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External Debt, Export and Growth in Asian Countries: 1988-2006

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Abstract: Utilizing panel data investigation, this study examines the nexus between external debt and economic growth, covering seventeen Asian countries. The study found that external debt works through two channels: Directly, in which the causality runs from external debt to GDP and indirectly, in which it positively enhances exports through GDP. This opens another channel through which foreign financial capital can potentially stimulate exports through economic growth while strengthening the bidirectional causality between exports and GDP. With the backdrop of uncertainties around the globe, e.g., the debt crisis, efficient coordination and cooperation in implementation of debt management to support economic development should be on every Asian regional agenda.

Key words: External debt, exports, growth, panel cointegration, Asian countries, JEL classification: H63, F34, C33

INTRODUCTION

Debt management has always be one of the central themes in Asian countries. Particularly, after the second oil crisis in 1979, most of the Asian countries plunged into the worldwide recession due to low commodity prices, high real rates of interest and sluggish growth in the industrial countries; several debtor countries have experienced debt-servicing difficulties (Reinhart and Rogoff, 2011). The cross-border lending in Asian has increased sharply from US$161 billion in 1985, to US$204 billion in 1990, to a peak of US$534 billion in 1997[1]. However, little attention has been paid to this issue, because the willingness and abilities of these countries to meet their foreign-debt obligations on schedule was largely unquestioned given their policies on export-led growth as well as widespread adoption of market-based reforms (Strizzi and Rispoli, 2001). Soon after the 1997 Asian crisis, the conditions improved substantially. For instance, for countries such as Korea and Thailand the ratio of short-term debt to the total external debt indicated a decrease of 41 and 40%, respectively in 1997 to 26 and 21%, respectively by 1999 (Chino, 2001). However, we also observe that some countries, e.g., India and Pakistan, experienced increases in total external debt from 1996 to 2003. The trend in the debt-to-GDP ratios indicate that Asian countries' dependency on foreign resources (capital) to finance developments projects are increasing, thus increasing the degree of debt vulnerability from the viewpoint of international positioning and internal stability.

This behavior leads to a simple analogy, that as long as countries can keep borrowing for developmental/investment purposes, they can maintain the growth of their economies which in turn enables them to meets the debt obligation[2]. Such an analogy provides a viable link between growth of a country, external debt and exports. According to Lin and Sosin (2001) foreign debts may increase a country's current capital stock and stimulate current economic growth; on the other hand, debt repayment may decrease the future capital stock and reduce future economic growth. Meanwhile, the reduction

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[1]An interesting observation is made by Tanzi and Schuknecht (1997), where the average size of government for a group of thirteen industrial countries increased from 12% of GDP in 1913 to 43% of GDP in 1990. At the end of the period, average debt-to-GDP ratio was 79% for the big governments, 60% for medium-sized governments and 53% for small governments. Furthermore, the growth of external debt in the 1990s seems to be accompanied by higher incomes, stronger GDP growth and greater openness to trade in borrowing countries (Dadush *et al*., 2000). Potentially, this provides a link between the external debt and GDP per se

[2]Broadly speaking, the magnitude of economic growth relative to the debt obligation and its abilities would differ across Asian countries

of debt services ratio is often attributed to the rapid growth of total exports against the growth of total debt service as a whole[3].

Turning to the empirical evidence, the evidence so far does not provide a clear consensus on the debate of the debt-GDP nexus. Researchers such as (Fayissa and El-Kaissy, 1999; Moreira, 2003; Javed and Sahinoz, 2005; Bakar and Hassan, 2008) support the hypothesis that the increase of external debt level will improve economic growth. Jayaraman and Choong (2006) found bi-directional causality between these two variables and found that external debt has a positive impact on the group of Pacific Island Countries (PICs). On the other hand, some researchers argue that an increase in external debt is detrimental to economic growth because it causes reduction in potential investment as well as misallocation of the borrowing capital or waste on consumption (Iyoha, 2001). This inverse relationship between debt and growth had been further proven with the findings from (Chowdhury, 2001; Were, 2001; Karagol, 2002; Pattillo *et al*., 2004; Schclarek, 2004; Maier, 2005; Gebrekidan, 2006; Jayaraman and Choong, 2006; Dogruel and Dogruel, 2007; Vamvakidis, 2007; Hameed *et al*., 2008; Choong *et al*., 2010; Saad, 2012).

Given the importance of sound macroeconomics growth in the global economy it is of paramount importance to examine whether past external borrowing has contributed to economic growth in the selected group of Asian countries[4]. This study also extends the line of research by examining the role of export in the bi-variate setting of debt-GDP. Alongside answering this policy question, we are also interested in ascertaining the causal direction between these variables. The purpose is to provide constructive information and suggestions for policymakers to formulate appropriate measures in attaining sustainable economic growth for these countries.

MODELLING DEBT AND GROWTH NEXUS

Empirical model and data description: Annual data on Gross Domestic Product (GDP), External Debt (ED) and Export (EXP) during the period of 1988 to 2006 were utilized for the sample of seventeen Asian countries in this study. The data for ED and GDP were drawn from the World Bank's World Development Indicators (WDI) database, while the countries' export data are retrieved from the database of the International Monetary Fund (IMF). All the variables are expressed in terms of US dollars for easy comparison and consistency of empirical results. For our empirical study, we formulate the following functional relationship (Eq. 1) for panel data investigation:

$$GDP_{i,t} = \alpha_i + \beta_1 ED_{i,t} + \beta_2 EXP_{i,t} + e_{i,t} \quad (1)$$

Where:

GDP = Gross Domestic Product
ED = External Debts
EXP = Exports
α_i = Intercept/constant
$\beta 1$ = Estimated coefficient of ED
β_2 = Estimated coefficient of EXP
$e_{i,t}$ = Error terms
I = No. of individual members
t = The number of observation over time

Panel unit root and stationary tests: In this study, we adopt the (Maddala and Wu, 1999; Hadri, 2000; Levin *et al*., 2002; Im *et al*., 2003) panel unit root and stationarity tests in order to unearth more conclusive evidence with regard to the order of integration of the series under investigation. The null hypothesis of these tests is that the panel series has a unit root (non-stationary) except for the HADRI test. The HADRI test is similar to the KPSS type unit root test with a null hypothesis of stationarity in the panel of countries.

Panel co-integration: We proceed to examine whether there exists any long-term equilibrium relationship between the variables under investigation. For this purpose, we resort to (Pedroni, 1999, 2001, 2004; Kao, 1999) for panel co-integration tests. Pedroni considers seven different statistics, four of which are based on pooling the residuals of the regression along the within-dimension (panel test) of the panel; the other three are based on pooling the residuals of the regression along the between-dimension (group test) of the panel. The within-dimension tests take into account common time factors and allow for heterogeneity across countries. The between-dimension tests are the group-mean co-integration tests which allow for heterogeneity of parameters across countries. Meanwhile, Kao (1999) proposed DF and ADF-type tests for ε_{it} where the null is specified as no co-integration. The details of these tests are discussed in Appendix 1.

[3]Without a doubt, the role of exports in promoting growth has been a central theme for the international trade economists and policy makers. In this relationship, export growth represents a means of growing demand and thereby raising economic growth (Tang, 2006, p.33)

[4]The Asian countries of Bangladesh, Cambodia, China, Indonesia, India, Jordan, Lao PDR Lebanon, Malaysia, Maldives, Nepal, Pakistan, Philippines, Sri Lanka, Thailand, Turkey and Vietnam were included in this study

Granger causality tests: The procedures described above are only able to indicate whether or not the variables are co-integrated and whether a long-term relationship exists between them. To test for panel causality, we estimate a panel-based Vector Error Correction Model (VECM) with a dynamic error correction term based on (Holtz-Eakin *et al*., 1988, 1989). The empirical models are represented by the following Eq. 2-4 of panel VECM:

$$\Delta GDP_{it} = \pi_{1j} + \sum_{p=1}^{m} \pi_{11ip}\Delta GDP_{it-p} + \sum_{p=1}^{m} \pi_{12ip}\Delta ED_{it-p} + \sum_{p=1}^{m} \pi_{13ip}\Delta EXP_{it-p} + \mu_{1i}ECT_{it-1} + \zeta_{1it} \quad (2)$$

$$\Delta ED_{it} = \pi_{2j} + \sum_{p=1}^{m} \pi_{21ip}\Delta GDP_{it-p} + \sum_{p=1}^{m} \pi_{22ip}\Delta ED_{it-p} + \sum_{p=1}^{m} \pi_{23ip}\Delta EXP_{it-p} + \mu_{2i}ECT_{it-1} + \zeta_{2it} \quad (3)$$

$$\Delta EXP_{it} = \pi_{3j} + \sum_{p=1}^{m} \pi_{31ip}\Delta GDP_{it-p} + \sum_{p=1}^{m} \pi_{32ip}\Delta ED_{it-p} + \sum_{p=1}^{m} \pi_{33ip}\Delta EXP_{it-p} + \mu_{3i}ECT_{it-1} + \zeta_{3it} \quad (4)$$

where Δ is the lag operator, ρ represents the lag length. All the variables are as previously defined and the specification equations above assist in testing the causality direction between the variables among this study.

For example, the hypothesis of H0: $\pi_{12ip} = 0$ for all i and ρ while $\mu_{1i} = 0$ which as stated in Eq. 2 implied that ED does not Granger cause GDP and the rejection of the hypothesis means that ED does not Granger cause GDP. The following causality between other variables can be tested by using the same analogous restriction and testing procedure such that testing the null hypothesis of GDP does not Granger cause ED, in which the hypothesis can be stated as H_0: $\pi_{21ip} = 0$ for all i and p while $\mu_{2i} = 0$ in Eq. 3[5].

RESULTS AND DISCUSSION

The results which are made available upon request, show that the series of the variables, GDP, ED and EXP are of an I(1) process, as the pooled data are stationary in their first differences. Given that all the variables have been established as stationary in the panel data, the analysis will proceed to examine whether there exists a long-term equilibrium relationship between the variables by employing the (Pedroni, 1999, 2001, 2004) panel co-integration test and Kao (1999) residual co-integration test. The results from a total of seven different statistics tests as per Pedroni are reported in Table 1 together with the empirical result of the test as per Kao (1999) which is presented in the last row of the Table 1 as comparison.

From the panel co-integration results in Table 1, we find strong evidence to reject the null hypothesis of no co-integration for five out of the seven statistics provided by Pedroni (1999, 2001, 2004). Similarly, we reject the null hypothesis of no co-integration using the ADF-type statistics from Kao (1999) panel co-integration test, suggesting that that the three-dimension model of external debt for the Asian-17 is in fact co-integrated. Despite the disparities in the individual countries, we found that GDP, ED and EXP are co-integrated in the multi-country panel setting.

Given the fact that all the series under investigation are co-integrated, Eq. 2 was estimated using the panel-based Vector Error Correction Model (VECM) with a dynamic error correction term based on (Holtz-Eakin *et al*., 1988, 1989). The main interest of the exercise is to establish the causal linkages between external debt and growth. The empirical results presented in Table 2 are summarized as follows:

First, in the long term, we observe the Granger causality relationship from GDP and ED to EXP, where the coefficient of ECT is statistically significant when EXP were the dependent variable. The ECT coefficient of 0.054 indicates that adjustment toward the long-term equilibrium is about 5.4% per annum. The presented result suggested that any deviation from the long-term equilibrium is corrected tardily, since the system requires almost 18.5 years in order to return to the equilibrium level of long-term co-integration. Second, the short- term result reveals that there is a significant causal linkage running from ED and EXP to GDP. The obtained results were

Table 1: Panel co-integration results

A: Pedroni residual co-integration test	Values
Panel co-integration statistics (within-dimension)	
Panel v-statistics	-0.603 (0.333)
Panel PP type ρ-statistics	-3.420 (0.001)***
Panel PP type t-statistics	-7.238 (0.000)***
Panel ADF type t-statistic	-5.828 (0.000)***
Group mean panel co-integration statistics (between-dimension)	
Group PP type ρ-statistic	-0.212 (0.390)
Group PP type t-statistic	-4.590 (0.000)***
Group ADF type t-statistic	-4.136 (0.000)***
B: Kao residual co-integration test	
ADF	-14.879 (0.000)***

No. of lag truncations used in the calculation of 7 Pedroni statistics is 3, while Kao ADF statistic is fixing in 1. Probability values are in parenthesis. ***Statistical significance at 1% level

[5]The F-test or Wald χ^2 of the explanatory variables (in first differences) indicates short-term causal effects ($\pi 21_{ip} = 0$ for all i and p) while the long-term causal ($\mu_{2i} = 0$) relationship is implied through the significance of the lagged ECT which contains the long term information

Table 2: Panel granger causality results

Dependent variables	ΔGDP	ΔED	ΔEXP	ECT	
	χ^2-statistics (p-value)			Coefficient	t-ratio
ΔGDP	-	8.988**	6.453**		
		(0.011)	(0.040)	0.005	0.520
ΔED	0.261		1.642	0.056	6.033
	(0.878)	-	(0.440)		
ΔEXP	17.683**	0.613	-	-0.054	-1.918*
	(0.000)	(0.736)			

Parenthesized values are the probability of rejection of Granger non-causality. Δ is the first different operator. Estimations are based on the pooled data for 1988-2006 and 17 countries of Asia (N = 17, T = 19) with 3 lags. *, **Significance at 10 and 5% level, respectively. All variables are transformed into logarithm form prior to estimation

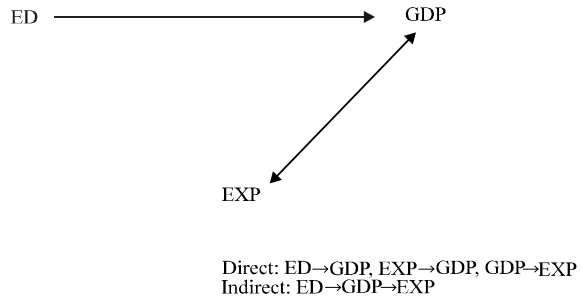

Fig. 1: Causality direction

consistent with Jayaraman and Lau (2009), who argued that there is a short-run causal linkage running from external debt to output. Third, we found the existence of a bidirectional relationship between EXP and GDP[6].

Fourth, we found additional causality interplay from ED to EXP through GDP. In this sense, ED brings positive enhancement to EXP activities in this group of countries through GDP. It opens another channel in which foreign financial capital potentially stimulates exports through economic growth while strengthening the bidirectional causality between EXP and GDP. The directions of panel causality relationship resulted are clearly summarized in Fig. 1.

CONCLUSION

External debt has recently become one of the important resources utilized by various governments in financing additional investments, especially when they are confronted with financial constraints and budget deficits due to the economic crisis. Since the external debt also acts as one of the indicators for economic growth within a country, the implications of external debt on economic growth undeniably have received more attention, particularly in the current emerging Asian markets. This study employed the panel analysis approach to examine the nexus between economic growth and external debt in seventeen Asian countries during the 19-year (1988-2006) period under research.

Empirical analysis revealed the existence of a long-term co-integrated relationship between ED, EXP and GDP. Focusing on causality interplay, the empirical study findings indicate: (1) A causal linkage running from ED and EXP to GDP; (2) A bidirectional causal relationship between GDP and EXP; (3) An indirect causality running from ED to EXP through GDP. The external borrowing contributes to growth (GDP and exports) in these selected Asian countries while growth further enhances the export growth which in turn spearheads the GDP of these economies in the short term.

The findings of the study have generated some important policy implications. The Asian countries we examine have benefited from external borrowing, particularly in the short term where they might not suffer from the debt overhang problem that could create adverse incentive effects on economic growth. Muhanji and Ojah (2011) suggested that export activities could reduce foreign debt, while import activities increase foreign debt, of which running a trade surplus is an option. However it is still essential for the governments in Asia to have efficient debt monitoring systems as well as other effective policies to ensure that debt levels are always contained within a manageable trajectory level (Bakar and Hassan, 2008). This is an imperative move toward the future debt '(in)sanity' rule[7].

Moreover, such problems as misallocating borrowed resources must be prevented by running an efficient debt management system (Siddiqui and Malik, 2001). In this regard, the external borrowing resources should be allocated for the purpose of financing ongoing development projects, primarily education and training (human resource planning and development), upgrading amenities and public services, poverty eradication and other goals that contribute to the welfare and economic growth of the countries. The government, on the other

[6]It has been noted that neoclassical trade theory asserts that economic growth through its effects on supply side (factor endowments) will create the demand for exports, providing the country with a strong export production base that is internationally competitive (Mahadevan, 2007)

[7]Schuknecht *et al.* (2011) show that rule-based expenditure policies could have led to much safer fiscal positions much more in line with the EU's stability and growth pact. The lesson drawn from the Euro area would constitute essential planning for the Asian countries' future expenditure and fiscal 'in(sanity)' rule

hand, might introduce a structural adjustment program as a mean to control the accrued debt levels (Javed and Sahinoz, 2005) in such a manner as to remove economic distortions while increasing exports, investment and economic growth.

With the recent slowdown in growth, especially in the industrialized countries, from the recent Global Financial Crisis (GFC) and the persistent debt crisis in Europe, this issue has become more pressing, both economically and politically (IMF, 2011). [8]Against this background it is hoped that the pursuit of debt-targeting policies/rules will result in sound public finance systems and it is important for Asian countries to achieve solvency in external debt positions in the near future.

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Appendix 1: Panel cointegration tests.

Pedroni panel cointegration test: There are in all seven panel cointegration tests. Detailed description of the formulae for the seven panel cointegration statistics, are given in Pedroni (1999).

- Within-dimension (panel tests):
  - Panel ν-Statistic
  - Panel Phillip-Perron (PP) type ρ-statistics
  - Panel Phillips-Perron (PP) t-statistic (non-parametric)
  - Panel Augmented Dickey Fuller (ADF) t-statistic (parametric)
- Between-dimension (group tests):
  - Group Phillip-Perron (PP) type ρ-statistics
  - Group Phillips-Perron (PP) t-statistic (non-parametric)
  - Group Augmented Dickey Fuller (ADF) t-statistic (parametric)

These seven statistics are based on the estimated panel cointegration regression residuals of the likely cointegrating vector:

$$GDP_{i,t} = \alpha_i + \phi_i t + \beta_1 ED_{i,t} + \beta_2 EXP_{i,t} + \varepsilon_{i,t} \quad (A.1)$$

varying across countries, thus permitting full heterogeneity (β_i), fixed effects (α_i) and individual specific deterministic trends ($\phi_i t$) across individual members of the panel. Pedroni (1999) shows that under appropriate standardization based on the moments of vector of Brownian motion function, each of these statistics converges weakly to a standard normal distribution when both the T and N of the panel grow large. The standardized distributions for the above mentioned seven panel and group statistics can be expressed in the form of

$$\frac{e_{N,T} - \mu\sqrt{N}}{\sqrt{\nu}} \Rightarrow N(0,1) \quad (A.2)$$

where, e_{NT} is the respective panel/group cointegration statistic and μ and v are the expected mean and variance of the corresponding statistics. They are computed by Monte Carlo stochastic simulations and tabulated in Pedroni (1999) (Table 2).

Kao panel cointegration test: Unlike Pedroni test, Kao (1999) test specifies cross-section specific intercepts and homogeneous coefficients on the first-stage regressors. In this case, we specified the panel regression model as:

$$y_{it} = X'_{it}\beta + z'_{it}\gamma + \varepsilon_{it} \quad (A.3)$$

where, y_{it} and x_{it} are I(1) and non cointegrated. For $z_{it} = \{\mu_i\}$ Kao (1999) proposed DF and ADF-type unit root tests for ε_{it} where the null is specified as no cointegration.

The DF-type test can be calculated from this regression of:

$$\hat{\varepsilon}_{it} = \rho\hat{\varepsilon}_{it-1} + \nu_{it} \quad (A.4)$$

While the augmented version of the pooled specification:

$$\hat{\varepsilon}_{it} = \rho\hat{\varepsilon}_{it-1} + \sum_{j=1}^{p} \varphi_j \Delta\hat{\varepsilon}_{it-j} + \nu_{itp} \quad (A.5)$$

where, $\hat{\varepsilon}_{it} = \tilde{y}_{it} - \tilde{x}_{it}\hat{\beta}$ and $\hat{\varepsilon}_{it} = \tilde{y}_{it} - \tilde{x}_{it}\hat{\beta}$. The OLS estimate of ρ and the t-statistics are given as:

$$\hat{\rho} = \frac{\sum_{i=1}^{N}\sum_{t=2}^{T}\hat{\varepsilon}_{it}\hat{\varepsilon}_{it-1}}{\sum_{i=1}^{N}\sum_{t=2}^{T}\hat{\varepsilon}_{it}^2}$$

and:

$$t_\rho = \frac{(\hat{\rho}-1)\sqrt{\sum_{i=1}^{N}\sum_{t=2}^{T}\hat{\varepsilon}_{it-1}^2}}{s_e}$$

[8]The recent growth rates of public debt, especially in this area, widely exceed that of output. There are concerns that the deficits on the current scale will not be sustainable over time (Clinton *et al*., 2011)

In this case:

$$s_e^2 = \frac{1}{NT}\sum_{i=1}^{N}\sum_{t=2}^{T}\left(\hat{\varepsilon}_{it} - \hat{\rho}\hat{\varepsilon}_{it-1}\right)^2$$

Under the null of no cointegration, Kao (1999) shows that following the statistics:

$$DF_\rho = \frac{\sqrt{N}T(\hat{\rho}-1)+3\sqrt{N}}{\sqrt{10.2}} \quad (A.6)$$

$$DF_t = \sqrt{1.25}t_\rho + \sqrt{1.875N} \quad (A.7)$$

$$DF_\rho^* = \frac{\sqrt{N}T(\hat{\rho}-1)\frac{3\sqrt{N}\hat{\sigma}_v}{\hat{\sigma}_{0v}^2}}{\sqrt{3+\frac{36\hat{\sigma}_v^4}{5\hat{\sigma}_{0v}^4}}} \quad (A.8)$$

$$DF_t^* = \frac{t_\rho + \frac{\sqrt{6N}\hat{\sigma}_v}{2\hat{\sigma}_{0v}}}{\sqrt{\frac{\hat{\sigma}_{0v}^2}{2\hat{\sigma}_v^2}+\frac{3\hat{\sigma}_v^2}{10\hat{\sigma}_{0v}^2}}} \quad (A.9)$$

where, $\hat{\sigma}_v^2 = \hat{\Sigma}_{yy} - \hat{\Sigma}_{yx}\hat{\Sigma}_{xx}^{-1}$ and $\hat{\sigma}_{0v}^2 = \hat{\Omega}_{yy} - \hat{\Omega}_{yx}\hat{\Omega}_{xx}^{-1}$. For ADF can be constructed as:

$$ADF = \frac{t_{ADF} + \frac{\sqrt{6N}\hat{\sigma}_v}{2\hat{\sigma}_{0v}}}{\sqrt{\frac{\hat{\sigma}_{0V}^2}{2\hat{\sigma}_v^2}+\frac{3\hat{\sigma}_V^2}{10\hat{\sigma}_{0V}^2}}} \quad (A.10)$$

where, t_{ADF} is the t-statistics of ρ in Eq. A5.

REFERENCES

Bakar, N.A.A. and S. Hassan, 2008. Empirical evaluation on external debt of Malaysia. Int. Bus. Econ. Res. J., 7: 95-108.

Chino, T., 2001. Post crisis economic recovery in Asia. Proceedings of the 3rd Asia-Europe Finance Ministers Meeting, January 13-14, 2001, Kobe, Japan.

Choong, C.K. E. Lau, V.K.S. Liew and C.H. Puah, 2010. Does debts foster economic growth? The experience of Malaysia. Afr. J. Bus. Manage., 4: 1564-1575.

Chowdhury, A.R., 2001. External debt and growth in developing countries: A sensitivity and causal analysis. World Institute for Development Economics Research, Discussion Paper No. 2001/95.

Clinton, K., M. Kumhof, D. Laxton and S. Mursula, 2011. Deficit reduction: Short-term pain for long-term gain. Eur. Econ. Rev., 55: 118-139.

Dadush, U., D. Dasgupta and D. Ratha, 2000. The role of short-term debt in recent crises. Finance Dev., 37: 54-60.

Dogruel, F. and A.S. Dogruel, 2007. Foreign debt dynamics in middle income countries. Proceedings of the MEEA Annual Meeting, January 4-7, 2007, Chicago, IL.

Fayissa, B. and M.I. El-Kaissy, 1999. Foreign aid and the economic growth of developing countries (LDCs): Further evidence. Stud. Comp. Int. Dev., 34: 37-50.

Gebrekidan, A., 2006. The impact of external debt on economic growth in Ethiopia. Proccedings of the 4th International Conference on the Ethiopian Economy, June 10-12, 2006, Ethiopian Economic Association, Addis Ababa, pp: 229-257.

Hadri, K., 2000. Testing for stationarity in heterogeneous panel data. Econ. J., 3: 148-161.

Hameed, A., H. Ashraf and M.A. Chaudhary, 2008. External debt and its impact on economic and business growth in Pakistan. Int. Res. J. Finance Econ., 20: 132-140.

Holtz-Eakin, D., W. Newey and H.S. Rosen, 1988. Estimating vector autoregressions with panel data. Econometrica, 56: 1371-1395.

Holtz-Eakin, D., W.K. Newey and H.S. Rosen, 1989. The revenues-expenditures nexus: Evidence from local government data. Int. Econ. Rev., 30: 415-429.

IMF, 2011. Fiscal monitor: Addressing fiscal challenges to reduce economic risks. World Economic and Financial Survey, International Monetary Fund. https://www.imf.org/external/pubs/ft/fm/2011/02/pdf/fm1102.pdf

Im, K.S., M.H. Pesaran and Y. Shin, 2003. Testing for unit roots in heterogeneous panels. J. Econo., 115: 53-74.

Iyoha, M.A., 2001. External debt and economic growth in sub-Saharan African countries: An econometric study. African Economic Research Consortium (AERC), Research Paper No. 90, Nairobi.

Javed, Z.H. and A. Sahinoz, 2005. External debt: Some experience from turkish economy. J. Applied Sci., 5: 363-367.

Jayaraman, T.K. and C.K. Choong, 2006. Public debt and economic growth in the south pacific Islands: A case study of fiji. J. Econ. Dev., 31: 329-350.

Jayaraman, T.K. and E. Lau, 2009. Does external debt lead to economic growth in Pacific island countries. J. Policy Model., 31: 272-288.

Kao, C., 1999. Spurious regression and residual-based tests for cointegration in panel data. J. Econ., 90: 1-44.

Karagol, E., 2002. The causality analysis of external debt service and GNP: The case of Turkey. Central Bank Rev., 1: 39-64.

Levin, A., C.F. Lin and C.S.J. Chu, 2002. Unit root tests in panel data: Asymptotic and finite-sample properties. J. Econ., 108: 1-24.

Lin, S. and K. Sosin, 2001. Foreign debt and economic growth. Econ. Transition, 9: 635-655.

Maddala, G.S. and S. Wu, 1999. A comparative study of unit root tests with panel data and a new simple test. Oxford Bull. Econ. Stat., 61: 631-652.

Mahadevan, R., 2007. New evidence on the export-led growth nexus: A case study of malaysia. World Econ., 30: 1069-1083.

Maier, R., 2005. External debt and pro-poor growth. Proceedings of the German Development Economics Conference, July 8-9, 2005, Kiel.

Moreira, S.B., 2003. Evaluating the impact of foreign aid on economic growth: A cross-country study (1970-1998). Proceedings of the 15th Annual Meeting on Socio-Economics. May 15-16, 2003, France.

Muhanji, S. and K. Ojah, 2011. External shocks and persistence of external debt in open vulnerable economies: The case of Africa. Econ. Modell., 28: 1615-1628.

Pattillo, C., H. Poirson and L. Ricci, 2004. What are the channels through which external debt affects growth? International Monetary Fund (IMF), Working Paper No.15.http://gwww.grips.ac.jp/teacher/oono/hp/ docu01/paper06.pdf

Pedroni, P., 1999. Critical values for cointegration tests in heterogeneous panels with multiple regressors. Oxf. Bull. Econ. Stat., 61: 653-670.

Pedroni, P., 2001. Purchasing power parity tests in cointegrated panels. Rev. Econ. Stat., 83: 727-731.

Pedroni, P., 2004. Panel cointegration: Asymptotic and finite sample properties of pooled time series tests with an application to the PPP hypothesis. Econometric Theory, 20: 597-625.

Reinhart, C.M. and K. Rogoff, 2011. This Time is Different: Eight Centuries of Financial Folly. Princeton University Press, USA., ISBN: 9780691152646, Pages: 463.

Saad, W., 2012. Causality between economic growth, export and external debt servicing: The case of lebanon. Int. J. Econ. Finance, 4: 134-143.

Schclarek, A., 2004. Debt and economic growth in developing and industrial countries. Working Papers of Lund University, Department of Economics, pp: 34. http://ief.eco.unc.edu.ar/files/workshops/2006/7marzo06_DebtGrowth.pdf

Schuknecht, L., S. Hauptmeier and J.S. Fuentes, 2011. Towards expenditure rules and fiscal sanity in the euro area. J. Policy Model., 33: 597-617.

Siddiqui, R. and A. Malik, 2001. Debt and economic growth in South Asia. Pak. Dev. Rev., 40: 677-688.

Strizzi, N. and L. Rispoli, 2001. Asia's foreign debt: An evaluation and strategic overview. Ivey Business Journal, pp: 29-34. http://iveybusinessjournal.com/topics/global-business/asias-foreign-debt-an-evaluation-and-strategic-overview#.UwrleeOSyKJ.

Tang, T.C., 2006. Export led growth in Hong Kong: Empirical evidence from the components of exports. Int. J. Bus. Soc., 7: 30-52.

Tanzi, V. and L. Schuknecht, 1997. Reconsidering the fiscal role of government: The international perspective. Am. Econ. Rev., 87: 164-168.

Vamvakidis, A., 2007. External debt and economic reform: Does a pain reliever delay the necessary treatment? International Monetary Fund (IMF), Working Paper No. 07/50. https://www.imf.org/external /pubs/ft/ wp /2007/wp0750.pdf

Were, M., 2001. The impact of external debt to economic growth in Kenya: An empirical assessment. World Institute for Development Economics Research, Research Paper DP2001/116.