

Washington Consensus Development Hypothesis: The Case of Pakistan

Chu V. Nguyen¹

<https://doi.org/10.62345/jads.2012.1.4.3>

Abstract

This article uses the seemingly unrelated estimation method to estimate the reduced-form of a simultaneous system of two equations to examine the export-led growth hypothesis for Pakistan over 1970–2011. Estimation results reveal the bidirectional dynamic causality between real exports and real GDP. This empirical finding indicates that the Pakistani real GDP and exports affect each other's. Additional determinants of real GDP growth and exports are also found to be significant. As to the policy implications, the empirical results suggest that Pakistani policy makers should consider introducing some aspects of import-subsidized development strategy to their economic development process. This policy recommendation is based on the findings that the dynamic causality between Pakistani exports-GDP growths is bidirectional and how real terms of trade, capital, employment and the real foreign output affect them.

Key Words: Export-led development hypothesis; Pakistan; Simultaneous two equations system; seemingly unrelated estimation method; ELG hypothesis.

Introduction

The most recent technological advances in telecommunications, internet capabilities, transportation and computerization in production have facilitated rapid accelerations in world trade and travel, the flow of goods and services, and the movement of financial assets between different nations. With new developments that seem to shrink the world, international economies have become as intertwined as a cobweb. The neoclassical export-led development strategy, advocated by the Bretton Woods Institutions, and the recent birth of the World Trade Organization (WTO) have caused the volume of international trade to increase exponentially. This unprecedented mobility of capital due to advances in communication technologies and new international investment opportunities has been an impetus for nations around the world to develop their economies and to drastically improve the social welfare of their populace.

Paradoxically, increases in the mobility of international capital, with its fluid nature, are often the cause of financial crises with international dimensions. This often causes large sudden reductions in the volume of international trade and investment flows and disrupts economic activities, causing monetary crises in many nations. The international contagion of the 1997 Asian financial crisis, the US subprime mortgage debacle and the potential impact of the current European sovereign debt crisis are a few illustrative examples.

Moreover, in the current economic climate, not all economic relationships between two nations are alike. These bilateral relationships depend on the degree of development, natural resources, and infrastructures and so on of the countries involved. Usually advanced economies with fully developed infrastructures can weather certain crises or sustain contagions of crises from other countries better, while the less developed countries usually suffer severely from crises.

¹ Chu V. Nguyen, Ph.D., Assistant Professor of Economics and Finance, FAEIS Department, College of Business, University of Houston-Downtown, USA. Email: nguyenchu@uhd.edu



Conventionally, the vector error correction modeling approach outlined in Toda and Phillips (1993) and the augmented level VAR modeling with integrated and cointegrated processes (of arbitrary orders), separately introduced by Toda and Yamamoto (1995) and Dolado and Lütkepohl (1996), are models of choice for testing the neoclassical export-led growth hypothesis. Ideally and if the availability of the data and their suitability allow, these models usually include the following variables as their arguments: (i) real gross domestic product, real exports, real terms of trade – export unit value divided by import unit value, capital stock, labor input and some measure of foreign output. The measure of foreign output is included to control for export growth not influenced by the price competitiveness or productivity of the economy under consideration, but by growth in the rest of the world.

As described in the Pakistani economy section, in their effort to reform the economy the Pakistani governments have nationalized, then privatized, liberalized the national means of productions and became WTO member since January 1st, 1995. These characteristics make the Pakistani economy a fertile ground for testing the export-led development strategy. Additionally as described in the data section, this investigation considers the Pakistani real GDP, real exports (EXP), real terms of trade – export unit value divided by import unit value (TOT), gross capital formation as proxy for capital (CAP), population as proxy for employment (POP), and the real GDP of advanced economies (defined by the International Monetary Fund) as proxy for foreign output shock (WOP).

However, testing for the stationarity and cointegration of the time series, as required by the underpinning theory of the models, reveals that the Pakistani population time series is stationary at level. Since the aforementioned two models of choice require their time series data be non-stationary and cointegrated; the population time series cannot be included in these models. However, labor and capital are two important inputs in production processes at both microeconomic and macroeconomic levels. Intuitively, increase in labor input, for which the growth in population may be used as a proxy measure, would normally be associated with increase in the country's real GDP. Therefore, it is of special interest to investigate how labor input, or its proxy measure, affects the real GDP and the exports of the country when empirically testing the alternative economic development hypotheses—Export-Led Growth vs. Growth-Led Exports.

To achieve the above objective, this empirical investigation uses seemingly unrelated estimation method to estimate the reduced-form of the simultaneous system of two equations for growths in Pakistani real GDP and exports which will be specified in the methodology and model specification section. This equation specification facilitates an empirical investigation as to, among other aforementioned variables, how the growth of the Pakistani population affects the country's growths in real GDP and exports, as measured by the logarithmic real GDP and logarithmic exports. Additionally, the empirical results of this model help determine if the Pakistani economy is export-led growth (ELG) or growth-led exports (GLE) when the growth of the population is included as an argument of all equations in the system.

The remainder of the study is organized as follows. The following section briefly reviews the literature and some background of development theories; the next section summarizes the prominent features of the Pakistani economy; the section that follows discusses the data and descriptive statistics; the next section summarizes the methodology and model specification; the following section reports the empirical results; the final section provides some concluding remarks and policy implications.

Brief Review of Literature and Historical Background

After World War II, the world was shocked by the destruction caused by the conflict. This reaction led to the formation of the UN/Bretton Woods Institutions during 1944-45. In the

twentieth century, many theoretical development strategies were articulated and applied to develop economies to assuage human suffering around the globe: the Marshall Plan for Europe, the reconstruction of Japan, the economic development plans at the UN General Assembly and Economic and Social Council, to name a few. Up to date, the articulated theoretical development strategies can be broadly classified into two categories: inward-looking and outward-looking strategies. These strategies are also referred to as import-subsidized and export-led development strategies. The theoretical foundation for the inward-looking development strategy was the Keynesian economic theory (Singer, 1998), which advocates subsidized import of capital and development of labor to industrialize the economy. Leading theorists in this school of thought were Sir Hans W. Singer and Raúl Prebisch. Therefore, the import-subsidized development strategy is better known as the Prebisch-Singer hypothesis. This hypothesis was the foundation of many development policies in Latin America in the '50s.

The Prebisch-Singer hypothesis, which has been debated and shown to have some major weaknesses, was replaced by the outward-looking development strategy around the globe. In retrospect, the Prebisch-Singer hypothesis has many features necessary for development strategies in the current age of globalization. As one of the leading theorists in the Prebisch-Singer hypothesis and one of Keynes' disciples, Singer (1993) has argued that, from the Keynesian perspective, the new economic order established after World War II was both distorted and incomplete and was not given time to prove its effectiveness. Singer posited that the original intention of putting pressure on balance of payments surplus countries has been changed to pressure the poor countries, the deficit countries, and in particular the indebted countries. For the industrial countries, the surplus countries, and the non-indebted countries, there is nothing but a slap on the hand. Another original feature was that the global macroeconomic coordination was assumed to be in the UN General Assembly and Economic and Social Council, but the hostility to the UN as a result of the Cold War and the McCarthy era prevented this global policy coordination in the UN. Neither the US under the Pax Americana (Latin for "American Peace") of 1945-71, nor the group G5 or G7, nor the IMF or the World Bank has been able to take its place.

As to the incompleteness of the new economic order, Singer (1993) articulated that the main gap was the failure to establish the International Trade Organization (ITO), which would have helped the developing countries as it would have had commodity price stabilization as its objective. The ITO was duly negotiated and agreed (it is also known as the Havana Charter) and signed by 53 countries on March 24, 1948, but was not ratified by the US Congress. It is interesting to note that for a long period of time after World War II, the US experienced a very favorable trade balance surplus. Singer asserted that as a result of the failure to ratify the ITO, the post-war years have seen deteriorating terms of trade—the ratio of the prices of exports to the prices of imports—for developing countries. The deteriorating real price for oil was also responsible for OPEC actions of 1973 and 1979 which finally delivered the death blow to the Bretton Woods System.

Singer further articulated that the Latin American debt crisis could not be foreseen in 1944-45. At the end of World War II, Latin America and the Indian subcontinent had plenty of foreign assets and reserves while the financial affairs of Africa were a matter for their European colonial "mother countries." This new factor has placed the debtor developing countries—and that means the great bulk of them—in a condition of dependency and inferiority, which prevents them from playing any real part in global economic affairs, allowing the Bretton Woods Institutions to impose a new neoliberal ideology under the "Washington Consensus" (Singer, 1993, p. 8).

The aforementioned phenomena also transformed the UN/Bretton Woods System from the "one country one vote" to the "one dollar one vote" system. The neoclassical economic

theory is the theoretical foundation of the export-led development strategy (Taylor, 1999, pp. 2-5), which is the brainchild of the Bretton Woods Institutions. This development strategy is better known as the Washington Consensus development strategy. The ideology of and the arguments for the export-led strategy are well known and voluminous in the literature; thus, they are not summarized here. However, it is important to note that the export-led development strategy advocates that all economies should concentrate on developing the export sector in their development processes. This strategy has led to exponential growth in the volume of international trade, capital mobility, and closer connections among the international economies in the last three decades. While this development strategy may be the catalyst for economic development around the world, it also creates an environment conducive to international financial crises because of dangerous contagions, such as the one demonstrated by the recent US subprime mortgage crisis.

Over the last three decades the role of exports in stimulating economic growth has been the subject of debate among development economists. The recent phenomenal growth in output and exports of the Newly Industrializing Countries (NICs) of East Asia has further helped fuel this debate. In contrast to the economic success stories of the NICs, the relatively inwardly oriented economies in Africa and Latin America have experienced very dismal growth rates. Since trade theory does not provide definitive guidance on the causal relationship between exports and output growth, the debates are usually informed by empirical analyses that often yield ambiguous results. The main question in the export-growth debate is whether an export-led outward-oriented trade policy is preferable to an inward-oriented trade policy in stimulating economic growth. Some researchers argue that causality goes from exports to economic growth and denote this as the export-led growth (ELG) hypothesis. However, the reverse causal flow from growth to exports is described as growth-led exports (GLE). Most studies focus on developing countries (Balassa, 1978; Ram, 1987); some researchers have examined the ELG hypothesis for industrialized countries (Marin, 1992; Shan and Sun, 1998; Awokuse, 2003, 2005-a, 2005-b; Siliverstovs and Herzer, 2006; Chan and Dang, 2010).

The Pakistani Economy

As reported in the Pakistan: A Country Study (1995) by the US Federal Research Division, since 1947 Pakistani governments have sought a high rate of economic growth in an effort to lift the population out of poverty. Rapid industrialization was viewed as a basic necessity and as a vehicle for economic growth. For ensuing more than two decades, economic expansion was substantial, and growth of industrial output was striking. In the 1960s, the country was considered a model for other developing countries. Rapid expansion of the economy, however, did not alleviate widespread poverty. In the 1970s and 1980s, although a high rate of growth was sought; greater attention was given to income distribution. In the early 1990s, a more equitable distribution of income remained an important but elusive goal of government policy.

At partition in 1947, the new government lacked the personnel, institutions, and resources to play a large role in developing the economy. Exclusive public ownership was reserved only for military armaments, generation of hydroelectric power, and manufacture and operation of railroad, telephone, telegraph, and wireless equipment—fields that were unattractive, at least in the early years of independence, to private investors. The rest of the economy was open to private-sector development, although the government used many direct and indirect measures to stimulate, guide, or retard private-sector activities.

The Pakistan: A Country Study further argues that by the late 1960s, there was growing popular dissatisfaction with economic conditions and considerable debate about the inequitable distribution of income, wealth, and economic power-- problems that had always

plagued the country. Pakistan: A Country Study (1995) posits that in the 1960s forty big industrial groups owned around 42 percent of the nation's industrial assets and more than 50 percent of private domestic assets. Eight of the nine major commercial banks were also controlled by these same industrial groups. Concern over the concentration of wealth was dramatically articulated in a 1968 speech by Mahbubul Haq, then chief economist of the Planning Commission. Haq claimed that Pakistan's economic growth had done little to improve the standard of living of the common person and that the "trickle-down approach to development" had only concentrated wealth in the hands of "twenty-two industrial families." In response, the government enacted piecemeal measures between 1968 and 1971 to set minimum wages, promote collective bargaining for labor, reform the tax structure toward greater equity, and rationalize salary structures.

However, implementation was weak or nonexistent, and it was only when the government of Zulfikar Ali Bhutto (father of Benazir) came to power in 1971 that there was a major shift in government policy. Bhutto promised a new development strategy more equitable than previous policies. Yet, he downplayed economic analysis and planning and relied instead on ad hoc decisions that created many inconsistencies. In May 1972, he promulgated a major act that devalued the rupee by 57 percent and abolished the multiple-exchange-rate system. This act greatly stimulated exports and indicated that the removal of price distortions could spur the economy. But devaluation also completely altered the cost and price structure for industry and affected the level and composition of industrial investment and the terms of trade between the industrial and agricultural sectors. Devaluation helped agriculture, particularly larger farms that had marketable surpluses. Mechanization increased but had the adverse side effect of displacing farm laborers and tenants, many of whom migrated to cities seeking industrial jobs.

The public sector expanded greatly under the Bhutto government. In addition to the nationalization of companies, plants were built by the government and additional public companies were created for various functions, such as the export of cotton and rice. Able managers and technicians were scarce, a situation that became worse after 1974, when many persons left to seek higher salaries in Middle East oil-producing states. Labor legislation set high minimum wages and fringe benefits, which boosted payroll costs for both public and private firms. Efficiency and profits in public-sector enterprises fell. Public industrial investment rose, surpassing private industrial investment in 1976.

As articulated by the Pakistan: A Country Study, after 1977 the government of Mohammad Zia ul-Haq (1977-88) began a policy of greater reliance on private enterprise to achieve economic goals, and successive governments continued this policy throughout the late 1980s and early 1990s. Soon after Zia came to power, the government instituted constitutional measures to assure private investors that nationalization would occur only under limited and exceptional circumstances and with fair compensation. A demarcation of exclusive public ownership was made that excluded the private sector from only a few activities. Yet, government continued to play a large economic role in the 1980s. Public-sector enterprises accounted for a significant portion of large-scale manufacturing.

The government of Prime Minister Nawaz Sharif (1990-93) introduced a program of privatization, deregulation, and economic reform aimed at reducing structural impediments to sound economic development. Top priority was given to denationalizing some 115 public industrial enterprises, abolishing the government's monopoly in the financial sector, and selling utilities to private interests. Investment reforms eliminated government sanction requirements, eased restrictions on repatriable direct and portfolio investment from abroad, enabled foreign firms to issue shares in enterprises in Pakistan, and authorized foreign banks to underwrite securities on the same basis as Pakistani banks.

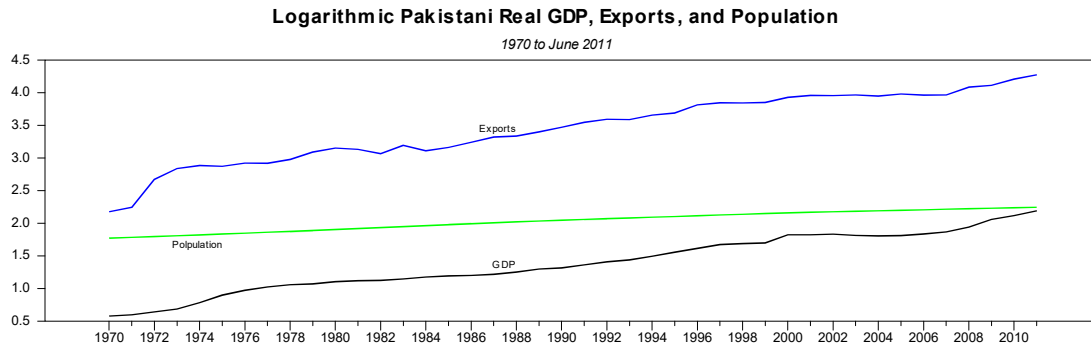
Although the Nawaz Sharif government made considerable progress in liberalizing the economy, it failed to address the problem of a growing budget deficit, which in turn led to a loss of confidence in the government on the part of foreign aid donors. In early 1994, the government of Benazir Bhutto, elected in October 1993, announced its intention to continue the policies of both deregulation and liberalization carried out by Nawaz Sharif.

As argued recently in the US Central Intelligence Agency's the World Fact book (2009), decades of internal political disputes and low levels of foreign investment have led to slow growth and underdevelopment in Pakistan. Agriculture accounts for more than one-fifth of output and two-fifths of employment. Textiles account for most of Pakistan's export earnings, and Pakistan's failure to expand a viable export base for other manufactures has left the country vulnerable to shifts in world demand. Official unemployment is 6%, but this fails to capture the true picture, because much of the economy is informal and underemployment remains high. Over the past few years, low growth and high inflation, led by a spurt in food prices, have increased the amount of poverty - the UN Human Development Report estimated poverty in 2011 at almost 50% of the population. Inflation has worsened the situation, climbing from 7.7% in 2007 to more than 13% for 2011, before declining to 9.3% at year-end. As a result of political and economic instability, the Pakistani rupee has depreciated more than 40% since 2007.

The government agreed to an International Monetary Fund Standby Arrangement in November 2008 in response to a balance of payments crisis. Although the economy has stabilized since the crisis, it has failed to recover. Foreign investment has not returned, due to investor concerns related to governance, energy, security, and a slow-down in the global economy. Remittances from overseas workers, averaging about \$1 billion a month since March 2011, remain a bright spot for Pakistan. However, after a small current account surplus in fiscal year 2011 (July 2010/June 2011), Pakistan's current account turned to deficit in the second half of 2011, spurred by higher prices for imported oil and lower prices for exported cotton. Pakistan remains stuck in a low-income, low-growth trap, with growth averaging 2.9% per year from 2008 to 2011.

The Data and Descriptive Statistics

This study uses Pakistani annual data on real GDP, real exports (EXP), real terms of trade—export unit value divided by import unit value (TOT), gross capital formation as proxy for capital (CAP), population as proxy for employment (POP), and the real GDP of advanced economies (defined by the International Monetary Fund) as proxy for foreign output shock (WOP). The real GDP of advanced economies is included to control for export growth not influenced by Pakistan price competitiveness or productivity, but by growth in the rest of the world. The data set covers the period 1970 - 2011. All data series are obtained from the IMF databases. Except for the real terms of trade, all other time series data are expressed in natural logarithms. Figure 1 displays the behavior of the respective exports, population and GDP over the sample period.

**Figure 1**

The simultaneous equation system requires all time series data employed be stationary. To ascertain the stationarity of each of the time series under consideration, this study applies two standard unit root tests on the series: the augmented Dickey–Fuller (1979) and Phillip–Perron (1988) tests. The null hypothesis for both tests is that a unit root exists in the autoregressive representation of the series. The augmented Dickey-Fuller and Phillip-Person unit root test results are reported in Table 1. An analysis of the test results suggests the presence of unit roots in levels and all of the series are stationary after first differencing, except for the population series which is stationary at level. These findings indicate that, except for the population time series, all other time series under consideration are stationary at the first differencing.

Table 1: ADF and PP test results, Pakistani Annual Data 1970 to 2011

Series	<i>Augmented Dickey- Fuller</i>		<i>Phillip- Person</i>	
	Level	First Differencing	Level	First Differencing
GDP	-0.3245	-3.9245*	-0.3998	-4.0093*
EXP	-2.5176	-5.1693*	-2.4596	-5.1212*
TOT	-0.5236	-6.3846*	-0.5195	-6.3846*
CAP	-1.4514	-4.4024*	-1.5294	-4.1456*
POP	-2.5288*	n.a.	-3.9908*	n.a.
WOP	-1.9754	-4.5068*	-2.7556	-4.3576*

Note: * denotes rejection of the hypothesis at the 1 percent level.

Methodology and Model Specification

To empirically assess how the growth in the Pakistani population affects the country's real GDP and exports as well as to investigate the nature of the dynamic causality between growth in GDP and exports, this study specifies and uses the seemingly unrelated estimation method to estimate the reduced-form of the simultaneous system of two equations, as specified by the following equations (1) and (2).

$$\Delta GDP_t = \alpha + \sum_{i=1}^3 \beta_i \Delta EXP_{t-i} + \sum_{j=1}^3 \gamma_j \Delta GDP_{t-j} + \delta \Delta TOT_t + \phi \Delta CAP_t + \varphi POP_t + \eta \Delta WOP_t + u_{1t} \quad (1)$$

$$\Delta EXP_t = \tilde{\alpha} + \sum_{i=1}^3 \tilde{\beta}_i \Delta EXP_{t-i} + \sum_{j=1}^3 \tilde{\gamma}_j \Delta GDP_{t-j} + \tilde{\delta} \Delta TOT_t + \tilde{\phi} \Delta CAP_t + \tilde{\varphi} POP_t + \tilde{\eta} \Delta WOP_t + u_{1t} \quad (2)$$

where $u_{1,2t} \sim i.i.d.(0, \sigma^2)$ and Δ denotes the first differencing of the time series.

Empirical Results

The following are the estimation results for the two equations (1) and (2). In reporting the empirical results, the overall- F statistic represents the calculated F -statistics with the p-value in parentheses, testing the null hypothesis that all coefficients of the equation are equal to zero. The partial- $F_{i,j}$, statistic, $i=1, 2$ and $j= 1, 2$, represents the calculated partial $F_{i,j}$ -statistics with the p-value in parentheses, testing the null hypothesis that all of the coefficients of a group are equal to zero. The t -statistics are reported with “*” and “**” indicating the 5 percent and 10 percent significant levels as evidenced by the p-values, respectively.

As to the Pakistani GDP growth, equation (1), the estimation results further reveal that, based on the t-statistic = 11.4229, the null hypothesis that $\beta_1=0$ should be rejected at 1 percent level of significance; while the partial- $F_{1,1} = 112.12$ indicates the null hypothesis that $\beta_1 = \beta_1 = \beta_1=0$ should also be rejected at any conventional significant level. These findings suggest that the Pakistani exports affect its economic growth. Moreover, point estimate reveals that changes in the real GDP two years earlier inversely affects the current year's real GDP, as evidenced by the t-statistic. Finally, the empirical results show that the capital formulation strongly influences the real GDP, the Pakistani population and the real GDP of the advanced economies marginally affect the Pakistani real GDP. The Pakistani terms of trade does not contribute to its economic development as measured by the growth of real GDP.

In regard to the question of the dynamic causality between Pakistani exports and real GDP-growth, based on the t-statistic = 4.06, the null hypothesis that $\tilde{\gamma}_1=0$ should be rejected at any conventional significant level. Also, the partial $F_{2,2} = 10.97$ indicates the null hypothesis that $\tilde{\gamma}_1=\tilde{\gamma}_2=\tilde{\gamma}_3=0$ should also be rejected at 1 percent level of significance. These findings suggest that the Pakistani GDP-growth also affects its exports. Additionally, the empirical results reveal that the capital formulation and labor contribute to Pakistani exports; while the terms of trade and the real GDP of the advanced economies do not affect its exports.

Table 2: Estimation Results-Equations (1) and (2)-Pakistani Annual data: 1970-2011

<u>Equation (1)-Dependent Variable: GDP_t</u>				<u>Equation (2)-Dependent Variable: EXP_t</u>			
<i>Coefficient</i>	<i>Estimate</i>	<i>t-statistic</i>	<i>p-value</i>	<i>Coefficient</i>	<i>Estimate</i>	<i>t-statistic</i>	<i>p-value</i>
α	-0.2976	-1.2966	0.1948	$\tilde{\alpha}$	-1.0491	-2.1284*	0.0333
β_1	1.2358	11.4229*	0.0000	$\tilde{\beta}_1$	0.4698	2.0222*	0.0432
β_2	0.1091	0.6720	0.5016	$\tilde{\beta}_2$	0.2718	0.7796	0.4356
β_3	-0.2860	-2.6157	0.7614	$\tilde{\beta}_3$	-0.3623	-1.5428	0.1229
$H_0 : \beta_1 = \beta_2 = \beta_3 = 0$ <i>Partial</i> - $F_{1,1} = 112.1167$; (p-value = 0.0000)				$H_0 : \tilde{\beta}_1 = \tilde{\beta}_2 = \tilde{\beta}_3 = 0$ <i>Partial</i> - $F_{2,1} = 4.7317$; (p-value = 0.0027)			
γ_1	0.0200	0.3037	0.7614	$\tilde{\gamma}_1$	0.5720	4.0558*	0.0001
γ_2	-0.1376	-2.1296*	0.0332	$\tilde{\gamma}_2$	-0.2005	-1.4449	0.1485
γ_3	-0.0243	-0.4728	0.63637	$\tilde{\gamma}_3$	-0.1600	-1.4523	0.1464
$H_0 : \gamma_1 = \gamma_2 = \gamma_3 = 0$ <i>Partial</i> - $F_{1,2} = 4.3934$; (p-value = 0.0043)				$H_0 : \tilde{\gamma}_1 = \tilde{\gamma}_2 = \tilde{\gamma}_3 = 0$ <i>Partial</i> - $F_{2,2} = 10.9669$; (p-value = 0.0000)			

δ	-0.0908	-1.1592	0.2464	$\tilde{\delta}$	-0.1000	-0.5946	0.5521
ϕ	0.4698	7.0242*	0.0000	$\tilde{\phi}$	0.2938	2.0457*	0.0408
φ	0.3465	1.8739**	0.0609	$\tilde{\varphi}$	1.5788	3.9769*	0.0001
η	-0.8828	-1.9196**	0.0549	$\tilde{\eta}$	0.7955	0.8057	0.4204
Overall $F = 25,423.9448$; (p -value = 0.0000)				Overall $F = 31,061.9495$; (p -value = 0.0000)			
Durban-Watson Statistic= 1.7501				Durban-Watson Statistic= 2.1125			

Notes: The overall-F statistic represents the calculated F-statistic with the p-value in squared brackets, testing the null hypothesis that all coefficients of the equation are equal to zero. The partial-F statistic represents the calculated F-statistics with the p-value in parentheses, testing the null hypothesis that each of the coefficients of a group is equal to zero. The t-statistics are reported with “*” and “**” indicating the 5 percent and 10 percent significant levels, respectively.

The above empirical results suggest that the dynamic causality between growths in the Pakistani exports and GDP is bidirectional. This finding indicates that, even in the age of globalization where export flows among nations grow exponentially and are fluid, Pakistani policy makers should consider incorporating some aspects of import-subsidized development strategy in their economic development process. This policy recommendation is based on the findings that the dynamic causality between Pakistani exports-GDP growths is bidirectional and how real terms of trade, capital, employment and the real foreign output affect them.

Concluding Remarks and Policy Recommendation

The seemingly unrelated estimation method is utilized to estimate the reduced-form of the simultaneous system of two equations governing the Pakistani growths in real GDP and exports. This equation specification is to facilitate the inclusion to the growth in population as a proxy measure of the labor input in the production process. The purpose of this study is to investigate the nature of the dynamic causality between the country's growths in real GDP and exports as measured by the logarithmic real GDP and logarithmic exports over 1970–2011 and how real terms of trade, capital, population as proxy for employment and the real GDP of advanced economies (defined by the International Monetary Fund) as proxy for foreign output shock affect them.

The empirical results show that the dynamic causality between Pakistani export-GDP growths is bidirectional. This finding suggests that, even in the age of globalization where export flows among nations grow exponentially and are fluid, Pakistani policy makers should consider incorporating some aspects of import-subsidized development strategy in their economic development process. This policy recommendation is based on the findings that the dynamic causality between Pakistani exports-GDP growths is bidirectional and how real terms of trade, capital, employment and the real foreign output affect them.

References

- Awokuse, T. O. (2005-a). Exports, Economic Growth and Causality in Korea. *Applied Economics Letters*, 12, 693–696.
- _____ (2005-b). Export-Led Growth and the Japanese Economy: Evidence from VAR and Directed Acyclic Graphs. *Applied Economics Letters*, 12, 849–858.
- _____ (2003). Is the Export-Led Growth Hypothesis Valid for Canada? *Canadian Journal of Economics*, 36, 126–36.
- Balassa, B. (1978). Exports and Economic Growth: Further Evidence. *Journal of Development Economics*, 5, 181–9.
- Chan, C. S., Dang, V. O. T. (2010). Multilateral Trade and Export-Led Growth in the World Economy: Some Post-War Evidence. *Empirical Economics*, 38, 689–73.

- Dickey, D. A., Fuller, W. A. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root. *Journal of the American Statistical Association*, 74, 427–31.
- Dolado, J. J., Lütkepohl, H. (1996). Making Wald Tests Work for Cointegrated VAR Systems, *Econometric Reviews*, 15, 369–86.
- Marin, D. (1992). Is the Export-Led Growth Hypothesis Valid for Industrialized Countries? *Review of Economics and Statistics*, 74, 678–88.
- Osterwald-Lenum, M. (1992). A Note with Quartiles of the Asymptotic Distribution of the Maximum Likelihood Cointegration Rank Test Statistics: Four Cases. *Oxford Bulletin of Economics and Statistics*, 54, 461–72.
- Pakistan: A country Study. (1995). Federal Research Division, Library of Congress, Washington, D.C., US. Retrieved from <http://hdl.loc.gov/loc.gdc/cntrystd.pk>.
- Phillips, P. C. B., Perron, P. (1988). Testing for a Unit Root in Time Series Regression. *Biometrika*, 75: 335–46.
- Ram, R. (1987). Exports and Economic Growth in Developing Countries. *Economic Development and Cultural Change*, 36, 51–72.
- Shan, J., Sun, F. (1998). Export-Led Growth Hypothesis for Australia: an Empirical Re-investigation. *Applied Economics Letters*, 5, 423–8.
- Siliverstovs, B., Herzer, D. (2006). Export-Led Growth Hypothesis: Evidence for Chile. *Applied Economics Letters*, 13, 319–324.
- Singer, H. W. (1998). *Growth, Development and Trade*. Edward Elgar Publishing Company, UK.
- _____ (1993). Prospects for Development in Trade Transfer and Development. In S. Mansoob Murshed and Kunibert Raffer (eds.). *Trade, Transfers and Development*. Edward Elgar Publishing Company, UK.
- Taylor, L. (1999). Introduction. In L Taylor (eds.). *After Neoliberalism: What Next for Latin America?* The University of Michigan Press, US.
- *The World Factbook*. (2009). Central Intelligence Agency, Washington, DC, US.
- Toda, H. Y., Phillips, P.C.B. (1993). Vector Autoregressions and Causality. *Econometrica*, 61, 1367–93.
- Toda, H. Y., Yamamoto, T. (1995). Statistical Inference in Vector Autoregressions with Possibly Integrated Processes. *Journal of Econometrics*, 66, 225–50