

Openness and Economic Growth in Pakistan

MUSLEH-UD DIN, EJAZ GHANI, and OMER SIDDIQUE

1. INTRODUCTION

Trade and growth theories generally predict a positive relationship between openness to international trade and economic growth. There are a number of channels through which openness is thought to influence economic growth. First, a liberal trade regime enhances efficiency through greater competition and improved resource allocation. Second, greater access to world markets allows economies to overcome size limitations and benefit from economies of scale. Third, imports of capital and intermediate goods can contribute to the growth process by enlarging the productive capacity of the economy. Fourth, trade can lead to productivity gains through international diffusion and adoption of new technologies. Empirical studies on the relationship between openness and economic growth have largely supported the view that openness has a favourable impact on economic growth. It is not surprising, then, that the proposition that more open economies tend to grow faster has gained wide acceptance in academic as well as policy circles.

The objective of this paper is to examine the relationship between openness and economic growth in the context of Pakistan's economy. Section 2 reviews the literature on openness and economic growth. Section 3 provides an overview of trade liberalisation in Pakistan. Data and methodology are described in Section 4, while Section 5 presents the empirical results. Section 6 concludes the discussion.

2. REVIEW OF LITERATURE

The relationship between openness and economic growth has been examined extensively in the theoretical and empirical literature. To begin with, the standard trade theory demonstrates the static gains from trade through competition and specialisation according to comparative advantage. While these gains are captured in terms of the level of national output, these can nevertheless translate into growth

Musleh-ud Din, Ejaz Ghani, and Omer Siddique are Chief of Research, Senior Research Economist, and Staff Economist, respectively, at the Pakistan Institute of Development Economics, Islamabad.

effects as economies adjust to new equilibrium as a result of opening up to international trade. The insights into the dynamic gains from trade are provided by a wide variety of theoretical models in the tradition of 'endogenous growth theories' pioneered by Romer (1986) and Lucas (1988). In particular, Grossman and Helpman (1991); Edwards (1992); Romer (1992); Romer (1994); Barro and Sala-i-Martin (1995) and Coe and Helpman (1995), among others, argue that technological change can be influenced by a country's openness to trade leading to productivity gains and economic growth.

Theoretical advances in the trade and growth literature have been complemented by a growing body of empirical literature that has focused on the question of whether or not more open economies tend to grow faster. This literature can broadly be classified into two groups: (i) cross-country studies based on cross-section or panel regressions; and (ii) single-country studies based on time-series techniques. Earlier cross-country studies including Michaely (1977); Balassa (1978); and Tyler (1981), among others, focus on the role of exports in the process of economic growth. Based on a cross-section data of 41 less developed countries, Michaely (1977) uses the spearman's rank correlation to detect the association between export growth and economic growth, and finds evidence of a positive relationship between export growth and economic growth. Balassa (1978) develops several measures of exports and income to explore the relationship between export expansion and economic growth in a sample of 11 developing countries having a substantial industrial base. The overall results suggest that export growth favourably affects the rate of economic growth. Tyler (1981) analyses the empirical relationship between economic growth and export expansion in a sample of 55 middle income developing countries using inter-country cross section analysis. The results reveal a strong positive association between export growth and economic growth.

Recent cross-country studies utilise various indicators of openness to analyse their impact on economic growth. Prominent among these are Dollar (1992); Sachs and Warner (1995) and Edwards (1998).¹ Dollar (1992) uses two indices of trade orientation—an index of real exchange rate distortions, and an index of real exchange rate variability—and shows that each of these indices is negatively correlated with growth in a sample of 95 developing countries. Sachs and Warner (1995) construct a binary index of openness that takes into account various aspects of trade policies including, for example, average tariff rates, non-tariff barriers, and black market premium on exchange rates etc. Countries that are characterised as open according to this index are found to experience higher growth rates. Edwards (1998) examines the robustness of the openness-growth nexus to the use of different indicators of openness utilised in the previous studies, and concludes that there is a significant positive relationship between openness and productivity growth. In a more recent contribution, Yanikkaya (2003) uses various measures of trade volumes

¹For a detailed review of these studies, see Rodrigues and Rodrik (1999).

and trade restrictions as alternative indicators of openness in a panel of 100 developed and developing countries. The study finds evidence of a positive relationship between openness and economic growth when trade volumes are used as an indicator of openness. However, contrary to the conventional view, the study finds a positive relationship between measures of trade barriers and economic growth.

A common feature of the above studies is their reliance on estimations based on cross-country growth averages of diverse groups of economies which differ in terms of their socio-economic characteristics, institutions, and policies. Since individual country experiences can be quite different, these studies are unable to identify country-specific parameters in the openness growth nexus. Consequently, a number of studies have focused on individual country experiences based on time series data. Jung and Marshall (1985) and Chow (1987) are among the earlier studies along this line. Using time series data for 37 developing countries, Jung and Marshall (1985) find a significant relationship between export growth and economic growth in only 4 countries. Chow (1987) applies Granger causality tests on time series data of 8 newly industrialised countries to investigate the causal pattern between export growth and growth in manufacturing output. The study finds evidence of bi-directional causality in the case of Brazil, Hong Kong, Israel, Korea, Singapore, and Taiwan; and no causality in the case of Argentina.

Another strand of literature has exploited the recent advances in time series techniques to assess the role of international trade in the process of economic growth. In particular, these studies have addressed the problem of non-stationarity of variables through unit root testing and the Error Correction Modelling (ECM) approach, due to Engle and Granger. Notable among these are Marin (1992); Bahmani-Oskooee and Alse (1993); Henriques and Sadorsky (1996); Dutt and Ghosh (1996); Al-Yousif (1996), and Xu (1996). In general, these studies have found evidence of a positive association between export growth and economic growth. While these studies focus exclusively on the role of exports, other time-series studies have used a broader measure of openness that includes both exports and imports. For instance, Anorou and Ahmad (1999) examine the relationship between openness and economic growth for five ASEAN countries, and find evidence of cointegration between openness and economic growth for all countries. Similarly, Piazzolo (1995) explores the macroeconomic determinants of economic growth in Korea, and reports a positive association between openness and economic growth while controlling for other determinants of economic growth.

A few studies have investigated the impact of openness on economic growth in Pakistan using time-series techniques. Iqbal and Zahid (1998) employ a multiple regression framework to investigate macroeconomic determinants of growth in Pakistan including openness. The results suggest that openness has a beneficial impact on economic growth. However, the study adopts ordinary least squares as the

estimation methodology without investigating the stationarity properties of the time-series. The results, therefore, are prone to the problem of spurious regressions. Khan, Malik, and Hasan (1995) examine the causality between exports and economic growth in Pakistan. The study finds support for the view that exports promote economic growth. Kemal, Din, and Qadir (2002) also examine the relationship between exports and economic growth in South Asian economies including Pakistan, and find a positive association between exports and economic growth for all countries. A major shortcoming of these studies is the omission of imports, which are believed to play an important role in the process of economic growth.

3. TRADE LIBERALISATION IN PAKISTAN²

Like many other developing economies, Pakistan followed an import substituting industrialisation strategy in the initial stages of its development, not least because of the need to establish a diversified industrial base. In the early years, tariffs on consumer goods were set higher than the tariffs on intermediate and capital goods. This cascaded tariff structure obviously favoured the consumer goods industries by restricting the import of consumer goods and hampered the establishment of capital goods and intermediate goods industries since imports of these goods were either freely allowed or were subject to low tariffs. Furthermore, the policy regime during the early years was characterised by an excessive reliance on economic controls in the form of administered prices, industrial licensing, and a host of other regulations.

Development strategy during much of the Sixties continued to be heavily biased towards promoting industrial growth in Pakistan through protectionist trade policies. The government maintained an over-valued exchange rate to ensure the cheap availability of capital goods and other imported inputs to the industrial sector. Also, by keeping prices of agricultural inputs at below world market prices, it made domestic raw materials available to the industrial sector at very cheap prices. This, together with the policy of import controls and tariffs, tax concessions such as tax holidays, accelerated depreciation allowances, and loans at very low interest rates, markedly accentuated the pro-industrial bias in the growth strategy. To further help its industrialisation drive, the government adopted a series of measures to promote exports of manufactured goods. The most significant measure was the introduction of Export Bonus Scheme (EBS), which subsidised manufactured goods exports through a system of bonus vouchers.³ Furthermore, preferential access to credit and a host of fiscal incentives were part of a policy package meant to enhance export competitiveness.

²This section draws mainly on Kemal, Din, and Qadir (2003). For a more detailed account of the process of trade liberalisation in Pakistan, see Khan (1998).

³The bonus vouchers often carried a high premium in the market as import licenses were automatically issued against the vouchers. More than 80 percent of the total export subsidies were accounted for by this scheme [Kemal (1978)].

These policies not only led to robust growth in the exports of manufactured goods, but also helped diversify the product composition of Pakistan's exports.

The incentives provided to manufactured goods exports were partly meant to offset the anti-export bias inherent in the policy of import substituting industrialisation followed during most of the decade, barring a few years when import regime was liberalised somewhat.⁴ While protectionist policies did contribute to industrial diversification and growth, these had several shortcomings. In particular, protection of domestic industry through high rates of effective protection led to inefficiencies in domestic production, prevented the country to realise its full export potential, and contributed to a worsening of the country's balance of payments (mainly because of the fact that increase in machinery and raw material imports outweighed growth in exports).

During the Seventies, the government continued its efforts to reduce the anti-export bias. In particular, the rupee was devalued and the coverage of the import licensing system was curtailed. While these measures bolstered Pakistan's export earnings, the country continued to face serious balance of payments difficulties, due mainly to a fourfold increase in the country's import bill in the wake of oil price shocks. The persistent deficit in the balance of payments necessitated large external loans to plug the gap in external payments and receipts, leading to mounting external debt.

The economic policies during the Eighties accorded high priority to the restoration of business confidence, which was considerably eroded in the previous decade due to the nationalisation of large-scale enterprises. In particular, the government initiated wide ranging structural reforms as part of the Structural Adjustment and Stabilisation Programmes that aimed at liberalising and deregulating the economy, and streamlining the investment licensing procedures. The adoption of these programmes led not only to adjustments in demand management policies but also to major changes in industrial and trade policies in the form of deregulation, privatisation, and trade liberalisation. One of the major objectives of the industrial policy was to address the structural weaknesses of Pakistan's industrial sector which stemmed from years of import substituting industrialisation, and the nationalisation policy of the Seventies. In addition, emphasis was also placed on improving the viability of Pakistan's industrial sector in an increasingly competitive international economic environment. A host of measures including fiscal incentives, tax holidays, de-licensing of investment regimes, and reduction of tariffs on capital goods were adopted to encourage private investment. A major departure in economic policy from the previous decades was the adoption of a managed floating exchange rate system. The transition to the new system led to an adjustment in the rupee which boosted Pakistan's exports.

⁴To a large extent, import liberalisation was made possible by the increase in foreign loans and grants. The process of import liberalisation, however, had to be abandoned owing to drastically reduced foreign aid inflows in the wake of the 1965 war with India.

The process of trade liberalisation continued in the Nineties as the government undertook significant steps to reform the foreign trade regime including rationalisation of the tariff structure, reduction of non-tariff barriers, and simplification of import procedures. Pakistan made major strides in reforming its tariff structure: the maximum tariff on imports came down from 225 percent in 1986-87 to 70 percent in 1994-95. In the latter half of the decade, Pakistan made substantial progress in eliminating or reducing non-tariff barriers to trade: in 1999, there were only 32 products (HS 4-digit level) on the negative list, and import of 28 products was restricted for health and safety reasons. The government abolished the restricted list, which enlisted products that could only be imported through designated importers, and lifted the licensing requirements for goods outside the negative list. Prior to the broad based economic reforms, Pakistan's import regime was characterised by complexity, discretionary powers that frequently granted exemptions and concessions, and limited transparency. These issues were also addressed in the structural adjustment programmes and efforts were made to phase out tariff concessions and exemptions, and to improve transparency through simplification of import procedures.

The thrust of Pakistan's trade policies in recent years continues to be greater openness through trade liberalisation with minimal tariff and non-tariff barriers and the market based exchange rate system. The average tariff on dutiable imports (excluding duty free imports) fell from 23 percent in 1996-97 to 17 percent in 2001-01 (Table 1). On the other hand, the average tariff on total imports (including duty free imports) declined from 17 percent in 1996-97 to 11 percent in 2000-01. The ongoing trade liberalisation programme comprises reduction of import tariffs, simplification and rationalisation of tariff structure, and deregulation of administrative controls including quantitative restrictions on imports. The maximum rate of custom duty has been reduced to 25 percent⁵ with only 4 tariff slabs, para-tariffs have been eliminated and the scope of the negative list has been drastically reduced over the years; imports being restricted generally on very specific religious, health, and security considerations. Pakistan has adopted a market-based exchange rate system to bring about equilibrium in the balance of payments.

In keeping with its obligations under the WTO, Pakistan has completely dismantled its apparatus of quantitative restrictions, and tariffs are now the main trade policy instrument. All items are freely importable except for a few items on the negative list whose import is not permissible unless specifically authorised. Licenses are not required for any importable items including those subject to specific conditions. In addition to significant trade liberalisation measures, the government has taken a number of steps to simplify the trade regime and to facilitate trade. In the process of rationalisation and reduction of statutory rules and orders, a large number

⁵However, there are few exceptions that relate to automobiles and alcoholic beverages.

Table 1

Recent Tariff Reforms

Year	Maximum Rate (%)	Number of Slabs	Average Rate (%) ^a	Average Rate (%) ^b
1996-97	65	13	23	17
1997-98	45	5	21	16
1998-99	35	5	18	14
1999-00	35	5	18	12
2000-01	35	5	17	11

Source: National Tariff Commission.

^aTotal customs duty collected divided by value of dutiable imports.

^bTotal customs duty collected divided by value of total imports.

of import tariff-related user specific notifications have been rescinded, repealed, or allowed to lapse. The outlook for further trade liberalisation appears promising as the government is committed to maintaining the liberalisation process with a view to improving its growth prospects through greater trade and investment flows.

4. DATA AND METHODOLOGY

The analysis is based on annual time series data on real exports, real imports, and real GDP, obtained from the World Development Indicators CD-ROM (2003) for the period from 1960 to 2001. Following convention, we use exports plus imports as a measure of openness.

Within a bivariate vector auto-regression (VAR) framework, the concept of Granger causality⁶ is employed to examine the relationship between openness and economic growth. In the presence of non-stationary time series, as is the case with most macroeconomic variables, the recommended approach to testing for the Granger causality is the Co-integration and Error-Correction framework, due to Engle and Granger (1987). An error-correction model combines the short run dynamics with the long run properties of the data and thus provides a convenient tool for investigating short run as well as long run causal patterns. The error-correction models are formulated as follows:

$$\Delta y_t = a_0 + b_0 \varepsilon_{t-1} + \sum_{i=1}^m c_{0i} \Delta y_{t-i} + \sum_{j=1}^n d_{0j} \Delta z_{t-j} + u_t \quad \dots \quad (1)$$

$$\Delta z_t = a_1 + b_1 \varepsilon'_{t-1} + \sum_{i=1}^p c_{1i} \Delta z_{t-i} + \sum_{j=1}^q d_{1j} \Delta y_{t-j} + u'_t \quad \dots \quad (2)$$

⁶In a 2-variable universe, χ is said to cause y in the Granger sense if the one-step ahead forecast of y improves by taking into account the historical values of χ .

Where Δ is first difference, y is GDP, z denotes openness, and ε and ε' are the error-correction terms—the stationary residuals from the co-integrating relationships that capture the adjustment of variables towards a long run equilibrium.

5. EMPIRICAL RESULTS

Prior to conducting tests for causality, the stationarity properties of the data are checked using the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) testing procedures for the unit roots. Both the variables are in natural logs, so that first differences of these variables reflect rates of change. Table 2 reports the results of the ADF and PP unit root tests. Both these tests indicate the acceptance of the unit root hypothesis in the levels of real GDP and openness. To determine the order of integration of the time series, unit root tests are applied on first differences as well. The results indicate that the first differences of these variables are on a stationary process, and hence these are integrated of order 1, i.e. $I(1)$.

Table 2

Unit Root Tests for Log of GDP and Openness

Variables	No. of Observations	Augmented Dickey Fuller Test		
		No Intercept No Trend	Only Intercept	Trend and Intercept
GDP				
Level	40	4.67	-2.29 ^a	-0.52 ^a
1st Difference	39	-1.07	-3.33	-4.15
Openness				
Level	40	1.90 ^a	-0.98 ^a	-2.58 ^a
1st Difference	39	-4.69	-5.49	-5.44
Variables	No. of Observations	Phillips Perron Test		
		No Intercept No Trend	Only Intercept	Trend and Intercept
GDP				
Level	41	11.29	-2.31 ^a	-0.6
1st Difference	40	-1.47	-5.51	-6.13
Openness				
Level	41	2.35 ^a	-0.94 ^a	-2.48 ^a
1st Difference	40	-5.5	-6.03	-5.95

Note: ^a indicates that the variable is stationary in first difference, i.e., $I(1)$, at 5 percent.

Having determined the order of integration of the two variables, Engle and Granger (1987) two-step procedure is employed to ascertain whether or not the variables are co-integrated. In the first step, the following equation is estimated by OLS:

$$y_t = \alpha_0 + \alpha_1 z_t \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad \dots \quad (3)$$

In the second step, ADF and PP tests are applied on the residuals obtained from (3), which indicate that the residuals are stationary and hence openness and economic growth are cointegrated i.e. there exists a long run equilibrium relationship between the two variables⁷ (Table 3). According to the Granger representation theorem [Engle and Granger (1987)], a system of cointegrated variables has an error-correction representation that combines the short run dynamics of the variables with their long run properties as implied by the cointegrating relationship. Consequently, error-correction models (ECM) are estimated to determine the direction of causality between openness and economic growth.

Table 4 reports the results of Granger causality tests based on error correction models. Column 2 indicates the number of lags in the ECMS, chosen on the basis of Akaike's information criteria, column 3 provides the t-statistics for the error-correction terms, while column 4 contains the F-statistics for the joint significance of the lagged independent variables in the causality equations. The statistical significance of the co-efficient of the error-correction term and the F-statistic is used to detect the presence of long-run and short-run causality respectively. While short-run causality in either direction is not detected, there is strong support for long-run bidirectional causality between openness and economic growth. The absence of short-run causality seems to suggest that short-run variations in openness and growth rates may be dominated by business cycle fluctuations with no clear causal pattern in the short run.

On the other hand, the presence of long-run bidirectional causality indicates that both openness and economic growth reinforce each other. More specifically, greater openness leads to higher growth, thanks to the benefits arising from competition, specialisation and economies of scale, and to productivity improvements made possible by access to advanced technologies. Furthermore, the evidence that openness is driven by higher economic growth also seems plausible, and is in line with Frankel and Romer (1999) and others who argue that countries which experience more rapid growth due to reasons other than openness may engage in more international trade.

⁷As the Engle-Granger procedure is sensitive to the choice of the dependent variable in the cointegrating equation, residuals from the estimated equation $Z_t = \beta_0 + \beta_1 y_t$ are also tested and found to be stationary (see Table 3).

Table 3

Tests for Cointegration

Cointegrating Equation	Coefficient		Adjusted R-squared	ADF-test	PP-test
	Constant	(Independent Variable)			
$y_t = \alpha_0 + \alpha_1 z_t$	-8.68 (-5.11)	1.38 (-20.58)	0.91	-2.53 ^a	-2.38 ^a
$z_t = \beta_0 + \beta_1 y_t$	7.95 (-9.37)	0.66 (-20.58)	0.91	-2.65 ^a	-2.51 ^a

Note: Values in parentheses are t-statistics.

^a Indicates that the residuals from the cointegrating equations are stationary at 5 percent.

Table 4

Causality Results Based on Error-Correction Models

Direction of Causation	No. of Lags Used	EC Term:	
		t-statistic	F-Statistic
Openness to GDP	3	-2.10 ^a	1.48
GDP to Openness	3	-2.34 ^a	0.28

Note: ^a Indicates significance at 5 percent.

6. SUMMARY AND CONCLUSIONS

Opening up of economies to international trade is generally viewed as an effective strategy for accelerating economic growth. Like many developing countries, Pakistan has also moved towards greater openness through trade liberalisation. The objective of this study, therefore, has been to empirically examine the relationship between openness and economic growth in Pakistan. In doing so, the concept of Granger causality is employed to determine the direction of causation between openness and economic growth, duly taking into account the stationarity properties of the time series data. Tests for the existence of unit roots confirm that both real GDP and openness are non-stationary processes that are integrated of order 1. Furthermore, there is evidence of a long-run equilibrium relationship between openness and economic growth. An error-correction model is estimated to investigate the short-run as well as long-run causal patterns. The results indicate the absence of causality between openness and economic growth in the short run. This suggests that short-run variations in openness and growth rates may be dominated by business cycle fluctuations with no clear causal pattern in the short run. However, the evidence of bidirectional causality between openness and economic growth in the long-run indicates that both openness and economic growth reinforce each other in a longer term perspective.

Before concluding, it is important to spell out two major limitations of our analysis. First, the Granger causality approach is based solely on the statistical properties of the data and not on the structural relationships implied by economic theory. Hence, it sheds no light on the structural parameters of openness and economic growth nexus. Second, it is well known that a variety of economic, institutional and political factors influence the process of economic growth. Therefore, a multivariate model may be more appropriate to examine the relationship between openness and economic growth while controlling for other relevant factors. Future research in this direction is expected to provide more insights into the role of openness in the process of economic growth.

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