Does trade openness affect long run growth? Cointegration, causality and forecast error variance decomposition tests for Pakistan

Muhammad Shahbaz *

Department of Management Sciences, COMSATS Institute of Information Technology, Lahore, Pakistan

ARTICLE INFO

ABSTRACT

The study investigates the impact of trade openness on economic growth in the long run. We apply the ARDL bounds testing approach to test for a long run relationship and the augmented production function by incorporating financial development as an additional determinant of economic growth using the framework of Mankiw et al. (1992). The results confirm cointegration among the series. In the long run, trade openness promotes economic growth. The growth-led-trade hypothesis is vindicated by VECM Granger causality test. The causality is also checked by using the innovative accounting approach (IAA).

© 2012 Elsevier B.V. All rights reserved.

1. Introduction

The contemporary effort to make it easy to exchange goods and services, capital, labor, information, and ideas across the borders is known as trade openness. The aim is to integrate economies and societies at global level. Openness has helped movement of resources from developed to developing economies and helped technological advancement. Now-a-days, world economies are reaping fruits of openness due to the diffusion and absorption of technology. Improvement of transportation and communication has helped rediscover the opportunities at global level and identify new international markets for exchange of goods and services. Openness allows foreign direct investment in host country which contributes to economic growth by supplementing domestic capital, redefining the concept of economic efficiency, boosting productivity and bringing the world together. In this landscape, the importance of a well-developed financial market can hardly be overemphasized in the spheres of economic growth. This implies that openness adds to the meaning of economic cooperation on a larger scale where careful and well managed trade liberalization can be crucial to achieving sustainable economic growth in the long run.

The relationship between trade openness and economic growth has drawn a great deal of interest from academicians and policymakers since the 1950s. Despite the proliferation of a bourgeoning literature on this topic the findings failed to pin down the nature of the exact relationship between the series. However, the research produced two strands to better understand the relationship: trade-led growth or growth-led trade hypotheses.[1] That trade openness is an engine of economic growth is now well established in the literature. Through trade partners can mutually benefit and help increase the size of the pie. Trade openness affects economic growth by adopting advance technology and know-how from the technologically advanced countries which enhances the total factor productivity.[2]

The main objective of our study is to examine the impact of trade openness on economic growth in the long run using Cobb–Douglas production function following Mankiw et al. (1992) for Pakistan. The study implements an elaborative econometric investigations contributing to economic literature by four folds: (a) we apply structural break unit roots tests provided by Zivot and Andrews (1992) and Clemente et al. (1998) to establish stationarity properties of the series; (b) Gregory and Hansen (1996) cointegration approach is applied to confirm established long run relation among the series; (c) we use four indicators of trade openness (exports, imports, terms of trade, trade) and apply them to our models; d) finally, we test the direction of causality applying the VECM Granger causality framework. We find cointegration among the series. The causality analysis confirms the growth-led-exports, growth-led-imports, and growth-led-trade hypotheses in the case of Pakistan. The authors are now aware of any comprehensive study, as done here to examine the relation between trade openness and economic growth thus contributes to the literature.

---

* Tel.: +92 42 111 001 007(UAN), +92 334 3664 657(Mobile); fax: +92 42 99203100.
E-mail address: shahbazmohd@live.com.
URL: http://www.ciitlahore.edu.pk/.

[1] For example see, Sinha and Sinha (1996), Liu et al. (1997), Bahmani-Oskooee and Niroomand (1999), Sinha and Sinha (1999), Yanikkaya (2003), Wang et al. (2004) and Tsen (2006).

[2] See for more details, Xu (1998), Proudman et al. (1998), Balaguer and Cantavella-Jorda (2002) and Yanikkaya (2003).

2. Trade policy in Pakistan

The policy making authorities of Pakistan launched highly protected trade policy to save infant industries in 1950s. The domestic producers gained benefit from such trade policy by purchasing agriculture and manufacturing raw materials at low prices compared to international market prices.[3] In 1960s, exports promotion schemes such exports bonus, devaluation of local currency and import substitution policies were introduced. Through trade liberalization, imports quota on non-capital import items was eliminated and regulations were followed to liberalize restricted import items in late 1980s (Balassa, 1971; Little et al. 1970). The tariff rate was reduced to 10% from 17% by introducing comprehensive trade reforms in 1987. The rate of sales tax was linked with the nature of goods and relaxed tariff rate to 125% from 225% in June 1987. In 2005, optimal tariff rate was restricted to 25% (Hussain, 2003; Kemal et al. 2002) and further, it was lowered to 14.7% in 2007 (Baig, 2009).[4]

This shows that trade reforms forced by IMF were fairly deep and wide ranging. These reforms had played their role to open the Pakistani borders for trade trough the removal of quantitative restrictions. There was rise in trade (exports + imports) as share of GDP from 25.7% in 2001–02 to 32.7 in 2005–06 but lowered to 30.4% in 2006–07. The trade as share of GDP rose to 36.73% in 2007–08 while share of imports is 23.88 and rest is the exports' share in total trade (GoP, 2011). The reduction in tariff rates could have adversely affected the imports related revenues, however, the total tariff revenue as share of total tax receipts rose to 20% in 2006–07 from 15.3% in 2001–02 due to greater volume of imports and implementation of GST on various products at the stage of import (Baig, 2009).

In 2011, Pakistan enjoyed commodity exports due to high demand in world market. The merchandise exports share has been increased to $20.2 billion in July–April 2010–11 while earnings from merchandise exports were $15.8 billion in July–April 2009–10. This shows 27.8% growth in the earnings of merchandise exports that has a positive impact on macroeconomic performance of the country. The major share of exports in 2011 has been contributed by textile (61.8%) and food groups (18.1%). The consistent rise in volume of foreign remittances and exports' growth has improved terms of trade and stabilized the exchange rate. Of course, external current account has improved.[5] The reductions in trade deficit by $240 billion in July–April 2010–11 and unprecedented increase in remittances have reduced the current account deficit by $5.3 billion in 2009–10 and so on. In addition, the continuous improvements in current account deficit raised foreign exchange reserves to $17 billion in 2011 while it was $6.4 billion in 2008 (GoP, 2011). The exports volume in US and European markets declined to $17.8 billion (2008–09) from $19.1 billion (2007–08) due to energy crisis, availability of poor quality of infrastructure, terrorists' activities which worsened the situation of law and order as well as economic decline.[6] The decline was also found in imports from $40.9 billion in 2007–08 to $34.9 billion in 2008–09 i.e. almost 13%.

3. Literature review

Economic literature provides empirical evidence of productivity and supply-side effects of trade openness on domestic output and hence on economic growth by increasing capital formation and total factor productivity. In cross-countries studies, for example, Krueger (1978) and Bhagwati (1978) concluded that trade liberalization encourages specialization in industries which have economies of scale that leads to improve the efficiency and productivity in the long run. Tyler (1981) used data of OPEC and middle income economies and concludes that a growth in manufacturing exports leads technological progress which increases absorptive capacity and in resulting, raises economic growth. In the case of Japan, Korea, Turkey and Yugoslavia, Nishimizu and Robinson (1984) showed that growth in exports raises total factor productivity growth by increasing competitiveness and economies of scale while imports' growth retards growth in total factor productivity.

Theoretical literature on economic development also reveals that international trade may have long run effect on economic growth. For instance, Grossman and Helpman (1990), Rivera-Batiz and Romer (1991), Barro and Sala-i-Martin (1997) argued that in the long run, trade openness may contribute to economic growth by diffusing technical knowledge by importing high-tech import items and from the spill-over effects of foreign direct investment i.e. financial openness, from the collaboration with the sources of innovations (Almeida and Fernandes, 2008), increasing market size to reap fruits from trade openness by increasing returns to scale and economies of scale (Bond et al. 2005). Sachs and Warner (1995) and, Rajan and Zingales (2003) pointed out that trade liberalization pushes the governments to launch a reforms program to face the competition in international market. On contrary, Redding (1999) documented that trade openness impedes economic growth through comparative disadvantage in the growth of productivity in specialized sectors of an economy. In such scenario, selective protection policies may stimulate technological advancements and hence economic growth (Lucas, 1988; Young, 1991a, 1991b).

Using cross-section data of 90 countries, Romer (1990) investigated the relation between trade openness and economic growth. Romer pointed out that trade openness helps in getting a wide range of innovations to raise domestic production and hence economic growth. Edwards (1989) and Villanueva (1994) argued that human capital formation tends to increase the positive effect of trade openness on economic growth. Greenaway et al. (2002) investigated long-and-short run effects of trade liberalization using panel data approach and reported that there is j-curve relationship between trade liberalization and economic growth i.e. trade increases economic growth at certain levels of trade liberalization and then declines it. Moreover, Irwin and Tervio (2002) considered the trade-growth nexus using data from the pre-World War I, the interwar, and the post-war periods and found that trade openness stimulates economic growth even after controlling endogeneity of trade between the countries of globe. But, Brunner (2003) investigated the relationship between trade and economic growth by extending Frankel and Romer's (1999) model and reported effect of trade on economic growth is not robust due to specification problem. Apart from that Dowrick and Golley (2004) reported that trade openness contributes to economic growth by improving productivity growth and investment also raises economic growth but relatively less.

Dollar and Kraay (2003) investigated the effect of trade openness and institutions on economic growth and reported that more open economies with better institutions develop faster and countries trade more with better institutions. Using panel data, Barro (2003) considered the determinants of economic growth concluding that economic growth is positively affected with favorable terms of trade but statistical effect is weak. Yanikkaya (2003) collected data of 120 countries of the globe to examine the impact of trade openness on economic growth using two indicators of trade openness such as volume of trade (exports + imports) as share of GDP and trade restriction on foreign exchange on bilateral payments. The results indicated that both indicators of trade have positive effect on economic growth through the improvement in total factor productivity. Karras (2003) collected the data of 105 countries of the globe reporting that trade openness improves TFP and then raises

---

[3] See for more details DRI/McGraw Hill (1997).

[4] For more details about reforms extent, see Box-3 (Baig, 2009, p.15).

[5] The improvements in terms of trade increased the unit value of exports index and lower the unit value of imports index. The growth unit values of exports index (imports index) is 23.5% (16.8%). The unit value of exports index is stimulated by manufacturing indices increased by 55%.

[6] Pakistan has paid high cost of war on terrorism. A rise in terrorists' activities has shattered trust of both local and foreign investors and reduced public and private investment as well as foreign direct investment in the country. This also declined exports' volume due to decline in overall economic activity which also reduced the demand for import items (GoP, 2011).