Journal of Economics and Sustainable Development
ISSN 2222-1700 (Paper) ISSN 2222-2855 (Online)
Vol.7, No.6, 2016

Can Trade Liberalization Stimulate Economic Growth, New Evidence from Jordan?

Masoud Ali Khalid* Munadhil Abdul Jabar Abdul Razaq
College of Financial & Administration- Department of Accounting & IT, Cihan University/ Sulaimani, Kurdistan Region Government/Iraq

Abstract
Trade liberalisation and economic growth in less developed countries over the last 20 years has often been implemented with the expectation of growth being stimulated; yet the evidence on its growth enhancing effects is mixed. This study evaluates changes in economic growth that are likely to result from changes in trade policies, FDI, population and exports in Jordan. Using an application of the autoregressive distributed lag model (ARDL). Our result shows that FDI, trade policies, and exports have a various impact on economic growth in the case of Jordan. This suggests that it is possible to stimulate economic growth in Jordan through an outward-looking strategy of FDI expansion. More significantly, the results suggest the importance as well as the need for Jordan to embark on trade liberalization policies in order to improve economic growth in the current world economy.
Keywords: Economic growth, Trade, FDI, Exports, ARDL model, Jordan.

Introduction

The role of trade policy in economic growth has been a key debate in the development literature for the last five decades. The evolution of thinking on trade orientation and economic growth has been charted by Krueger (1997). She emphasises the accumulation of evidence of a positive relationship between growth of GDP and the growth of exports, countries with a more open trade liberalization appearing to grow faster through time. Edwards 1998 has discussed that the positive correlation between trade and openness is robust to the measure of openness used, though Rodriquez and Rodrik (1999) challenge this conclusion, discussing that although there is little evidence linking inward oriented trade policies and economic growth, the evidence linking outward orientation and growth overstates the relationship between the two.

A possible relationship between trade openness and economic growth has been an important factor in motivating an unprecedented wave of unilateral trade reforms, with over 100 countries committing to some kind of trade liberalisation over the last 40 years. Many of these programmes have been voluntary; most however have been tied to the policy conditionality which is central to World Bank Structural Adjustment Loans.

In fact, trade reforms account for a higher proportion of loan conditions than any other area of trade policy. The fundamental rationale for this degree of commitment to programmes of trade reform is the obvious belief that trade liberalisation is a pre-requisite to a transition from a relatively closed to a relatively open economy. If openness is in fact positively related to economic growth, then it follows that trade liberalisation is a requirement for economic growth. In this study, we examine whether or not trade liberalisation appears to have A worked B in the sense of stimulating economic growth in the short run.

Although not as extensive as that on trade orientation and economic growth, there is a literature on trade liberalisation and short run economic growth. It is fair to say that this literature is inconclusive. Some studies have found a positive relationship; while, others have found no correlation, or even found a negative relationship. Some of the reasons why the literature is inconclusive which may be related to the fact that different analysts use different proxies for trade liberalisation and relies on various econometrics methodologies.

In addition, A positive and significant association between exports and economic growth has been found for some less developed nations and regions such as Balassa (1985), Ram (1985, 1987), Bhagwati (1988), Greenaway and Nam (1988), Alam (1991) and Salvatore and Hatcher (1992). Other literature have concluded that the positive association does not exist during periods of decrease in world demand, and that some basic level of income is necessary for lower-income nations to benefit from export expansion and outward oriented policies leading to growth by (Tyler, 1981; Feder, 1983; Helleiner, 1986; Singer and Gray, 1988; Kohli and Singh, 1989; Ahmad and Kwan, 1991; Odedokun, 1991)

Furthermore, the ARDL method facilitates the dynamic analysis of the interactions among the variables. Our results illustrated that trade policies, FDI, exports, and population have significant impact on economic growth in the case of Jordan. This finding leads and suggests that it is possible to stimulate economic growth through looking strategy of FDI expansion. The caveat is that this may require appropriate domestic policies that deemphasize import substitution.

The rest of the paper is structured as follows. Section 2 briefly reviews the empirical literature to date. Section 3 describes the used data, while Section 4 deals with the estimation technique and the empirical analysis of the results. Section 5 concludes the paper.

TRADE LIBERALISATION AND ECONOMIC GROWTH: A BRIEF REVIEW OF THE LITERATURE

There are some rather important complications associated with conducting any evaluation of trade liberalization. It is important to mention them, and there are three stands out. Firstly, what is the counterfactual? Should one just assume a continuation of pre existing policies and performance in the country concerned? In reality terms this might be all one can do, although it has an important shortcoming: many of those trade liberalizations which are policy conditioned are initiated at a time of crisis when pre-existing policies are in fact unlikely to be sustainable. Secondly, how does one disentangle the impacts of trade reforms from other policy shifts? Thirdly, supply responses and the process of adjustment will differ from economy to economy or even from country to country, and how long should one wait before conducting an assessment?

Generally speaking two approaches to evaluating the economic impacts of trade liberalization have been taken, time series and cross-country. The previous literature falls into two genres, "with-without" and "before-after". "With and without" has been focused by World Bank (1990) and Mosley et al. (1991a, 1991b). It involves taking a sample of countries subject to trade reforms–"Before-after" which is again focused by World Bank (1990) and Mosley et al. (1991a,1991b) is similar in some respects but introduces a time dimension in that it compares the "with and without? For a few years before and a few years after, in some cases, like (Papageorgiou et al., 1991), it is only the "with? That is evaluated, in that case for three years before and three years after. Time-series analysis is country specific and uses less or more complicated econometric methods such as. Harrigan and Mosley (1991), (Greenaway and Sapsford (1994), Greenaway et al. (forthcoming). Harrigan and Mosley (1991) focused on Structural Adjustment Loans (SALs) as one of a number of possible determinants of growth, investment, and export performance. Greenaway and Sapsford (1994) used a structural break method to examine whether trade liberalization appears to have a significant effect on economic growth.

By contrast, Greenaway and Sapsford (1994), (forthcoming) model growth as a smooth transition process then search for evidence of a coincidence of "take off" and liberalization. Despite the wide range of techniques have used, the broad country coverage and the wide range of trade liberalization experiences examined, a degree of consensus exists, with one notable but very influential exception. That exception is the Papageorgiou et al. (1991) study of 36 liberalization episodes in 19 nations. This can be read as very supportive of the view that liberalization is a panacea: it results in more rapid growth of real GDP or exports and it accomplishes this without serious transitional costs in unemployment and without significant impacts on the government's fiscal position. The veracity of these conclusions has been challenged by Collier (1993). The results are not convincing partly for methodological reasons, partly for moral hazard reasons.

Moreover Greenaway (1993) (forthcoming) looks specifically at the timing of the PMC episodes and can find no systematic evidence of a relationship between trade reforms and economic growth. In some cases there is a positive relationship; in other there is a negative relationship, in others there is an inconclusive result.

The remaining evidence seems to suggest the following results. Firstly, trade liberalizations and reform programs more specifically tend to be related with an improvement in the current account of the balance of payments and with an improvement in the growth rate of exports. Secondly, on balance, the impact on growth is ambiguous, meaning that both positive and negative growth impacts have been found. It means that, in some cases growth performance deteriorates: it may not have deteriorated by as much as it would have done in the absence of reform! Since adjustment lending programs are meant to improve growth. Thirdly, a proportion of countries which have undergone adjustment illustrate a subsequent improvement in investment and FDI. It is a minority while; the majority explain to have experienced an investment slump. Even though Greenaway (1993) found other factors which are more essential in explaining investment slumps in the 1980s (terms of cost of capital and trade shocks,) there are actually some important reasons for believing that adjustment programs may be a contributory factor. Specifically, the public firm may fail to crowd in private firm investment if there is a question mark against the credibility of the reforms. How can one explain these results? Researchers and analysts have concentrated on three groups of explanations such as program design; implementation; and weak supply response. Program design can condemn attempted trade liberalization to failure at the outset if the reforms proposed are over ambitious. There are notable instances where this has been the case, for instance, when targets are set by reference to effective rather than nominal tariffs. Implementation is should be problematic. For example, if a program is multistage its sequencing might be inappropriate, or there may be instrument substitution. These are discussed in a number of an important study, such as Mosley et al. (199la, 199lb), PMC (Papageorgiou et al., 1991) and Greenaway and Milner (1993). In the event that there is a weak supply response following trade liberalization, there are no "quick wins" from higher growth. In turn this may erode commitment to the reform program resulting in slippage and perhaps ultimate program collapse. A common illustration for weak supply response is program credibility: because agents are not persuaded that the new policy regime is permanent, the trade liberalization fails to crowd in new investment and FDI. The other possibility is that export sectors might have low supply elasticities. This has not been extensively investigated but must surely be important where primary products are concerned. If the export sector is predominantly primary product based,

trade liberalization induced change in the relative price of trade able may fail to stimulate increased production and exports.

DATA SOURCES AND ECONOMETRIC METHODOLOGY

The Data

The five variables are used in this study such as Gross domestic product per Capita, Foreign Direct Investment, Trade, Population, and Export by using time-series data for over the span 1980–2011 as illustrated in table1. The data are collected from World Development Indicator (WDI 2010).

Table1

Variable	Description	Source
GDPC	Gross domestic product per Capita	WDI (2010)
FDI	Foreign Direct Investment	WDI (2010)
TI	Trade Index	WDI (2010)
POP	Population	WDI (2010)
EXP	Export	WDI (2010)

ECONOMETRIC METHODOLOGY

To analyze time series data in different order I(1) and I(0) together, Pesaran et al. (2001) suggested, the Autoregressive distributed lag approach (ARDL) to test for co-integration as an alternative to co-integration model for Engle-Granger (1989). The study uses the ARDL model to investigate the long run and the short run relationship between variables. The ARDL bound testing approach for co-integration can be written as foollowing:

$$\Delta GDPC_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta GDPC_{t-i} + \sum_{i=0}^{p} \alpha_2 \Delta FDI_{t-i} + \sum_{i=0}^{p} \alpha_3 \Delta TI_{t-i} + \sum_{i=0}^{p} \alpha_4 \Delta POP_{t-i} + \sum_{i=0}^{p} \alpha_5 \Delta EX_{t-i} + b_1 GDPC_{t-1} + b_2 FDI_{t-1} + b_3 TI_{t-1} + b_4 POP_{t-1} + b_5 EX_{t-1} + \mu_t$$

Here Δ is the first difference operator; $\Delta GDPC_t$ refers for the natural log of Gross domestic product per capital, ΔFDI_t refers for the natural log of foreign direct investment, ΔTI refers for the natural log of Trade, ΔPOP refers for the natural log of Population, ΔEX refers for the natural log of Export and μ_t refers for the error correction term.

The *F* test is used to determine whether the long-run relationship exists between the variables through testing the significance of the lagged levels of the variables. When the long-run relationship exists, the *F* test will illustrate which variable should be normalized.

The null hypotheses of no co-integration amongst the variables are

$H_0: b_{1i}=b_{2i}=b_{3i}=b_{4i} = b_{5i}= 0$

Against the alternative hypothesis

$H_1: b_{1i} \neq b_{2i} \neq b_{3i} \neq b_{4i}=\neq b_{5i}=0$

for i=1, 2, 3, 4, 5.

The *F* test has a standard distribution which depends on; (1) whether the variables are included in the ARDL model are I(0) or I(1); (2) the number of independent variables; (3) whether the ARDL model contains an intercept and a trend; and (4) the sample size of the variables. According to Narayan (2005), the rejection of the null depends on the F-test and the critical bound tabulated value for small sample size.

The long run relationship among the variables exists if the calculated value of F - statistic is greater than the upper critical bound (UCB), and if the calculated value of F- statistic is less than the lower critical bound (LCB), the long run relationship does not exist. If the calculated value of the F-statistic comes in between the range of LCB and UCB, then the long run relationship is inconclusive, Mintz (1990) Hassan & Kalim, (2012). The optimal lag can be selected using the model selection criteria like Akaike Information Criterion (AIC). Narayan (2005) stated the maximum lags for small sample size is two lags.

RESULTS AND DISCUSSIONS

We begin the empirical analysis with examine of the unit root test for the variables and we assumed that, the data used in this estimation are stationary. If the results of stationary are violated, this might lead to spurious results.

In examining the time-series data properties, there are several models to test the stationary, but the most important one are the Augmented Dickey–Fuller (ADF) (Dickey and Fuller, 1979, 1981) and the Phillips–Peron (PP) (Phillips and Peron, 1988) unit root tests.

Table 2 shows the result of the stationary test for ADF and PP unit root test respectively for the case of Jordan. Both tests have shown that GDPC has a unit root at level, but it becomes stationary at first difference, which implies that GDPC is I (1). However, all other variables are found to be significant at first difference and thus it indicates the variables are I (1) as we have illustrated at table 3. As the results point out, the variables are either I(0) or I(1), therefore implying that we can confidently apply the ARDL approach to this model as using ARDL requires the data to be stationary at the level I(0) and first difference I(1) see (Narayan, 2005).

Table 2 ADF and PP unit root tests on log levels of variables.

Variables	ADF test		PP test	
	Intercept	Intercept and trend	Intercept	Intercept and trend
ln(GDPC)	-0.152234	-0.424334	0.235439	-0.463046
ln(FDI)	-1.619593	-2.956062	-1.415457	-2.832127
ln(TRADE)	-3.718943[a]	-3.707347	-3.448862[b]	-3.434792[c]
ln(POP)	-2.183235	-0.627245	-2.042175	-0.822083
ln(EX)	-1.206908	-2.961627	-4.122575[a]	-4.168889[a]

[a] Denotes significant at 1%, [b] Denotes significant at 5%, [c] Denotes significant at 10%,

Table 3 ADF and PP unit root tests on first differences of log levels of variables.

Variables	ADF test		PP test	
	Intercept	Intercept and trend	Intercept	Intercept and trend
ln(GDPC)	-3.678321[a]	-4.127435[b]	-3.625449[b]	-4.661540[b]
ln(FDI)	**-8.256520[a]**	-8.254598[a]	-9.145684[a]	-10.06525[a]
ln(TRADE)	-4.278645[a]	-4.183972[b]	-11.08224[a]	-10.88218[a]
ln(POP)	-3.978544[a]	-4.434667[a]	-3.993726[a]	-4.434667[a]
ln(EX)	-7.325503[a]	-7.325503	-7.371195[a]	-7.260469[a]

[a] Denotes significant at 1%, [b] Denotes significant at 5%, [c] Denotes significant at 10%,

Moreover, Table 4 represents the co-integration test analysis, and the existence of a long run relationship has been established among the model's variables. Results show that the computed F-statistics are 3.88 the relevant critical value bounds at ten percent level (with unrestricted intercept and no trend) are 3.88and for the lower and upper bounds respectively. Then, the computed F-statistics is higher than the critical value of the upper bound, the null hypothesis of no long run co-integration correlation among the variables can be simply rejected.

TABLE 4 Results from bound tests.

Lag Structure: ARDL(1,0,0,0,0)

F-statistics	1% Critical value		5% Critical value		10% Critical value	
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
3.8858***	4.134	5.761	2.910	4.193	2.407	3.517
K=5, N=31						

The critical value according to Narayan (2005) (Case III: Unrestricted intercept and no trend)

(***) Significant at 10%

Table 5 shows the estimated coefficients of the long-run association which are significant for FDI, while these are not significant for trade, population and export In addition; FDI has a positive and significant impact on GDPC at the 5% level. This is illustrating that the growing correlation between unemployment issue and FDI in Jordan, which motivate the inflow of Foreign Direct Investment. The high level of unemployment and other economic issues in Jordan, which is associated with non-qualified workers characterized by low output, encourages foreign investors around the globe to enter Jordan. Furthermore, the impacts of trade and population, the two variables are insignificant at the 5% level. The degree of trade openness to exterior does not motivate FDI inflow, which creates new jobs which might lead to economic growth in Jordan. Additionally, Meschi, E.(2006) found that the way in which FDI affects economic growth is likely to depend on the economic and technological conditions in the host country.

Moreover, we have found that, exports have positive and lasting impacts on economic growth; our finding is similar to Michaely (1977), Bhagwati (1988)

TABLE 5 LONG RUN RELATIONSHIPS
ARDL(1,0,0,0,0) selected based on Schwarz Bayesian Criterion

Variable	*Coefficient*	t-Statistic	*Probability*
Constant	-4.4680	-1.4076	.172
$\ln(FDI_t)$	.047616[a]	3.1307	.005
$\ln(TRADE_t)$	.031117	.17661	.861
$\ln(POP_t)$	.32912	1.4930	.148
$\ln(EX_t)$	-.23468	-1.6796	.106
R-squared	.94273		
F-statistic	3.8858		
DW-statistic	1.4016		

(a) Significant at 1%.

Moreover, all variables are also passes all diagnostic tests against serial correlation (Durbin Watson test and Breusch– Godfrey test), heteroskedasticity (White heteroskedasticity test), and normality of errors (Jarque–Bera test). The Ramsey RESET test also suggests that the model is well specified as shown in table 6.

TABLE 6 Results of diagnostic tests.

Test statistics:	x^2 statistic	Probability
Jarque-Bera(normality)	.301	n/a
LM test (1) correlation	.077	.115
ARCH test	.526	.542
Ramsey RESET test	.712	.748
CUSUM test	Stable	Stable
CUSUMQ test	Stable	Stable

Finally, when analyzing the stability of the long-run coefficients together with the the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ) which are applied Following as Pesaran cited in Bahmani-Oskooee (2001), the stability of the regression coefficients is evaluated by stability tests and they can explain whether or not the model equation is stable over time. This stability test is appropriate in time series data, especially when we are unsure about when structural change may be have taken place. CUSUM and CUSUMQ statistics are plotted against the critical bound of 5% significance. According to Bahmani-Oskooee and Wing NG (2002), if the plot of these statistics remains within the critical bound of the 5% significance level, the null hypothesis (i.e. That all coefficients in the error correction model are stable) cannot be rejected. The plot of the cumulative sum of the recursive residual is presented in graph 1-2. As shown, the plot of both the CUSUM and the CUSUMQ residual are within the boundaries. That is to say that the stability of the parameters has remained within its critical bounds of parameter stability. It is clear from both the graphs presented in Figure (1-2) that both the CUSUM and the CUSUMQ tests confirm the stability of the long-run coefficients.

CONCLUSIONS

In this paper, we have tested the autoregressive distributed lag (ARDL) model of trade liberalization and economic growth in Jordan. Our results suggest that trade liberalisation may impact favourably on growth of real GDP per capita. On the other hand, the impact would appear to be lagged and relatively modest. It means that trade liberalisations different in their intensity and depth, or never amount to an immediate shift to free trade.

The trade liberalisations, which are picked up, are often first rather than final steps. Through time of course economies become more open, partly as a consequence of incremental trade reforms but also due to other factors such as reductions in communication costs transportation, and technological change. The pay-off to this increased openness may be greater, as manifested in consistently higher coefficients from the Sachs–Warner proxy. Our results suggest that four factors might be at work in explaining why the previous literature on the trade-growth relationship is so inconsistent. Firstly, there is a sample sizes and composition differ as do methodological approaches. Secondly, different analysts have been used various measures; some are ex ante indicators of trade liberalisation, some are ex post and others are clearly indicators of openness. Finally, it is obvious that many econometrics models which have been estimated are miss-specified.

FIGURE 1 CUMULATIVE SUM OF RECURSIVE RESIDUALS.

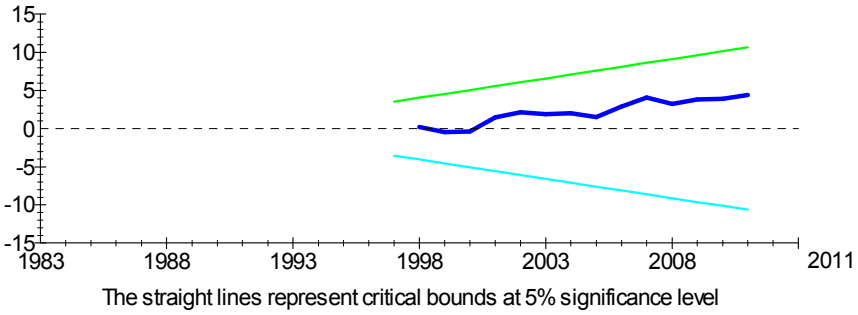
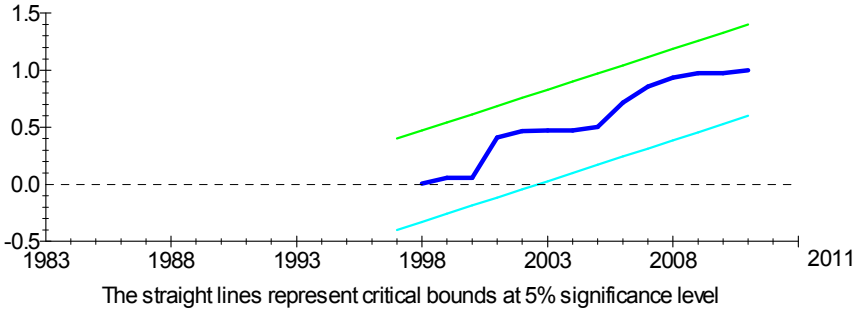


FIGURE 2 CUMULATIVE SUM OF SQUARES OF RECURSIVE RESIDUALS



REFERENCES

Ahmad, J. and Kwan, A.C. (1991) Causality between exports and economic growth: empirical evidence from Africa. Economic Letters 37, 243-248.

Alam, S.M. (1991) Trade orientation and macroeconomic performance in LDCs: an empirical study. Economic Development and Cultural Change 42, 839-848.

Balassa, B., 1982. Development Strategies in Semi-Industrialised Countries. Johns Hopkins Univ. Press, Baltimore.

Bahmani-Oskooee, Mohsen. "How stable is M2 money demand function in Japan?." Japan and the World Economy 13.4 (2001): 455-461.

Balassa, B., 1985. Exports, policy choices and economic growth in developing countries after the 1973 oil shock. Journal of Development Economics 18 (1) 23–35.

Bahmani-Oskooee, Mohsen, and RC Wing Ng. "Long-run demand for money in Hong Kong: an application of the ARDL model." International journal of business and economics 1.2 (2002): 147-155.

Bhagwati, J. (1988) Export promoting trade strategy: issues and evidence. World Bank Research Observer 3, 27-58.

Collier, David. "The comparative method." POLITICAL SCIENCE: THE STATE OF DISCIPLINE II, Ada W. Finifter, ed., American Political Science Association (1993).

Dickey, D. A. and W. A. Fuller (1979). Distribution of the estimators for autoregressive time series with a unit root. Journal of the American statistical association 74(366a): 427-431.

Engle, R. F., Granger, C. W., & Hallman, J. J. (1989). Merging short-and long-run forecasts: An application of seasonal cointegration to monthly electricity sales forecasting. Journal of econometrics, 40(1), 45-62.

Edwards, S., 1998. Openness, productivity and growth: what do we really know? Economic Journal 108, 383–398.

Feder, G. (I983) On ixports and economic growth. hood estimation and inference on cointegration - with application to the demand for money. Oxford Journal of Development Economics 12,59-74. Bulletin of Economics and Statistics 52, 169-210.

Greenaway, D. and Nam, C. H. (1988) Industrialization and macroeconomic performance in developing countries under alternative trade strategies. Kyklos 41,419-435.

Greenaway, D., Milner, C.R., 1993. Trade and Industrial Policy in Developing Countries. Macmillan, London.

Hassan, M.S. and R. Kalim, 2012. Military expenditure and poverty in Pakistan: A Complex Phenomenon.

Helleiner, G. K. (1986) Outward orientation, import instability and African economic growth: an empirical investigation. In Theory and Reality in Development: Essays in Honor of Paul Steeton, ed. S. Lall and F. Stewart, pp. 139-153. Macmillan, London.

Kohli, I. and Singh, N. (1989) Exports and growth: critical minimum effort and diminishing returns. Journal of Development Economics 30, 391-400.

Krueger, A.O., 1997. Trade policy and economic development: how we learn. American Economic Review 87, 1–22.

Mosley, P., Harrigan, J., Toye, J. ŽEds.1991., Aid and Power: The World Bank and Policy-based Lending,
Volume 1: Analysis and Policy Proposals. Routledge, London.

Meschi, E., 2006. FDI and growth in MENA countries: an empirical analysis. In: The Fifth International Conference of the Middle East Economic Association, 10–12 March, Sousse.

Michaely, M. (1977) Exports and growth: an empirical investigation. Journal of Development Economics 4, 49-53.

Mintz, A., & Huang, C. (1990). Defense Expenditures, Economic Growth, and The" Peace Dividend". The American Political Science Review, 84(4) 1283-1293.

Narayan, P.K., Smyth, R., 2005. Higher education, real income and real investment in China: evidence from Granger causality tests. Education Economics 14, 107–125.

Odedokun, M. 0. (1991) Differential impacts of export expansion on economic growth in the LDCs: a comparison of evidences across regional and income groups and between the decades of 1970s and 1980s. East African Economic Review 7,69-93.

OLUGBENGA A. ONAFOWORA and OLUWOLE OWOYE (1998) Can Trade Liberalization Stimulate Economic Growth in Africa? World Development, Vol. 26, No. 3, pp. 497-506, 1998

Papageorgiou, D., Michaely, M., Choksi, A. ŽEds.1991., Liberalising Foreign Trade. Blackwell, Oxford.

Pesaran, M.H., Shin, Y., Smith, R.J., 2001. Bounds testing approaches to the analysis of level relationship. Journal of Applied Economics 16, 289–326.

Phillips, P.C.B., Perron, P., 1988. Testing for a unit root in time series regression. Biometrika 75, 335–346.

Rodriguez, F., Rodrik, D., 1999. Trade Policy and Economic Growth: A Skeptic's Guide to the
Cross-National Evidence Working Paper 7081, NBER.

Ram, R. (1985) Exports and economic growth: some additional evidence. Economic Development and Cultural Change 33,415-425.

Ram, R. (1987) Exports and economic growth in developing countries: evidence from time series and cross-section data. Economic Development and Cultural Change 36, 51-72.

Salvatore, D. and Hatcher, T. (1992) Inward oriented and outward oriented trade strategies. Journal of Development Studies 27, 7-25.

Singer, H. W. and Gray, P. (1988) Trade policy and growth of developing countries: some new data. World Development 16, 395-403.

Tyler, W. G. (1981) Growth and export expansion in developing countries: some empirical evidence. Journal of Development Economics 9, 121-130.