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Foreign Aid and Economic Growth in the Philippines

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Abstract

With recent studies generating skepticism toward aid-effectiveness for economic growth of some aid-dependent economies, the need to re-examine the effectiveness of foreign aid for economic growth has gained increasing importance. This paper examines the role of foreign aid in per-capita economic growth in the Philippines, a country that has historically been one of the largest recipients of foreign aid. A VECM is estimated for the period 1970-2010. Results indicate a significantly negative relationship between foreign aid and per-capita economic growth. A 1% rise in the share of aid in GDP results in a fall in per-capita real income by 0.51%.

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1. Introduction

In an attempt to facilitate faster economic growth through greater economic cooperation and free trade, the last four decades have witnessed the formation of major trading blocs and memberships of many South-East Asian nations to international organizations. The Philippines, for instance, became a member of APEC, ASEAN and WTO, amongst others, in order to attract foreign capital for sustainable economic development. While the impact of foreign investment has been largely positive on economic growth of many developing economies, however, there appears to be a lack of consensus on the effectiveness of foreign aid for economic growth. With recent studies providing evidence of a negative aid-growth relationship for many aid-dependent economies, there is now growing skepticism over the effectiveness of foreign aid for sustainable economic development. Thus the need to re-examine aid-effectiveness for sustained economic growth has now gained increasing importance. Historically, the Philippines has been one of the largest recipients of foreign aid from bilateral donors such as Japan and the United States, and also from multilateral donors such as the World Bank and the Asian Development Bank. Figure I shows the amount of net overseas development assistance (ODA) received by the Philippines from 1970-2010. Figure II shows the share of net ODA in GDP for the same period. Although the share of aid in GDP remains small when compared with other economies, in absolute terms, Philippines continues to remain one of the largest aid-recipients in Asia. This paper, using dynamic cointegration analysis, investigates the long-run relationship between foreign aid and per-capita economic growth in the Philippines for the period 1970-2010.

2. Literature Review

Although the effect of foreign aid on economic growth is expectedly positive, as recent studies have shown, aid can also work against development under certain conditions. Most empirical studies have attributed negative aid-growth relationship to the prevalence of a "bad policy environment" (Burnside and Dollar, 2000) or very low human capital stock in the aid-recipient countries (Kosack and Tobin, 2006). Some other notable studies documenting negative or insignificant aid-impact on economic growth include Nyoni (1998), Barro and Lee (2000) and Burke and Ahmadi-Esfahani (2006). Amongst numerous studies that have provided evidence of a positive aid-growth relationship are Murty et al. (1994), Levy (1998), Hansen and Tarp (2001) and Gounder (2001).

The effectiveness of foreign aid for economic growth and the factors underlying the aid-growth relationship are mostly country-specific. This study extends country-specific analyses on aid-effectiveness to the case of the Philippines and examines the role of foreign aid in long-run per-capita economic growth during the period of this study.

3. Data and the Model

This study adopts the Mallik (2008) aid-growth model specification as described by equation (1). The variables are foreign aid, domestic investment, trade openness (as percentages of GDP) and per-capita real GDP. Annual data on the four variables from UNCTAD Statistics for the period 1970-2010 are used for the cointegration analysis. Foreign aid, domestic investment and trade openness are measured in U.S. dollars at current prices and current exchange rates. The variables are included in the model in natural logarithmic form and indexed as lnAID, lnINV and lnOPN, respectively. Foreign aid is the net total overseas development assistance received by the Philippines from all foreign donors. Domestic investment is the value of all fixed assets (new and existing less the disposed) owned by the government, households and businesses. Trade openness index is constructed by dividing total exports and imports of the Philippines by its nominal GDP. An increase in per-capita real GDP

indicates economic growth (per-capita). The variable, indexed lnGDP, is included in the model in natural log form. It is measured in 2005 constant prices and exchange rates.

Due to possible endogeneity between the variables, a multivariate VECM with 4 endogenous variables lnGDP, lnINV, lnOPN and lnAID is estimated of the form:

$$\Delta \ln GDP_t = \alpha_0 + \sum_{i=1}^{k} \beta_i \Delta \ln GDP_{t-1} + \sum_{i=1}^{k} \gamma_i \Delta \ln INV_{t-i} + \sum_{i=1}^{k} \delta_i \Delta \ln OPN_{t-i} + \sum_{i=1}^{k} \varphi_i \Delta \ln AID_{t-i} + \sum_{j=1}^{r} \psi_j ECM_{t-1} + \lambda t + \varepsilon_t \quad (1)$$

In equation (1) k denotes the number of lags and r is the number of linearly independent cointegrating vectors. The VECM in (1) allows for both linear and quadratic trends in the levels of the data. The cointegrating relationships are examined within Johansen (1991, 1995) framework: if r cointegrating relationships are identified, then a minimum r^2 restrictions are imposed in order to determine the long-run coefficients. The VECM is estimated in the following sequence: first, the ADF, PP and KPSS unit root tests are performed at levels and first-differences; second, the optimum number of lags for VECM estimation is selected using Akaike Information Criterion (AIC); third, the Johansen coitegration test is performed with trend to determine the cointegrating relationships; finally, the VECM is estimated with the optimum lag-length (selected by AIC) and the maximum rank of the cointegrating matrix (determined by the Johansen cointegratin test) with no restrictions on the trend parameters.

4. VECM Estimates

4.1 Unit Root Tests: The null hypothesis of ADF and PP unit root tests is that the variables have a unit root. The null hypothesis of the KPSS test is just the opposite. The results of the three unit root tests are reported in Table I. The results indicate that all four variables are integrated of order one.

Table I. Unit Root Tests

Level Form – Constant and Trend			
	ADF	**PP**	**KPSS**
lnGDP	- 1.74	- 1.46	0.36***
lnINV	- 3.35	- 2.53	0.17***
lnOPN	- 1.49	- 1.35	0.27***
lnAID	- 2.25	- 3.15	0.45***
First Difference – Constant Only			
∆lnGDP	- 3.59**	- 3.28**	0.23
∆lnINV	- 5.03***	- 4.67***	0.10
∆lnOPN	- 3.73***	- 4.39***	0.23
∆lnAID	- 5.73***	9.39***	0.09

** and *** in Table I indicate 5% and 1% significance levels, respectively.

4.2 Cointegration Test: The results of the Johansen cointegration test are reported in Table II. Since AIC selected a model with five lags, the cointegration test is performed with five lags and with trend. As the results indicate, two cointegrating relationships are identified (the bold faced entry 17.50 is the trace statistic at which the null hypothesis of two cointegrating equations is accepted since it is less than the 5% critical value 18.17 corresponding to maximum rank two).

Table II. Johansen Cointegration Test

Maximum Rank	Eigenvalue	Trace Statistic	5% Critical Value
0	-	111.69	54.64
1	0.82	50.11	34.55
2	0.59	**17.50**	18.17
3	0.29	5.03	3.74

The error correction model is estimated with five lags and two rank specification with trend. The short-run and long-run coefficients are reported in Table III and Table IV, respectively.

Table III. Short-Run Coefficients

	Coefficients	Standard Error
ECM_{t-1}	0.28	0.54
$\Delta lnGDP_{t-1}$	0.34	0.61
$\Delta lnGDP_{t-2}$	- 0.18	0.74
$\Delta lnGDP_{t-3}$	- 0.35	0.53
$\Delta lnGDP_{t-4}$	- 0.17	0.52
$\Delta lnINV_{t-1}$	- 0.02	0.18
$\Delta lnINV_{t-2}$	- 0.06	0.15
$\Delta lnINV_{t-3}$	- 0.03	0.13
$\Delta lnINV_{t-4}$	0.03	0.14
$\Delta lnOPN_{t-1}$	- 0.18	0.15
$\Delta lnOPN_{t-2}$	- 0.01	0.13
$\Delta lnOPN_{t-3}$	- 0.06	0.11
$\Delta lnOPN_{t-4}$	- 0.13	0.09
$\Delta lnAID_{t-1}$	- 0.07	0.05
$\Delta lnAID_{t-2}$	- 0.10***	0.06
$\Delta lnAID_{t-3}$	- 0.06	0.05
$\Delta lnAID_{t-4}$	- 0.02	0.04
trend	- 0.004***	0.002
constant	0.05	0.03

*** in Table III indicates 10% significance level.

4.3 Short-Run Dynamics: The short-run coefficients are mostly insignificant except for foreign aid that is significantly negative at 10% level. The trend coefficient is also negative and significant at 10%. The adjustment coefficient 0.28 for the first cointegrating vector with lnGDP as the dependent variable, although not negative, is not statistically significant either. This rules out any significant divergence from long-run equilibrium.

Table IV. Long-Run Coefficients

	Coefficient	Standard Error
lnGDP	1	-
lnINV	-	-
lnOPN	- 1.12*	0.27
lnAID	- 0.51**	0.22
trend	- 0.01	-
constant	- 2.70	-

4.4 Long-Run Dynamics: Since two cointegrating vectors are identified by the Johansen cointegration test, restrictions are placed on two variables in each cointegrating equation. The variables are lnGDP and lnINV. In the first cointegrating vector, lnGDP is normalized to 1; thus lnGDP is identified as the dependent variable. The lnINV coefficient is close to 0 and so it is not reported. The normalization restriction on lnGDP allows us to examine the long-run impact of foreign aid and trade openness on per-capita real GDP.

The lnAID coefficient is -0.51 and it is statistically significant at 5%; thus the long-run effect of foreign aid on per-capita real GDP is significantly negative. The coefficient -0.51 indicates that, for every 1% rise in aid (in proportion to GDP), real GDP per-capita falls by 0.51%. There could be many reasons for the negative growth effect of foreign aid. As Burnside and Dollar (2000) observed, foreign aid can have a negative impact on economic growth due to lack of "good policies." According to Mallik (2008), a negative aid-growth relationship will be a likely outcome if a larger fraction of foreign aid is used more for humanitarian development than for the expansion of production capacities in domestic industries.

The long-run effect of trade openness is found to be significantly negative at 1% level. The coefficient -1.12 indicates that a 1% rise in trade openness results in a 1.12% fall in per-capita real GDP. While Dollar (1992), Sachs and Warner (1995) and Edwards (1998) have provided evidence of strong positive growth effects of trade openness, studies by Harrison (1996) and Rodríguez and Rodrik (2001), on the other hand, have expressed doubts on both the significance and robustness of the relationship between trade openness and economic growth. They have attributed this ambiguity to the measure of trade openness being adopted in the study. If trade-to-GDP ratio is adopted as a measure of trade openness as in this study, for any country that is heavily dependent on imports, greater trade openness may not lead to significant growth benefits. For the Philippines, over the period 1970-2010, average exports and imports (in proportion to GDP) were 23.03% and 29.20%, respectively; thus, imports exceeded exports on average by 6.18% per annum throughout the period of study. If greater openness results in a substantial increase in imports relative to exports over time then due to an increase in trade deficit there may not be any significant long-run beneficial impact of trade openness on economic growth. According to Chang, Kaltani and Loayza (2009), in the presence of market and institutional imperfections, greater trade openness may result in an

*, ** indicate significance at 5% and 10% levels, respectively.

under-utilization of human and capital resources and also specialization in the technologically less advanced and non-increasing returns sectors, thereby reducing economic growth.

4.5 VECM Diagnostics: The diagnostic test results are reported in Table V. The null hypothesis for the LM test is that there is no autocorrelation at lag order. The LM test statistic for each of the five lags is less than the 10% critical value 23.52; the model, thus, fails to reject the null hypothesis of no autocorrelation at lag order. The Jarque Bera test statistic 3.01 is less than the 10% critical value 4.61. The model, thus, fails to reject the null hypothesis of normally distributed errors. Expressing the variables in logarithmic form reduces the problem of heteroskedasticity. As reported in Table V, the VECM with four endogenous variables and two cointegrating relationships has imposed no more than two unit moduli; thus the eigenvalue stability condition is satisfied. The results of the LM test, normality and stability tests rule out any possibility of model misspecification.

Table V. Model Diagnostics

LM Test Statistic	χ^2	**Probability**
Lag 1	17.22	0.37
Lag 2	18.18	0.31
Lag 3	11.49	0.78
Lag 4	11.76	0.76
Lag 5	12.57	0.74
Normality Test	χ^2	**Probability**
Jarque-Bera	3.01	0.22
R^2: 0.71 VECM Unit Moduli for Eigenvalue Stability: 2		

5. Concluding Remarks

This paper, using VECM approach to cointegration analysis, has examined the long-run aid-effectiveness for per-capita economic growth in the Philippines. Foreign aid is found to have a significantly negative impact on per-capita real income of the nation during the period 1970-2010. The result differs from Burke and Ahmadi-Esfahani (2006) who found no evidence of any significant impact of foreign aid on economic growth-rate for the Philippines from 1970-2000. This is not to suggest that foreign aid is detrimental to economic growth and development. The impact of foreign aid on economic growth will depend on how aid is utilized for development. In line with the views of Burnside and Dollar (2000) and Mallik (2008), this study concludes that, in general, the implementation of a policy framework that is aimed at utilizing overseas development assistance to enhance domestic labor productivity and also for the growth and expansion of export promotion and import-substituting industries will most likely have a positive long-run impact on per-capita economic growth of the aid-dependent economies.

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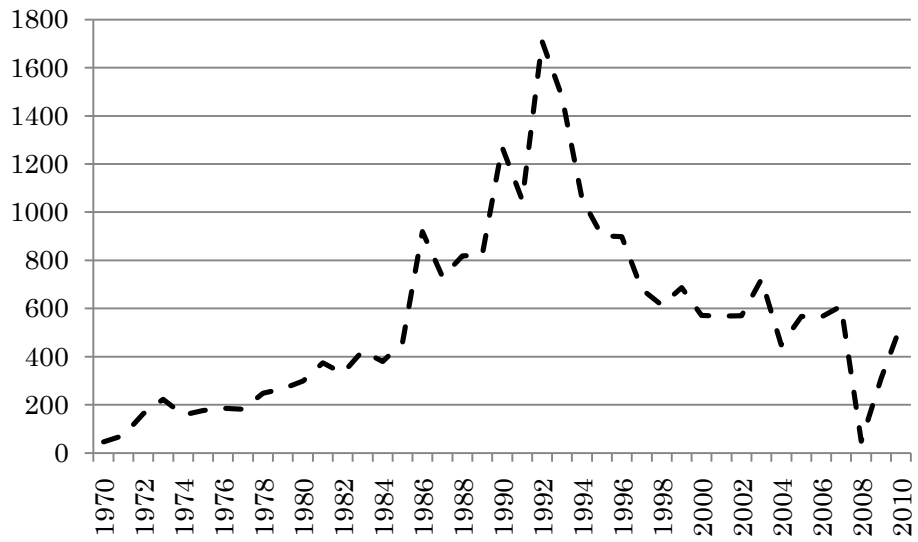

Figure I.
Net ODA Received: 1970-2010

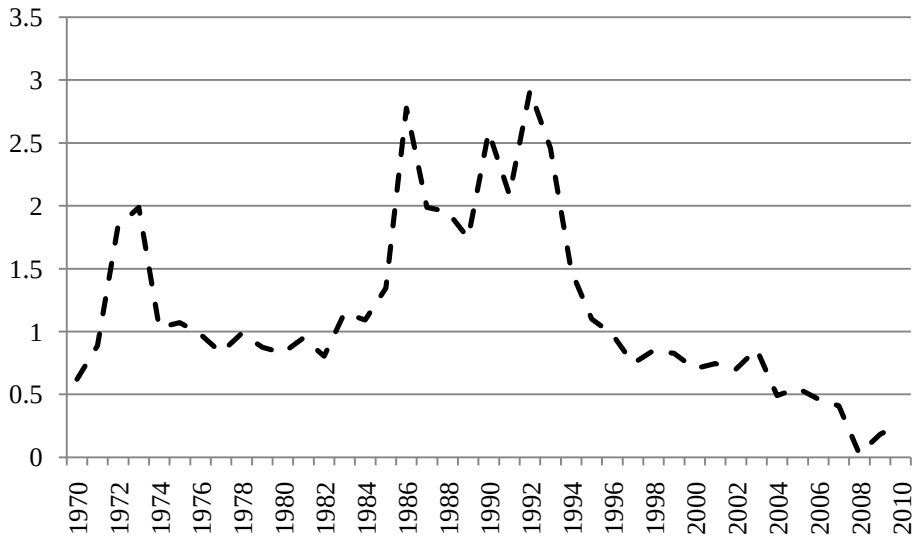

Figure II.
Net ODA Received in Proportion to GDP: 1970-2010