

An Econometric Analysis of Export - Led Growth Hypothesis: Reflections from Pakistan

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Abstract

Objectives: Income equalities in Pakistan have been a major obstacle to the economic growth of Pakistan. This led to serious economic threats to the economy in the shape of low GDP growth and precariously low foreign exchange reserves. In search of alternatives we find that a shift in goals of economy, from inward to outward orientation, is imperative. This shift calls for a change in production line focusing the demand arising from global markets rather than being confined to meet very limited home market. The purpose was to investigate the validity of export-led growth hypothesis in Pakistan and in case results are positive and significant the making recommendations to the policy makers for modalities. This study used twenty seven years (1971-2007) quarterly time series data from Pakistan. To investigate the efficacy of export-led growth hypothesis we used the quarterly time series data running from 1971 to 2007 for Pakistan. This study has applied the co-integration technique and error correction model to investigate the relationship among the export import and GDP growth. We used the unit root test (ADF) for checking the stationarity of the variables and the variables were stationary at first difference which enable us to use co-integration technique. We should conclude and recommend policy implication through this estimation in short run and long run perspective. The research will be useful for policy makers in Pakistan as it gives important suggestions to step up the measures for boosting exports and make arrangements to the diversification of exportable goods' production. Of course the earnings of service sector to other countries like tourism, health & education etc. is not preview of this study. However that constitutes a significant part of balance of payment. So this area should be given the due attention.

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1. Introduction

Export-led growth hypothesis describe that growth in exports of a country can contribute to the economic growth of the country. The hypothesis tells that overall growth of economies does not owe to increase in the labor and capital stock only, but also expansion in exports. The competitiveness in global markets may lead to product innovation and force domestic producers to reduce various inefficiencies. This highly significant relationship between two variables, expansion in exports and growth in economic activity can also be due to the externalities of various countries in the international trade. Many studies, so far, confirm the presence of strong relationship between the said variables.

Export expansion is believed to lead to and lead by an improved allocation of all types of resources, economies of time & scale, improvements in production techniques by widening knowledge & technical base, through multilateral international arrangements for transfer of technology, accumulation & formation of capital, raising the level of employment by jobs creation and thus, economic growth and development. In developing countries export promotion is a source to fill the imbalances gap in the external sector. It also assists the economic planners to ensure about the scale and pace of economic recovery.

The concept of trade openness is from classical school of economic and from the theories of Adam Smith and David Ricardo. Theory of International Trade also relates trade and international development. Economic gains of specialization, discernible in enhanced exports, entails in higher levels of GDP, thus exports directly contributing to growth in national income. Thus contribute heavily to foreign exchange earnings and improving the balance of payment situation.

It is argued that international trade or trade openness plays an important role in economic growth and there are economic gains from specialization. It has been commonly viewed that being a component of GDP, exports contribute directly to national income growth and are among the most important sources of foreign exchange earnings that ease the pressure on the balance of payments and generate employment opportunities. Furthermore, opening the trade is also central in international concern about tariffs and trade barrier where trade theory suggests that all parties on aggregate will improve their welfare position in relation to their closed economy situation.

The neoclassical view has been that growth can be achieved by export led growth hypothesis. The growth records of newly industrializing countries, in particular, Hong Kong, Singapore, Korea and Taiwan and second-generation newly industrializing countries in which Malaysia and Thailand are cited as the examples compared to, say, Latin America and Africa. Over the last thirty years these newly industrializing countries have approximately doubled their living standards every ten years. China is the latest country to join this group. China's experience during the 1980s and 1990s tends to support the argument that openness to trade is a mechanism for achieving more rapid and efficient growth and better distribution of domestic resources (Findlay and Watson, 1996, p.4). Many studies contain similar assertions for other countries and some authors (e.g., Krueger, 1995) identify trade policy as the crucial element of economic policy.

During the 1980's and 1990's, many Latin American countries privatized their trade policy towards a more outward oriented policy. Some of the arguments for the more privatized trade policy were related to an increased competition in international market to generate a more efficient use of scarce resources and increased export opportunities. So we can expect that after improving or export promotion can enhance the economic growth.

In Pakistan, export-led economic policy has been put into practice in the second half of 1990s but with a limited success. Pakistan's export earnings remained stagnant around USS 8-9 billion during the mid-1990s that constitute approximately 13% of the GDP. As far as it's share in the total world trade remained consistently very poor, 0.2%. Growth rates of exports have been fluctuating year to year, 3% per year (in nominal dollar terms) for past two decades. Pakistan is facing number of economic, political and socio-

economic in problems that hinder the export growth. Two major economic obstacles are lack of economic infrastructure, especially power shortage and a very limited export base. So far no Government has been able to plan a long term power policy to cater the needs of industrial sector rather all have resorted to raise the power tariff forcing the export based industry less competitive in export markets. On the other hand Pakistan's export base is very limited, based on cotton and cotton related textile industry that falls under the category of primary/ semi-finished items. The problem is further aggravated by the policies of US & European Union who deny a deeper access to it.

Issues of heavy taxation policy and high bank rates are the problems beside the overly regulated environment that caused the stagnant performance in export sector. We can safely say that Pakistan's competitiveness in international market, it's potential to achieve high levels of export growth rates in the long run, has been affected by these exogenous and endogenous factors.

In the aftermath of the 2008 general elections the change in the political leadership, a split mandate, has further deepened the crises and posed new challenges to the fiscal managers of Pakistan. Performance of Pakistan's economy remained excellent in the period of 2004 to 2008 in which economic growth rate was at an average rate of 7 percent per annum. On the other side, export performance of Pakistan has also registered a 16% increase during 2003 to 2006. So the issue is that Pakistan's exports are highly volatile due to the concentration in few items in which, cotton manufacturing, leather, rice, textile and sports goods, which account 72 percent share in total exports during 2008. The composition of exports has changed rapidly in the era of 90's and moved from primary and semi manufactured to manufactured exports. However, there is no change in the structure of exports from last 3 years and this structure also determines the level of economic growth.

2. Literature Review

A number of empirical studies show strong relationship between export promotion and economic growth. For example, Baldwin and Caves (1997), Rivera-Batiz and Romer (1991), Segerstrom, Anant and Dinopoulos (1990), and Grossman and Helpman (1990). The findings of above-cited researches explain the relationship of global trade and local economy. It narrates that export competitiveness entails in manifold improvements in the home country such as technology transfers, training & skills improvement of workers, managerial efficiencies, and enhancement of productive capacity. The hypothesis that exports can lead economic growth is assisting the economic managers to give a rationale to improve and efficient their outward orientation instead of inward-orientation strategies of economic development like industrialization for import substitution.. Export orientation can be a tool to improve growth in total-factor productivity (Ram, 1987; Kavonssi, 1984; Bhagwati, 1978; Krueger, 1978); and also be a factor to attract foreign direct investment (Balasubramanyam, et al., 1996).

Olusegun A. Omisakin (2009); studied the topic and analyzed the causal and dynamic relationship between foreign trade and growth of the economy. He used data, time series, from Nigeria employed the (ARDL) .Autoregressive distributor lag model technique and Toda-Yamamoto to examine the relationship. He used the twenty six years data from 1970

to 2006. The result of Toda-Yamamoto showed bidirectional relationship between export and output. The variables used in this study, with exception of capital, display high level of statistical significance in explaining output. The focus of this study was to find the mutual relationship between output / production level of the economy in the period and for the same period growth in exports. The result is not invariant with economic intuition. Fouad Abou-Stait (July 2005); used the time series data from 1977 to 2003 from Egypt to check the causal relationship between the export and economic growth. He used the Granger causality test to find the relationship. He also analyzed the reforms of 1991 to verify the hypothesis for the period of 1991-2003. The results revealed significant relationship between GDP and exports but a less significant impact of exports on capital formation, highlighting the weaker link among these variables, capital formation and exports, for the case of Egypt. Hasan, Malik and Hasan (1995); studied on the well-known topic, export led growth hypothesis. They used the technique Granger causality to test the direction of the causality between export and economic growth.

In this study we made an attempt to find out the presence and direction of causality between two factors, export growth & economic growth. The method used was Granger's causality. Our findings confirm a sustained bi-directional relation between output and exports whereas unidirectional relation between primary exports & output. Again the study confirms a two way causal relation among an overall growth in exports and economic growth. Therefore it is imperative upon the policy maker to undertake the large scale measures to boost the manufactured exports to achieve better economic growth rates.

Akbar and Naqvi ; tried to find the validity of the export led growth hypothesis on Pakistan's economy. They took the time series data from Pakistan and used the Granger causality test to check the causality and relationship between the export expansion and economic growth. The hypothesis was not confirmed by the Granger causality analysis. Findings reveal that this study ignored the two important variables, investment and energy situation, which can be liable to understate/overstate the causality results.

Sami, Zaman and et all (2009); studied to reconfirm the hypothesis for Pakistan. The econometric techniques which were applied to check the relationship were Unit root test, Co-integration and Granger causality through Vector Error Correction Model using time series data from 1970 to 2008.. The result shows to economic growth is dependent upon export expansion Granger causality test reveals one way causal relation between economic growth, exports and imports.

Per-Ola Maneschi (2008); analyzed this hypothesis (export led) for the countries of central & South America. He used the techniques of co integration and causality. Further, they wanted to know that weather this causal relation is either two-way or one way from export to GDP that may be interpreted as endorsing the hypothesis and being global policy. The empirical findings reveal a co-integrating relationship for Argentina and Mexico. This is valid in pre-break and post-break period. However the findings do not confirm such relationship for Brazil. The results of co-integration between GDP and export (in Argentina) reflect the exports as leading factor but GDP is leading variable in Mexico. Findings also suggest significant relation in Mexico in the post-break era. Giles and William (Jan. 2000); explored the mutual impact of export oriented trade and growth. Their findings were on the current situation by using the time series data. They used VAR

model. To test ELG time series techniques were used .On the other hand, Tang (2006) disapproved the presence of any relationship between GDP, exports and imports in the long run. He also denied the presence of an causality, both in the long run & short run, between expansion of exports and growth in China whereas in the short run growth cause to exports in terms of Granger Causality. Shirazi and Manap (2001); tried to re-investigate the export-led growth hypothesis for Pakistan. The focus of their research was to explore the causal relationship among the variables, real output and growth of import & exports, using the model developed by Toda and Yamamoto (1995). The data was pertaining to the period of 1960-2003. Results significantly endorsed the presence of causal relationship among growth of the three variables, output, imports and exports. It further revealed the unidirectional causal effect between export & output growth but no significant causal relationship between import and export growth. E.M. Ekanayake (1999); used the annual data, encompassing a period of 1960-1997 taken from eight Asian countries to find out the causality among economic growth & exports. For the purpose models applied were co integration and error correction. Results supported the bi-directional causal relation among exports and output growths but not such relation in short run. Yousif Khilifa Al-Yousif (1997); analyzed the relationship between exports and economic growth and endorsed the hypothesis by confirming a positive & significant relation between the two variables for the period of 1973 to 1993. Emilio J. Medina-Smith (2001); wanted to know the validity of the hypothesis for the developing countries using the annual data for the period 1950-1997 from Costa Rica. He empirically examined the relationship in short and the long-run. The findings highlight overall economic performance of Costa Rica since 1950s due to the physical investment and population. From the study it can be considered that export is the driving force of economic growth .Despite the sufficient evidence across the globe the universality of the hypothesis is yet to be established. The export led growth hypothesis is probably beneficial only for a limited number of developing countries, and only to a certain extent.

Objectives of study

The objectives of conducting this study are as follows:

1. To analyze the relationship between exports and imports expansion and economic growth.
2. To estimate the validity of export led growth hypothesis for the developing countries.
3. To suggest some policy recommendation for the potential building of the export base of the Pakistan.

3. Methodology

This study used twenty seven years (1971-2007) quarterly time series data from Pakistan. The purpose of the paper was to investigate the export-led growth hypothesis using the quarterly time series data running from 1971 to 2007 for Pakistan. This study has applied the co-integration technique and error correction model to investigate the relationship

among the export import and GDP growth. We used the unit root test (ADF) for checking the stationarity of the variables and the variables were stationary at first difference which enable us to use co-integration technique. The data used for analysis is from 1971 to 2007 and it is collected from World Bank Development Indicator (WDI) and International Financial Statistics (IFS).

Specification of model: The multiple linear regression model is as:

Economic Growth = f (Exports, Imports)

$$GDP = p_0 + p_1 EXP + p_2 IMP + e_0$$

Here: GDP= Gross Domestic Product, EXP= Exports, IMP= Imports, and E₀= Error term

All the variables are stationary at first difference and co-integration technique along with error correction model is suggested for estimation.

Results of co-integration Technique

Dependent Variable: GDP Value of c: .566286

Variable	Coefficient	Standard error	t-value
Limp	0.491360	0.02375	20.688842
Lexp	0.337456	0.019535	17.274431

$$LGDP = 0.566286 + 0.491360LIMP + 0.337456LEXP$$

Explanation

As the value of t-statistic for variable imports is 20.688842 which is greater than 2 hence imports is significant and it shows positive relationship with dependent variable GDP in long-run. The value of t-statistic for variable exports is 17.274431 which is greater than 2 hence exports is significant and it shows positive relationship with dependent variable GDP in long-run.

Interpretation of Variables

As these results show the elasticity of GDP with respect to IMPORTS is about 0.49 suggesting that if imports decrease by 1%, on average, there will be 0.49% increase in GDP in the long run. As these results show the elasticity of GDP with respect to EXPORTS is about 0.34 suggesting that if exports decrease by 1%, on average, there will be 0.34 % increase in GDP in the long run. The value of t-static for Imports is 20.688842, the highest value in all the variables, hence imports is highly significant in the long run and the value of t-static for export is 17.274431 which is the lowest value in all the variables hence export is the less significant in the long run. By comparing

coefficients we can conclude that coefficient value of imports is the highest value and shows that imports will have highest t effect on dependent variable GDP in the long run.

Results of Error Correction Model

Dependent variable; GDP: Value of c: 0.058402

	Coefficient	Standard error	t-static
D(LGDP(-1))	0.481430	(0.12990)	3.70619
D(LGDP(-2))	0.129949	(0.06834)	L90I58
D(LGDP(-3))	-0.011087	(0.04891)	0.22670
D(LEXP(-1))	-0.146181	(0.07901)	1.85025
D(LEXP(-2))	-0.051636	(0.06419)	0.80443
D(LEXP(-3))	-0.047154	(0.05688)	0.82899
D(LIMP(-1))	-0.266267	(0.12454)	2.13796
D(LIMP(-2))	-0.405475	(0.07787)	5.20704
D(LIMP(-3))	-0.131761	(0.08788)	1.49937!
ECT-,	-0.898063	(0.10493)	8.55855

Explanation

As the value oft-statics for D(LGDP(-1)) is 3.71 which is greater than 2 and shows that variable is significant and shows positive relationship with dependent variable LGDP in short run (lag-1). The value of t-statics for D(LGDP(-2)) is 1.90 which is less than 2 and shows that variable is insignificant and shows positive relationship with dependent variable LGDP in short run (lag-2). T-statics for D(LGDP(-3)) is 0.23 which is less than 2 and shows that variable is insignificant and shows negative relationship with dependent variable LGDP in short run (lag-3). The result of t-statics for D(LEXP(-1)) is 1.85 which is less than 2 and shows that variable is insignificant and shows negative relationship with dependent variable LGDP in short run (lag-1). T-statics for D(LEXP(-2)) is 0.80443 which is less than 2 and shows that variable is insignificant and shows negative relationship with dependent variable LGDP in short run (lag-2). T-statics for D(LEXP(-3)) is 0.82899 which is less than 2 and shows that variable is insignificant and shows negative relationship with dependent variable LGDP in short run (lag-3). T-statics for D(LIMP(-1)) is 2.14 which is greater than 2 and shows that variable is significant and shows negative relationship with dependent variable LGDP in short run (lag-1). As the value oft-static for D(LIMP(-2)) is 5.21 which is greater than 2 and shows that variable is significant and shows negative relationship with dependent variable LGDP in short run (lag-2). As the value of t-statics for D(LIMP(-3)) is 1.499 1.49937 which is

greater than 2 and shows that variable is significant and shows negative relationship with dependent variable LGDP in short run (lag-3). The value of t-static for error correction term is 8.56 which is greater than 2 and shows the significance of error correction term.

4. Interpretation of estimations

As these results shows, the elasticity of GDP of current period with respect to GDP of 2006 is about 0.48 suggesting that if GDP of 2006 increases by 1% than on average GDP for current period will increase by 0.48% in the short run (lag-1). The elasticity of GDP of current period with respect to GDP of 2005 is about 0.1299 suggesting that if GDP of 2005 increases by 1% than on average GDP of current period will increase by 0.1299% in the short run (lag-2). The elasticity of GDP of current period with respect to GDP of 2004 is about 0.0111 suggesting that if GDP of 2004 increases by 1% than on average GDP of current period will decrease by 0.0111% in the short run (lag-3). The elasticity of GDP of current period with respect to EXP of 2006 is about 0.15 suggesting that if EXP of 2006 increases by 1% than on average GDP of current period will decrease by 0.15% in the short run (lag-1).

These results exhibit, the elasticity of GDP of current period with respect to EXP of 2005 is about 0.52 suggesting that if EXP of 2005 decreases by 1% than on average GDP of current period will increase by 0.52% in the short run (lag-2). The elasticity of GDP of current period with respect to EXP of 2004 is about 0.047 suggesting that if EXP of 2005 decreases by 1% than on average GDP of current period will increase by 0.047% in the short run (lag-3).

As these results shows, the elasticity of GDP of current period with respect to IMP of 2006 is about 0.266 suggesting that if IMP of 2006 increases by 1% than on average GDP of current period will decrease by 0.266 % in the short run (lag-1). As these results shows, the elasticity of GDP of current period with respect to IMP of 2005 is about 0.41 suggesting that if IMP of 2005 increases by 1% than on average GDP of current period will decrease by 0.41 % in the short run (lag-2). The elasticity of GDP of current period with respect to IMP of 2004 is about 0.132 suggesting that if IMP of 2004 increases by 1% than on average GDP of current period will decrease by 0.132 % in the short run (lag-3).

Interpretation of Error term

The error term shows speed of adjustment towards long-run equilibrium and its value is 0.90. The negative sign shows convergence towards long run equilibrium and 89% adjustment will be taken place in each period toward long run equilibrium.

Interpretation of R^2

The value of r is 0.91 which shows that 91% variation in dependent variable is due to independent variable.

Interpretation of F-statistic

The value of f-static is 21.15184 and it shows that model is good fit.

5. Conclusions and Policy Implications

This study used twenty seven years (1971-2007) quarterly time series data from Pakistan. The purpose of the paper was to investigate the export-led growth hypothesis using the quarterly time series data running from 1971 to 2007 for Pakistan. This study has applied the co-integration technique and error correction model to investigate the relationship among the export import and GDP growth. We used the unit root test (ADF) for checking the stationarity of the variables and the variables were stationary at first difference which enable us to use co-integration technique. We should conclude and recommend policy implication through this estimation in short run and long run perspective.

In the long run as we have analyzed by using co-integration technique that there is positive relationship between economic growth and import export. Means independent variables Imports and Exports are positively related with independent variable GDP. So the government should make effort and take steps to enhance the Import and Export in order to promote economic growth. For this purpose as we have analyzed that there is positive relationship among the variables, the government should make such kind of environment to promote export and import. There should be no mercantilist view that there should be no trade. If there is trade then there will be more economic growth by the expansion of export and import.

As our results of co-integration technique are explaining that there is no negative relationship among the variables so government should take strong and immediate steps for the expansion of import and exports for the promotion of economic growth. There should be no trade barriers for example import and export quota and import and export tariff or some other kind of trade restrictions. Then there will be more economic growth.

In the short run the result of error correction model is showing the short run impacts of independent variables import export on the dependent variable economic growth. The model shows that GDP of 2006 has a positive effect upon the current period GDP as well as the GDP of 2005. Exports of year 2006 are showing negative effect upon the current period GDP and the period 2005 has also negative effect on the GDP. The result of this model is showing that the effect of imports in the year 2006 has negative effect on the GDP.

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