Trade, Growth and Povety: A Case of Pakistan

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Abstract: It is generally argued that open trade is crucial for economic growth and development. The economic literature also argues that growth is an important option for reducing poverty in developing countries. The paper analyzed the causality between the trade, growth and poverty for Pakistan using annual time series data from 1973-2009. Granger causality results based on Error-Correction Models have shown that in the case of Pakistan there exists two way relationship between trade and growth in the long-run but for the short-run growth enhance the trade. For the growth and poverty, there exists long-run relation from growth to poverty while for the short-run there exists no relationship. It may be concluded that international trade can play an important role towards growth and ultimately alleviation of poverty. From the policy perspective government should focus on trade.

Keywords: Trade Openness, Economic Growth, Poverty, Error-correction Model, Pakistan.

JEL Classification: F14, F41, O19, I3.

1. Introduction

A considerable body of literature has suggested a strong link between international trade, economic growth and poverty[1]. Conceptually, removal of trade restrictions help to stabilize the development process by improving efficiency and economic returns from distorted factor prices to production frontiers. Trade openness improves domestic technology hence production process becomes more efficient, and productivity is raised. Frankel and Romer [1999] suggested that trade influence growth both by increasing human and physical capital and by boosting total factor productivity. Another aspect of the channel is change in the composition of exports overtime, i.e. from traditional to non-traditional, from primary to high value-added commodities. Similarly, trade and growth relations may occur through investment, alternatively trade openness may provide greater access to investment (Levine and Renelt 1992). Countries that liberalize their external sectors and reduce impediments to international trade can experience relatively higher economic growth. It is also argued that an open trade regime is crucial for economic growth and development (Craft 2000).

For Pakistan, Khan and Qayyum (2007) examined the impact of trade and financial policies and real interest rate on real GDP. The results revealed that trade liberalization, financial development and real interest rate exerted positive impact on real GDP. The study also found a positive impact of trade openness on growth both in the long and in the short-run (See also, Nath and Al-mamun 2004 for Bangladesh).

The studies proposed openness to international trade as important policy options to reduce poverty in developing countries through economic growth[2]. Dollar and Kraay (2002) examined the impact of growth-enhancing policies on the income of the bottom 20 percent of the income distribution, after controlling for their impact on mean income, in a panel of 80 countries and four decades. They found a one-to-one relationship between the growth rate of income of the poor and the growth rate of per-capita income, but also quite a lot of variation around that average relationship. Dollar and Kraay (2004) identified a group of developing countries that were participating more in globalization. They found a strong positive effect of trade on growth and shrink in poverty (See also, Neutel and Heshmati 2006). The evidence supports the view that globalization leads to faster growth and poverty reduction in poor countries. But the results are questioned on a number of grounds, i.e. the countries differ in trade volume due to geographic characteristics, such as their proximity to major markets, their size and whether they are land locked or not (Rodriguez and Rodrik 2000). It leads to need for probe the trade, growth and poverty relation for individual countries.

In empirical literature, the contradicting results regarding impact of international trade, openness and globalization on growth (and vice versa), poverty and inequality, also exist. For example, Anwar (2002) found that globalization did not lead to poverty reduction in Pakistan. Theoretically they are based on the fact that across countries, trade volumes are correlated with a wide variety of other factors that may matter for economic growth, and it is difficult to adequately control for all these factors in order to isolate the partial effect of trade on growth. Levine and Renelt (1992) systematically examined this issue for a large number of variables used in the empirical growth literature and concluded that trade volumes are not robustly correlated with growth. Rodriguez and Rodnik (2000) applied the same criterion for impact of trade on growth and reached similar results.

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[1] See for instance, Craft (2000); Agenor (2002); Santarelli and Figini (2002); Nath and Al-Mamun (2004); Siddiqui and Iqbal (2005); Neutel and Heshmati (2006); Anwar (2007).

[2] See for instance, Bourguignon and Morisson (1990); Li, Squire and Zou (1998); Barro (2000); Dollar and Kraay (2002, 2004) and Lundberg and Squire (2003).

Regarding income inequality the economic literature argued that poor people's share amply in the gains from external trade in developing countries. Neutel and Heshmati (2006) found that globalization leads to poverty reduction and decrease in income inequality. Dollar and Kraay (2004) found that increase in growth rate that accompanies expanded trade on average transfer into proportionate increase in income of the poor. On the other hand various authors, including Chen and Ravallion (1997) and Deininger and Squire (1996) have documented the striking absence of any correlation between (changes in) income and (changes in) inequality (see also, Dollar and Kraay 2002). Different econometric techniques have been used to probe the matter empirically, including cross-country comparisons, aggregate time series analyses at the country level, and simulation methods using both partial and general equilibrium analyses. A common feature of all these methods is that they attempted to measure the impact of trade openness on some aggregate measure of inequality or poverty. The results of empirical and theoretical analysis of the trade are different for developing and developed countries. We will focus on the link between trade, economic growth and poverty in Pakistan as a case study.

2. Theoretical Framework and Methodology

This theoretical framework will enable us to develop the model having relationship between trade, GDP growth, and Poverty. Economic literature argued that there are essentially three sources of economic growth, i.e. i) growth in inputs of production, ii) improvements in the efficiency of allocation of inputs across economic activities, and iii) innovation that create new products, new uses for existing products, or brings about more efficient use of inputs. Open to trade and investment contributes to each of the three sources of growth[3]. There are sub-channels linking trade to growth like exports, imports and foreign direct investment. A focus on export-oriented policies leads to capital flow towards export-potential industries of the country resulting into better utilization of resources, improved factor productivity and high economic growth. In the channel of imports to growth, the free trade facilitates the imports of capital goods which support economic growth. Though the imports-substitution policy, competition promotes both efficiency and productivity. Similarly long-term capital inflows through FDI lead to higher competition and innovation encouraging domestic firms to reduce cost. In terms of foreign portfolio investment, higher growth rate is likely to occur as investment is encouraged.

There is a variety of plausible reasons for the causation from growth to trade. For example, an economy enjoys a surge in growth, more firms may attain the size necessary to break into export markets, so that exports are increased. At the microeconomic level, there is convincing evidence of reverse causation in the sense that much of the observed correlation between firm performance and exports is driven by larger and more productive firms self-selecting into export markets (Clerides, et. al. 1997). Growth is considered central or the best course to reduce poverty, with the precondition that access to education, health and social services are available to all through other policies (World Bank 1990). Economic growth is the surest way for developing countries to generate resources they need to face unstable finance markets and global crisis as well as to make availability of energy and food and to address their illiteracy, poor health and devastating environment. Economic growth plays an important role to mitigate other aspects of poverty like local conflicts, terrorism, illegal immigration, epidemic disease and international crimes like trafficking of human beings and narcotics. However

[3] See Sach and Warner (1995); Santarelli and Figini (2002) and Acemogen and Ventura (2002).

there is no reason to presume that economic growth has the same effect on poverty everywhere and all the times, even the mechanics operate in the same intensity.

The allegedly beneficial effect of economic integration on poverty can be assumed to stem from Foreign Direct Investment (FDI) as well if, due to lower levels of wages, production of low-skilled labor intensive goods moved to the developed economies. However, it is important to stress that, as shown by Feenstra and Hanson (1997), de-location could involve activities that are low-skilled labor intensive for the investing developed country but high-skilled labor intensive for the host developing country, hence overturning the effects of globalization on inequality and poverty.

Another argument in favor of the beneficial effects of trade on poverty reduction is put forward by Bhagwati and Srinivasan (2002), who point out that if a country wants to maintain an export-led development strategy, that is, if a country wants to rely on free trade, it must maintain a framework of macroeconomic stability. Because stability implies low inflation, it is another channel through which trade affects the poor positively, since the poor tend to be hardest hit by high inflation.

Acemoglu and Ventura (2002) provide another theoretical argument in support of the view that international trade leads to a stable world income distribution (though reducing poverty) even in the absence of diminishing returns in production and technological spillovers. This is because specialization and trade introduce *de facto* diminishing returns to capital accumulation at the country level, whereas those at the world level remain constant. Accordingly, cross-country variation in economic policy and technology contribute to determining the world growth rate. The shape of the world income distribution is therefore affected by the degree of openness to international trade and all countries grow at the same pace (due to the terms of trade effect) with different income levels determined by the use of different technologies. We will see the case for Pakistan as it has particular level of technology along with economic enthusiasm for FDI and export-oriented policies comparing with other developing economies.

2.1 Data and Model Specifications

The main objective of the study is to explore the links between trade, growth and poverty in Pakistan. We will use annual time series data of Pakistan for the years 1973 to 2009 taken from Pakistan Economic Survey. To see the short-run and long-run relationship in the models unit root rest, co-integration test and Granger causality tests will be used.

A stationary time series is one whose basic properties do not change over time, while a non stationary variable has some sort of upward or downward trend. Most of the economic variables exhibit a non-stationary trend such as real GDP and international trade balances. If variables are non-stationary then it will inflate R^2 and the t score, in this condition regression known as spurious regression means the results become meaningless. If a time series has a unit root (non-stationary), the first difference of such time series will be stationary. The augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller 1981) is used to examine the stationarity of the data set.

The augmented Dickey-Fuller (ADF) unit root test (Dickey and Fuller 1981) is used for this purpose. The ADF test is based on following regression:

$$\Delta y_t = \alpha + \beta t_{t-1} + \delta y_{t-1} + \sum_{i=1}^{n} \gamma_i \Delta y_{t-1} + \varepsilon_t$$

Where α is constant, t is a linear time trend, β, δ and γi *are* slope coefficients, εt is the error term. The null hypothesis of non-stationary series could be written as: $H0: \delta = 0$

On the other hand, the one-sided alternative hypothesis of stationary series could be expressed as: $H1: \delta < 0$

The lag length, *n*, for the ADF test was chosen by minimizing the Akaike's information criterion. The AIC criterion is defined as

$$AIC(q) = T \ln(RSS / n\text{-}q) + 2q$$

Where *T* is the sample size, *RSS* is the residual sum of squares, *n* is lag length; *q* is the total number of parameters estimated.

Johansen cointegration test is used to test the long-run movement of the variables. As Engle and Granger (1987) pointed out, only variables with the same order of integration could be tested for cointegration. Therefore, both variables are examined for cointegration. Only variables with the same order of integration can be tested for their cointegration. A standard test – Johansen cointegration test is used to check the long-run movement of the variables (Johansen 1988; Johansen 1991). The test is based on the maximum likelihood estimation of the K-dimensional Vector Autoregression (VAR) of order *p*,

We use the Trace (Tr) eigenvalue statistic and Maximum (L-max) eigenvalue statistic (Johansen 1988; Johansen and Juselius 1990). If trace eigenvalue test and maximum eignevalue test yield different results, the results of the maximum eigenvalue test should be used because the power of the maximum eigenvalue test is considered greater than the power of the trace eigenvalue test (Johansen and Juselius 1990). The order of VAR, *p*, in the error-correction model was chosen by minimizing the Akaike's information criterion.

Finally we use Granger causality test to analyze the causality between variables (Granger 1969). If both variables are integrated order one, I(1), and there is a cointegrating relationship between them, Granger causality test could be based on the following Vector Error Correction Models (VECMs)

$$\Delta Y_t = c_1 + a1\Delta Y_{t-1} + \ldots\ldots + a_k\Delta Y_{t-k} + b_1\Delta X_{t-1} + \ldots.. + b_k\Delta X_{t-k} + d_1 EC_{t-1} + u_1 \ldots\ldots\ldots.i$$

$$\Delta X_t = c_1 + a1\Delta X_{t-1} + \ldots\ldots + a_k\Delta X_{t-k} + b1\Delta Y_{t-1} + \ldots... + b_k\Delta Y_{t-k} + d_2 EC_{t-1} + u_2 \ldots\ldots...ii$$

Where Δ is a difference operator, EC_{t-1} is the one period lagged value of the error correction term; d_1 and d_2 are slope coefficient.

The null hypothesis for equation (i) is that X does not Granger cause Y. On the other hand, the null hypothesis for equation (ii) is that Y does not Granger cause X. The rejection of null hypothesis could indicate the causal relationship between the two variables. The lag length, k, was chosen by minimizing the Akaike's information criterion

There is advantage to use Granger causality test based on the VECM rather than the standard one, the significant correction term (*ECt-1*) could be interpreted as the long-run causal effects.

Since the future cannot predict the past, if variable X Granger cause variable Y, then change in X should precede change in Y. Therefore in a regression of Y on other variables including its past values itself, if we include past value of X then it is significantly improve the prediction of Y, and we can say that X Granger causes Y. Similar condition apply if Y Granger Cause X.

Short-run causality is tested by Granger causality developed by Toda and Yamamoto (1995). The advantage of using Toda and Yamamoto's technique of testing for Granger causality has some great advantage. Toda and Yamamoto (1995) proposed a simple procedure requiring the estimation of VAR, the Wald statics is valid regardless whether a time series is cointegrated or not. In this method we first set the optimal lag from VAR system then for Toda and Yamamoto technique to check causality the optimal lag becomes ($k+d_{max}$) where d= maximum order of integration while k=optimal lag determine by VAR. The Wald statics will be asymptotically distributed chi-square (χ^2), with degree of freedom equal to the number of "zero restrictions", irrespective of I(0), I(1), or I(2).

3. Empirical Results

The empirical results of the test are encouraging. They are discussed as below.

Before conducting tests for cointegration and causality, the stationarity properties of the variables have been checked by using Augmented Dickey-Fuller (ADF) unit root test. To determine the order integration of time series, unit root test is applied on level as well as on first difference. The table-1 shows the results of ADF unit root test. Stationarity of all variables has been tested with intercept and trend. Results indicate the acceptance of the unit root hypothesis in the level so time series become stationary in first difference, in other words all the variables are integrated of order one, I(1)

Table-1: ADF Unit Root Test for GDP Growth Rate, Trade Balance Growth Rate and Poverty

Variables	Level		First Difference	
	t-statics	critical value at 1%	t-statics	critical value at 1%
GDP	-4.061	-4.252	-8.466	-4.262
Trade	-0.683	-4.309	-6.223	-4.284
Poverty	0.257	-4.356	-5.792	-4.339

*indicates that the variables are stationary in first difference, i.e., I (1), at 1%

3.1 Link between Trade and Economic Growth

We have checked the cointegration between overall trade balance growth (TBG) and real GDP growth rate to explore the existence of long-run relationship between Trade and Growth. Akaike Information Criterion (AIC) is used to determine the optimal lag length selection.

Table-2: Results of AIC for Trade and Growth (Selection of Lag Length)

Lag Length	AIC
0	14.6038

1	14.6001*
2	14.7620
3	14.9588

* indicates optimal lag length

The AIC is again used to determine the most appropriate model specification for Johansen cointegration test.

Table-3: Results of AIC for trade growth (Selection of Optimal Model Specification)

Number of cointegration equations	Model 1	Model 2	Model 3	Model 4	Model 5
0	18.313	18.313	18.377	18.377	18.347
1	15.017	14.926	14.984	14.919*	14.978
2	15.252	14.983	14.983	14.976	14.976

*indicates optimal model specification

Cointegration tests have been applied and the results are reported in table-4. Both the Trace Eigenvalue test and Maximum Eigenvalue test indicate one cointegrating equation, which shows there exists a long-run relationship between trade and growth.

Table-4: Results of Johansen Cointegration Test for Trade and Growth

(Trace Eigenvalue Statistic)

Number of cointegrating equations	Eigenvalue	Trace statics	5% critical value
None*	0.976	132.246	25.872
At most 1	0.218	8.133	12.517

*indicates significance at 5% level

Table-5: Results of Johansen Cointegration Test for Trade and Growth

(Maximum Eigenvalue Statistic)

Number of cointegrating equations	Eigenvalue	Max statics	5% critical value
None*	0.976	124.11	19.387
At most 1	0.218	8.133	12.517

*indicates significance at 5% level

We have developed an error-correction model (ECM) for trade and growth to check the significance of error correction term, which may confirm the direction of causality between trade and growth in the long-run. The Wald test statics has also been estimated which determine the causality between trade and growth in the short run. The results have been shown in table-6. The t-static of error correction term for growth to trade and trade to growth is statistically significant indicating a long-run Granger causality in both directions. The Wald-static shows short-run causality from growth to trade only.

Table-6: Causality (Trade and Growth) Based on ECM and Wald Test Statics

Hypothesis	EC term (t-statics)	Wald test-statics
Trade does not cause Growth	-1.845**	2.270
Growth does not cause Trade	30.698*	7.732*

** and * indicate significance at 10% 5% respectively

3.2 Link between Economic Growth and Poverty

In this section we have checked the cointegration between growth and poverty to explore the long-run relationship between growth and poverty. Akaike Information Criterion (AIC) is used to determine the optimal lag length selection and selection of most appropriate model specifications for Johansen cointegration test. The results of AIC for selection of lag length and selection of optimal model specifications are shown in tables 7 and 8 respectively.

Table-7: Results of AIC for Economic Growth and Poverty

(Selection of Lag Length)

Lag Length	AIC
0	9.442
1	6.493

2	-2.595
3	-3.314
4	-3.177
5	-3.502
6	-3.699
7	-3.732*
8	-3.628

* indicates optimal lag length selected by AIC

Table-8: Results of AIC for Growth and Poverty

(Selection of Optimal Model Specification)

Number of cointegration equations	Model 1	Model 2	Model 3	Model 4	Model 5
0	-2.930	-2.930	-3.201	-3.201	-4.071
1	-3.337	-3.260	-3.590	-4.213	-4.554*
2	-2.990	-3.281	-3.281	-4.207	-4.207

*indicates optimal model specification

Results of the cointegration test are reported in table-9. Both the Trace Eigenvalue test and Maximum Eigenvalue test indicate one cointegrating equation, which shows that there exists long-run relationship between economic growth and poverty.

Table-9: Johansen Cointegration Test for Economic Growth nads Poverty

(Trace Eigenvalue Statistic)

Number of cointegrating equations	Eigenvalue	Trace statics	5% critical value
None*	0.564	19.148	18.397
At most 1	0.0009	0.021	3.841

*indicates significance at 5%

Table-10: Johansen Cointegration Test for Economic Growth and Poverty

(Maximum Eigenvalue Statistic)

Number of cointegrating equations	Eigenvalue	Max statics	5% critical value
None*	0.564	19.127	17.147
At most 1	0.0009	0.021	3.841

*indicates significance at 5%

The results in table-11 shows that the t-static of error correction term for poverty to growth is statistically significant indicating long-run Granger causality only from poverty to growth. The Wald-static shows no short run causality in both directions.

Table11: Results Causality (Growth and Poverty) Based on ECM and Wald test statics

Hypothesis	EC term (t-statics)	Wald test-statics
Growth does not cause Poverty	-1.183	4.432
Poverty does not cause Growth	2.414*	11.164

* indicate significance at 5%

4. Conclusion and Policy Implication

We analyzed the relationship between trade, growth and poverty for Pakistan. The main findings of the study can be summarized as:

- Unit root test indicated the acceptance of the unit root hypothesis for all variables, then time series become stationary in first difference, in other words all the variables are integrated of order one, I(1).
- Trade and growth are cointegrated with each other, long-run causality found in both directions i.e. from trade to growth and growth to trade, but in short run the causality exists only from growth to trade.
- Growth and poverty are cointegrated with each other, but the long-run causality is detected from growth to poverty, no short run causality is detected in either direction.
- So the findings show that growth has significant impact on trade but not on poverty.

It may be concluded that trade has significant impact on growth (and vice versa) and growth decrease the poverty (see also, Dollar and Kraay 2002). From the policy perspective government should focus on trade, particularly efforts are needed to increase imports of raw material and technology to increase the productivity. Export policies also need attention to further enhance the exports. By enhancing the trade, the growth benefits on poverty may be obtained.

References

Acemoglu, D. and J. Ventura (2002) "The World Income Distribution", *Quarterly Journal of Economics, 117(3): 659-94.*

Agenor, R. (2003) "Does Globalization Hurt the Poor", Policy Research Working Paper No. 2922. World Bank, Washington, D. C.

Anwar, T. (2007) "Growth and Sectoral Inequality in Pakistan: 2001-02 to 2004-05", *Pakistan Economic and Social Review, 45(2):141-154.*

Barro, R. J. (2000) "Inequality and Growth in a Panel of Countries", *Journal of Economic Growth, 5(1):5-32.*

Barro, R. J. (2002) "Quality and Quantity of Economic Growth", *Journal Economia Chilena, 5(2):17-36.*

Bhagwati, J. and T. S. Srinivasan (2002) "Trade and Poverty in the Poor Countries", *American Economic Review Papers and Proceedings, 92(2): 180-3.*

Bourguignon, F. and C. Morrison (1990) "Income Distribution, Development and Foreign Trade: A Cross-sectional Analysis", *European Economic Review, 34(6):1113-1132.*

Chen, S. and M. Ravallion (1997) "What Can New Survey Data Tell Us about Recent Changes in Distribution of Poverty", *The World Bank Economic Review, 11(2):357-382.*

Clerides, S., S. Lach and J. Tybout (1997) "Is Learning-by-Exporting Important? Micro Dynamic Evidence from Colombia, Mexico and Morocco", *Quarterly Journal of Economic, 103(3):903-948.*

Craft, N. (2000) "Globalization and Growth in Twentieth Century", IMF Working Paper No. 00/44. Research Department, IMF, Washington, D.C.

Deininger, K. and L. Squire (1996) "A New Data Set Measuring Income Equality", *The World Bank Economic Review, 19(3):565-591.*

Dickey, D. A. and W. A. Fuller (1981) "Likelihood Ratio Statistics for Autoregressive Time Series with a Unit Root", *Econometrica, 49:1052-1072.*

Dollar, D. and A. Kraay (2002) "Growth Is Good for the Poor", *Journal of Economic Growth,* 7(3):195-225.

Dollar, D. and A. Kraay (2004) "Trade, Growth and Poverty", *The Economic Journal, 114(2):22-49.*

Engle, R. F. and C. W. J. Granger (1987) "Cointegration and Error Correlation: Representation, Estimation and Testing", *Econometrica, 55:251-71.*

Feenstra, R. and G. H. Hanson (1997) "Foreign Direct Investment and Relative Wages: Evidence from Mexico's Maquiladoras", *Journal of International Economic*s, *42(3-4): 371-93.*

Frankel, J. A. and D. Romer (1999) "Does Trade Cause Growth", *American Economic Review, 89(3):379-399.*

Granger, C. W. J. (1969) "Investigating Causal Relations by Econometric Methods and Cross-Spectral Methods", *Econometrica, 34:424-438.*

Johansen, S. (1988) "Statistical analysis of cointegration vectors," *Journal of Economic Dynamics and Control, 12(2-3):231-254.*

Johansen, S. (1991) "Estimation and hypothesis testing of co-integrating vectors in Gaussian vector autoregressive models", *Econometrica, 59:1551-1580.*

Johansen, S. and K. Juselius (1990) Maximum Likelihood Estimation and Inference on Cointegration with Application to the Demand for Money. *Oxford Bulletin for Economics and Statistics 52, 169-210.*

Khan, M. A. and A. Qayyum (2007) *Trade Liberalization, Financial Development and Economic Growth.* Pakistan Institute of Development Economics, Islamabad. (Working Paper No.2007:19)

Levine, R. and D. Renelt (1992) "A Sensitivity-Analysis of Cross-country Growth Regression", *American Economic Review, 82(4):942-963.*

Lundberg, M. and L. Squire (2003) "The Simultaneous Evolution of Growth and Inequality", *Economic Journal, 113(4):326-344.*

Nath, H. and K. Al-Mamun (2004) "Trade Liberalization, Growth and Inequality in Bangladesh: An Empirical Analysis", Working Paper. Department of Economics and International Business. Sam Houston State University.

Neutel, M. and A. Hesmati (2006) "Globalization, Inequality and Poverty Reduction: A Cross-country Evidence", IZA Discussion Paper No. 2223. Institute of Study of Labor, Bonn.

Rodriguez, F. and D. Rodrik (2000) "Trade Policy and Economic Growth: A Skeptic Guide to the Cross-National Evidence" in Bernanke and Rogoff (eds.) Macroeconomics Annals 2000. MIT Press for NBER.

Sachs, J. D. and A. Warner (1995) "Economic Reform and the Process of Global Integration", *Brookings Papers on Economic Activity, 1:1-118.*

Santarelli, E. and P. Figini (2004) "Does Globalization Reduce Poverty", Working Paper ILO Project: Understanding Globalization, Employment and Poverty Reduction.

Siddiqui, A. and J. Iqbal (2005) "Impact of Trade Openness on Output Growth for Pakistan: An Empirical Investigation", *Market Forces, 1(1).*

Toda, H.Y. and T. Yamamoto (1995) "Statistical Inferences in Vector Auto-regressions with Possibly Integrated Processes", *Journal of Econometrics, 66:225-50.*

World Bank (1990) World Development Report 1990: Poverty. Oxford University Press, New York.