad (3)$$

Where: K_0 presents initial stock, g_{GFK} is growth rate of gross fixed capital formation and GFK_0 presents initial level of gross fixed capital formation:

$$TL_t = X_t + M_t / GDP_t \quad (4)$$

Panel fixed effect (FEM) model was used to investigate equation 1. FEM addresses cross-section-specific variations separately by intercept term. This model investigates cross-section-specific variations by introducing n-1 dummies[1]. Therefore, FEM is sometimes referred as panel least square dummy variable (LSDV). The panel regression models thus possess correlation and heteroskedasticity problem. The problem can be reduced by using cross-sectional-specific generalized least square estimation (EGLS; Greene, 2007). The correlation problem can be reduced by careful selection of explanatory variables. The explanatory variables of model have no autocorrelation issue:

$$GDP_{it} = \beta_i + \beta_1 K_{it} + \beta_2 LF_{it} + \beta_1 X_{it} + \beta_3 TL_{it} + \mu_{it} \quad (5)$$

Where: the intercept term β_i captures all cross-sectional-specific variations.

Data of selected variables are taken from WDIs, published by the World Bank. The data of GDP, gross fixed capital formation, exports and imports are taken in millions of constant prices, US$. The labor force is measured in millions Nos.

4. Results

This section discusses the results of equation 5. The separate regression model for each developing and least developed economies is estimated using panel fixed effect model. To address heteroskedasticity, EGLS technique is used in the regression model of developing countries. The results are presented in Table I.

Dependent variable GDP_{it}

The results in Table I show significant positive impact of selected macroeconomic variables such as capital stock, labor force and exports on economic growth, except trade liberalization. The results are consistent with the economic theory. The result of trade liberalization, however, shows contradictory significant negative impacts on economic growth. The theoretical and empirical literature suggests that export adds in national income, whereas import results in outflow of national income. If the increase in TL is due to relatively higher imports share than exports, it will result in deterioration of economic growth. The selected developing countries had a negative impact due to high import and sluggish export growth. The increase in trade liberalization deteriorates economic growth of developing countries by −280.86 million US$ and of least developing by −3555.09 million US$. The results stress need for correction of trade balance by accelerating export performance. The result, Table I, shows that increase in real export by 1 million results in 1.25 million increase in real GDP of developing and 0.45 million of least developing countries.

The high F-statistic and adjusted R^2 confirm goodness of fit of regression models. The Durbin Watson values 1.59 and 1.13 exclude possibility of correlation. The results of Jarque–Bera statistic confirm normality of residuals.

5. Conclusion

The developing nations are persistently facing issues related to trade and growth performance. The persistently high trade deficit results in increase in foreign debt standings and acute poverty level. The recent globalization and integrated world economy have significantly increased trade. The empirical literature shows mixed response regarding impact of trade liberalization on economic growth.

This study using standard production function investigated the impact of exports and trade liberalization on economic growth of selected developing and least developing

	A. Developing countries			B. Least developed countries		
Explanatory variables	Coefficients	T-statistic	p-value	Coefficients	T-statistic	p-value
Constant	33,476.09	6.118	0.000	−2159.396	2.533	0.013
Capita stock	0.179	13.869	0.000	0.205	18.212	0.000
Labor force	298.606	2.317	0.023	615.465	19.859	0.000
Export	1.283	17.861	0.000	0.422	4.202	0.000
Trade liberalization	−280.860	−2.327	0.023	−3,555.097	−3.066	0.003
Adjusted R^2		0.992			0.999	
F-statistic (probability)		1,548.786			13,338.81 (0.000)	
Durbin–Watson (DW)		1.130			1.59	
Jarque–Bera stat. (prob.)		2.737 (0.254)			3.426 (0.212)	

Source: Authors' estimation

Table I.
Panel regression results

countries, for the period of 1990 to 2011, using panel fixed effect model. The result shows that trade liberalization distorts economic growth of selected developing and least developed countries, whereas real exports show significant positive impact. The negative impact of trade liberalization index indicates the relatively greater share of imports than exports.

The developing nations are arguing that higher trade barriers in agriculture and related production sectors are also responsible, besides domestic supply constraints, for sluggish export performance. If the concerns of developing nations are more genuine, then trade barriers in agriculture and the related production sectors should be liberalized. Let the market freely work. The developing nations should allocate scarce capital for development of labor-intensive production sectors based on comparative advantage analysis. The development of production sector with comparative advantage will lead to trade and economic prosperity in the long run. In this regard, the development of labor stock will bring far-reaching favorable consequences and growth opportunities.

Note

1. If panel set comprises four cross-sections, then only t dummies are introduced problem of perfect co-linearity.

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Corresponding author

Shujaat Abbas can be contacted at: shujaat.abbass@gmail.com