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Governance and Foreign Aid in ASIAN Countries

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Abstract

This paper examines the determinants of flow of foreign aid in the 20 ASIAN countries in a panel framework. The model includes the foreign aid, foreign direct investment, six measures of governance, along with the purely economic variables which have been taken as control variables. Estimation analysis was carried out by using pooled annual time series data from 2002 to 2008 in the framework of fixed and random effect model. Relevance of GMM (1991) and GMM (1998) estimates were also evaluated. We find that there is strong evidence of significantly positive impact of past year's aid flow and regulatory quality on the current year's aid flow while significantly negative impact of exports of goods and services, political stability and control over corruption on the current year's aid flow, weak evidence of the negative impact of population, voice and accountability, and rule of law on the current year's aid flow and weak evidence of significantly positive impact of government effectiveness on the current year's aid flow.

1. Introduction

The United States first recognized the Usefulness of foreign aid as a tool of diplomacy in the World War II. Policy makers believed that such a program will fulfill three important goals. First, to give assistance on humanitarian ground to the needy peoples, second, it would promote liberal capitalist models of development in other countries and third it would enhance national security. And the contemporary views also links two groups the donor in one side and the recipients countries on the other. The donor countries has their own self interest in disbursing foreign aid it may be strategic, political and/or economic while recipients has their needs for removing poverty, improving primary education, reducing the infant mortality. Available literature indicates that foreign aid definitely made a positive impact on economic growth but evidences are less clear-cut when we tries to find out what really determine the bilateral and multilateral disbursement of foreign aid. Donor countries and international agencies argue that their aid policies are meant to be selective and favor the reforming government. The World Bank[1] has discussed openly about how to enhance good governance that is how to lower level of corruption of bureaucracy and of the official of the receiving countries and to enhance the level of governance World Bank is allocating aid to developing countries. This study is in the direction to identify the important factors which determine the aid allocation in the AISAN countries.

Rest of the paper is organized as follows. Second section presents an overview of the governance achievements in ASIAN countries followed by review of literature in third section. Fourth section presents methodology adopted for the analysis and the data source followed by empirical analysis in the fifth section. Sixth section concludes.

2. An overview of governance achievements and aid flow disbursement in the Asian countries

An overview of the achievement in governance in the Asian countries is discussed here on the basis of the World Bank (2010) data on good governance. According to the World Bank (2010), the governance indicator score are measured between -2.50 and 2.50 over time with lower score indicating poor achievement and vice versa. The achievements in various indices of governance indicators in 20 ASIAN countries are presented in table 1a and 1b and the six dimension of governance are defined in the section 3.

It is evident from table 1a and 1b that in the Armenia voice and accountability, government effectiveness, control of corruption deteriorated constantly scoring point below zero. Whereas political stability and regulatory quality showed an improvement as it became positive in post 2005 and regulatory quality in post 2002. In the case of China government effectiveness has improved post 2005 scoring positively where as all other indicator remaining negative throughout. In the case of Georgia government effectiveness and regulatory quality showed an improving trend having a positive score while other indicator deteriorated further whereas India shows positive scores on voice and accountability and Rule of law throughout the period from 2002 to 2008 while other indicator still remains negative. All the six measures show a negative trend for Indonesia throughout the period whereas Jordan reveals a unique picture as out of six indicators four indicators reaming positive throughout and only voice and accountability and political stability showing a negative trend. Kazakhstan shows a negative score throughout the period indicating no improvement at all whilst Laos being indifferent. Lebanon and Pakistan also did not show any positive score for any of the indicator throughout the period of 2002 to 2008. In Philippians Voice and accountability score was positive in the period of 2002 and 2005 but

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[1] For instance see, world bank 1997

became negative in 2008 and government effectiveness in 2008 become zero, while all other remains negative. Tajikstan, Turknenis, Uzbekistan all shows a negative trend in the achievement of good governance. In the case of the Thailand voice and accountability was positive in 2002 and 2005 but became negative in 2008 and political stability showed a positive score in 2002 but deteriorated and became negative in 2005 and 2008 whereas government effectiveness and regulatory quality remain positive in Thailand. Rule of law was positive in 2002 and 2005 but became negative in 2008 whereas control of corruption was below zero throughout. In Turkey government effectiveness and regulatory quality both shows positive score but regulatory quality shows a remarkable improvement. In Vietnam political stability shows a positive score and improvement but all other indicator are below zero and on a deteriorating trend.

Now if we focus on aid flow in ASIAN countries we will find that aid as a percentage of GDP for most of the Asian countries shows a declining trend with exception in the case of Georgia and Lebanon, where aid as percentage of GDP increased from 2005 to 2008 to some extent. Bangladesh and Armenia recorded a small increased in aid as a percentage of GDP from 2005 to 2008 whereas Thailand shows a unique picture where aid as percentage of GDP became negative.

3. A review of literature on aid and governance

If we consider the literature relating to the connections between aid and governance it is somewhat scarce. However, the literature on the role of governance as the economic growth determinant is growing over years. We will present a brief review of literature relating to governance, growth and aid allocation. North (1990) has extensively emphasised the role played by institutions in the process of economic progress and governance is an essential component of the new institutional economics. The study by Coase (1998) and Rutherford (2001) show that institutions are fundamental to the effective functioning of market-based economies and of late studies provide empirical support in this aspect also. For example, Sala-i-Martin (1997) have discussed the role of the institutions on the level of competition and government regulation of markets; Hall and Jones (1999) discussed on the role of institutions on total factor productivity and Keefer and Knack (1997) have focused on the role of property rights and the rule of law as institutions. Though, achievements in good governance vary from country to country as noted in Kaufmann et al. (2004) yet the swiftness of improvements in governance certainly matters for integration in the world economy. Countries engaged in improving the dimensions that contribute to good governance are likely to improve their economic growth.

The link between aid and governance is an issue that requires more rigorous investigation. The literature in this area is scarce. However, some studies find that the increasing in the institutional quality enhances the process of economic growth and development. For example by maintaining a fair and efficient public sector administration, low corruption, effective law enforcement and sound regulation can bring enhanced growth prospects. Corruption is another element that can influence the economic performance of nations to a greater extent. Ades and Di Tella (1999) and Wei (2000) conclude that high trade intensity and or small populations are associated with lower corruption levels. Further, Anderson (2001) suggested that the ill functioning of institutions increases both costs and risks of trading abroad and extending this Anderson and Marcouiller (2002) provided the empirical evidence where deterioration in the quality of institutions reduces foreign demand. There are some studies which have highlighted that institutions affect development process of nations indirectly through their impact on other variables that determine the process of economic growth. For example, Hall and Jones (1999) and Olson et al. (2000)

mentioned that deficient institutions impact productivity and growth and that lower productivity is an impediment to competitiveness which is likely to have negative effects on trade. Similarly, Mauro (1995) discussed on the role of corruption on the economic growth; Gould and Gruben (1996) noted on the role of intellectual property rights on economic growth; Safavian et al. (2001) discussed about the impact of regulatory interruption into enterprise activities; Barro (2001) discussed on the relationship between the rule of law and economic growth; Fischer et al. (2001) discussed on the relationship between bureaucratic inefficiency and financial mismanagement; Djankov et al. (2002) on the relationship between regulation of entry and corruption; and last but not least Tiwari (2010) discussed on the impact of various governance indicators on the economic growth.

4. Econometric analysis of the quality of governance, economic freedom and economic growth

4.1 Model, Data source and Variables definition

This study focuses on finding out the aid flow determinants among 20 ASIAN countries[2] in panel framework for the period 2002-2007. In this study we assume that aid flow depends upon (a) various forms of Good Governance (GGOV), as well as (b) a number of purely Economic Factors (EF) following Mosley et al. (2004) and Gani (2009) but extending the both models. In this study we have preferred panel data analysis technique as it has an advantage of containing "the information necessary to deal with both the intertemporal dynamics and the individuality of the entities being investigated" (Dielman, 1989). The most commonly used ways of assessing the relationship between aid flow and its determinants is the static panel data models. There are basically three types of panel data models namely, a pooled Ordinary Least Squire (OLS) regression, panel model with random effects and panel model with fixed effects. The evaluation of a pooled OLS regression can be specified as follows:

$$AID_{it} = \beta_0 + \beta_1(EF_{it}) + \beta_2(GGOV_{it}) + \varepsilon_{it},\dots\dots\dots\dots(1)$$

where i represents country, t represents time, $GGOV_{it}$ comprises five dimension to measure good governance, EF_{it} comprises variables that are purely economic and these variables we have taken as control variables and the remainder is error term which is assumed to have a normal distribution and varies over both country and time ε_{it}. In this study we define governance as the traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected, monitored and replaced; the capacity of the government to effectively formulate and implement sound policies; and the respect of citizens and the state for the institutions that govern economic and social interactions among them. In this study the five dimensions of governance through which it will be measured are: *Voice and Accountability (VA), Political Stability and Absence of Violence (PS-AV), Government Effectiveness (GE), Regulatory Quality (RQ), and Control of Corruption (CC).* Where VA captures the perceptions of the extent to which a country's citizens are able to participate in selecting their government, as well as freedom of expression, freedom of association, and a free media. PS-AV captures the perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means, including politically-motivated violence and terrorism. GE captures the perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies. RQ captures the perceptions of

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[2] List of the countries included for the analysis is presented in appendix along with the descriptive statistics and correlation analysis.

the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development. And CC captures the perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests. Following the related literature to date, it is expected (*ceteris paribus*) that economic growth is an increasing function of each one of these measures of governance. According to The World Bank (2007), the governance indicator scores are measured between -2.50 and 2.50 over time with lower scores indicating poor achievements and vice versa.

Finally, we have taken some purely economic variable i.e., EF_{it}, to control for their impact on the economic growth. These variables are LRIP, the nominal long term Interest payments on external debt; the total population; and EGS, nominal exports of goods and services, expressed as a percent of GDP and changed in to natural logarithms (following Cebula 1995; Barro 1997); nominal Foreign Direct Investment (FDI) is expressed as a percent of GDP and a measure of economic growth rate measured by GDP growth rate. Presumably, aid flow is a increasing function of LRIP since a higher burden of long term Interest payments on external debt acts to demand for more and more aid, *ceteris paribus*. Similarly, a higher population also forces nations to demand for more and more aid in order to provide long and healthy life. Likewise, higher EGS implies greater rate of real domestic production, *ceteris paribus*. Finally, higher FDI inflow is assumed to be growth generating. For all variables data has been obtained from the official website of World Bank of World Development Indicators (WDI) and was accessed on May 2010. By incorporating the five dimensions of good governance and control variables equation (1) can be specified as follows:

$$AID_{it} = \beta_0 + \beta_1(VA_{it}) + \beta_2(PS_{it}) + \beta_3(GE_{it}) + \beta_4(RQ_{it}) + \beta_5(RL_{it}) + \beta_6(CC_{it}) + \beta_7(LRIP_{it}) + \beta_8(EGS_{it})$$
$$+ \beta_9(GDPgrowth_{it}) + \beta_{10}(POP_{it}) + \varepsilon_{it}, \dots\dots\dots\dots(2)$$

However, while using a pooled OLS regression, countries' unobservable individual effects are not controlled therefore; heterogeneity of the countries under consideration for analysis can influence measurements of the estimated parameters (Bevan and Danbolt, 2004). Further, using a panel data model with incorporation of individual effects has a number of benefits for example, among others; it allows us to account for individual heterogeneity. Indeed, developing countries differ in terms of their colonial history, their political regimes, their ideologies and religious affiliations, their geographical locations and climatic conditions, not to mention a wide range of other country-specific variables (Serrasqueiro and Nunes, 2008). And if this heterogeneity is not taken into account it will inevitably bias the results, no matter how large the sample is. Therefore, by incorporating countries' unobservable individual effects in equation (4) the model to be estimated is as follows:

$$AID_{it} = \beta_0 + \beta_1(VA_{it}) + \beta_2(PS_{it}) + \beta_3(GE_{it}) + \beta_4(RQ_{it}) + \beta_5(RL_{it}) + \beta_6(CC_{it}) + \beta_7(LRIP_{it}) + \beta_8(EGS_{it})$$
$$+ \beta_9(GDPgrowth_{it}) + \beta_{10}(POP_{it}) + w_{it}, \dots\dots\dots\dots(3)$$

where $w_{it} = \mu_i + \varepsilon_{it}$, with μ_i being countries' unobservable individual effects. The difference between a polled OLS regression and a model considering unobservable individual effects lies precisely in μ_i.

To test the relevance of unobservable individual effects we use the Lagrange Multiplier (LM) test. This tests the null hypothesis of irrelevance of unobservable individual effects, against the alternative hypothesis of relevance of unobservable individual effects. If the null hypothesis is not rejected this will implies that unobservable individual effects are not relevant, and therefore, a pooled OLS regression is an appropriate way of carrying out evaluation of aid flow

determinants. On the contrary, if we reject the null hypothesis of irrelevance of unobservable individual effects, we can conclude that a pooled OLS regression is not the most appropriate way of carrying out analysis of the relationship between aid flow and its determinants i.e., unobservable individual effects are of relevance and should be incorporated in the analysis.

However, there may be correlation between countries' unobservable individual effects and aid flow determinants. If there is no correlation between countries' unobservable individual effects and aid flow determinants, the most appropriate way of carrying out analysis is using a panel model of random effects. On the contrary, if there is correlation between countries' individual effects and aid flow determinants, the most appropriate way of carrying out analysis is using a panel model of fixed effects. To test for the possible existence of correlation we use the Hausman test. Hausman test tests the null hypothesis of non-existence of correlation between unobservable individual effects and the aid flow determinants, against the alternative hypothesis of existence of correlation. If the null hypothesis is not rejected we can conclude that correlation is not relevant and therefore a panel model of random effects being the most correct way of carrying out the analysis of the relationship between aid flow and its determinants. On the contrary, if the null hypothesis is rejected we can conclude that correlation is relevant and therefore a panel model of fixed effects being the most appropriate way to carrying out analysis of the relationship between aid flow its determinants.

Further, it is important to be mentioned is that static panel (with or without fixed and random effects) models do not allow us to analyze the possible dynamism existing in country aid flow determinants. Study by Gani (2009) assumes economic growth is an exogenous variable, even though economic growth is expected to be endogenous in growth regressions. Addition to that, economic growth may present issues of reverse causality for example, if economic growth depends on the any of the aid flow determinant variable, it will necessarily depend on aid flow and if this kind of reverse causality is not taken into account, it can lead to serious inaccuracies in research results. In such a situation it is not only that the parameter estimates will be inconsistent (because error term of the growth equation may include factors that both affect aid flow and are correlated with economic growth) but also the magnitude and the meaning of the economic growth parameter will also get altered as well. Therefore, I have employed Arellano and Bond's Generalized Method of Moments (GMM)-type estimator (1991) also to deal with the issue of endogenity in the context of panel data models. In the dynamic framework equation (5) can be written as follows:

$$AID_{it} = \beta_0 + \beta_1(VA_{it}) + \beta_2(PS_{it}) + \beta_3(GE_{it}) + \beta_4(RQ_{it}) + \beta_5(RL_{it}) + \beta_6(CC_{it}) + \beta_7(LRIP_{it}) + \beta_8(EGS_{it})$$
$$+ \beta_9(GDPgrowth_{it}) + \beta_{10}(POP_{it}) + \rho(AID_{it-1}) + w_{it} ,................(4)$$

The GMM-type estimator proposed by Arellano and Bond (1991) is also known as two-step estimation process and are constructed in two phases. Firstly, first differences from the dynamic panel data model are calculated; then, lagged levels of right-hand side variables are used as their instruments. With a lagged dependent variable and other endogenous regressors (as is the case with aid and aid squared), the lagged levels are dated t-2 and earlier (t indexes time). If there are predetermined regressors, all their lagged levels are used as instruments. Evaluation of the equation (4) in first differences allows us to eliminate unobservable individual effects, eliminating in this way the correlation between μ_i and AID_{it-1}. The use of lags of the growth and its determinants as instruments allows for the creation of orthogonal conditions between ε_{it} and AID_{it-1} i.e., eliminating correlation between ε_{it} and AID_{it-1}.

However, Blundell and Bond (1998) conclude that when the dependent variable is persistent i.e., there being a high correlation between its values in the current period and in the previous period, and the number of periods is not very high, the GMM (1991) estimator is inefficient. For this kind of situations Blundell and Bond (1998) have extend the GMM (1991) estimator by considering a system with variables at level and first differences. For the variables at level in equation (4) the instruments are the variables lagged in first differences. In the case of the variables in first differences in equation (6) the instruments are those lagged variables at level. However, the GMM (1991) and GMM system (1998) dynamic estimators can only be considered robust if, firstly the restrictions created as a consequence of using the instruments are valid and secondly there is absence of second order autocorrelation. To test the validity of the restrictions we use the Sargan test in the case of the GMM (1991) and GMM (1998) estimator. In both cases, the null hypothesis is the restrictions imposed by use of the instruments are valid against the alternative hypothesis that the restrictions are not valid. If the null hypothesis is rejected we can infer that the estimators are not robust since restrictions imposed by use of instrument are not valid. And to test for the existence of first and second order autocorrelation we use Arellano and Bond (1991) test. The null hypothesis is that there is no autocorrelation against the alternative hypothesis being the existence of autocorrelation. And if the null hypothesis of non-existence of second order autocorrelation is rejected we conclude that the estimators are not robust.

5. Estimation and Empirical Results

Results of static panel data models and dynamic panel data models have been presented in table 3.

From table 3, it is evident that the results of the Wald test are significant at 5% level of significance in static panel data model and at 1% level of significance at dynamic panel data model and F tests are significant at 1% level of significance in both the static panel and dynamic panel data models therefore we can conclude that we cannot reject the null hypothesis that the explanatory variables do not explain (taken as a whole) the explained variable, and hence the determinants selected in this study can be considered to be enough explanatory of the aid flow determinent. Further, the LM test indicate that we can reject the null hypothesis of irrelevance of unobservable individual effects at 1% significance level that implies that a pooled OLS regression will not be the most appropriate way of carrying out analysis of the relationship between aid flow and its determinants i.e., country specific heterogeneity is playing significant role on the aid flow therefore, it should be incorporated in our model. Though is case of the Hausman test we cannot reject the null hypothesis of absence of correlation between countries' unobservable individual effects and aid flow determinants yet in this case we find that the assumption of Hausman test are not fulfilled. Therefore, analysis of the relationship between aid flow and its determinants is a panel model with fixed effects and in the presence of first order autoregressive scheme has been carried out and results are presented under model 4. It is evident from the results of model 4 that GDP growths, PS, RL and CC have significantly negative impact on the aid flow while RQ has significantly positive impact on the aid flow.

In the next step we present the results of the GMM (1991) and GMM system (1998) dynamic estimators. The results of GMM (1991) and GMM (1998) have been under model 5 and model 6. In this case also the results of the Wald test in both models shows that the determinants used in this study can be considered, as a whole, explanatory of the aid flow as Wald test is significant at 1% level of significance. Further, as the Sargan test is not significant in all models therefore we can conclude that data do not provide evidence to reject the null hypothesis of instrument validity and consequent restrictions generated from use of the GMM (1991) and GMM system

(1998) dynamic estimators respectively i.e., instruments and restrictions generated from use of GMM (1991) and GMM (1998) are valid. Arellano and Bond (1991) test of autocorrelation shows that in all models data do not provide evidence to reject the null hypothesis of absence of first and second order autocorrelation. Therefore, given the validity of the instruments and restriction imposed by GMM (1991) and GMM (1998) and absence of second order autocorrelation, we can conclude that the GMM (1991) and GMM system (1998) dynamic estimators are efficient and robust. But if we see the results obtained from both the models we find wide difference. For instance, population is insignificant in case of GMM (1991) but significant in GMM (1998); VA, GE and RL are significant in case of GMM (1991) but insignificant in case of GMM (1998).

6. Conclusions

In the present study we extended the literature which analysis the importance of governance that is institutions in determining the flow of aid in 20 ASIAN countries in the framework of panel data analysis. For the analysis we adopt fixed effect and random effect model since Hausman test failed to provide the choice between these two we analysed the dynamic panel data models. Though, there is inconsistency on the results reported by GMM (1991) and GMM (1998) models we can conclude on the basis of whole analysis that there is strong evidence of significantly positive impact of past year aid flow and regulatory quality on the current year aid flow while significantly negative impact of exports of goods and services, political stability and control over corruption on the aid flow. Further, we find that these is weak evidence of negative impact of population, voice and accountability, and rule of law whereas government effectiveness is found to be having significantly positive impact but weak on the aid flow.

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Table 1a: Governance indicators

countries	Voice and accountability			Political stability			Government effectiveness		
	2002	2005	2008	2002	2005	2008	2002	2005	2008
Armenia	-0.56	-0.58	-0.66	-0.81	-0.21	0.01	-0.22	-0.09	-0.07
Azerbaijan	-0.89	-1.03	-1.23	-1.13	-1.17	-0.48	-0.87	-0.63	-0.64
Bangladesh	-0.45	-0.52	-0.61	-0.85	-1.61	-1.54	-0.73	-0.84	-0.77
China(pR)	-1.58	-1.52	-1.72	-0.18	-0.25	-0.32	-0.01	-0.12	0.24
Georgia	-0.5	-0.16	-0.25	-1.47	-0.68	-1	-0.76	-0.44	0.18
India	0.38	0.42	0.45	-0.98	-0.74	-0.99	-0.17	-0.12	-0.03
Indonesia	-0.41	-0.18	-0.14	-1.61	-1.25	-1	-0.63	-0.46	-0.29
Jordan	-0.77	-0.49	-0.71	-0.47	-0.29	-0.32	0.13	0.06	0.27
Kazakhstan	-1.13	-0.94	-1.01	0.13	0.01	0.51	-0.88	-0.56	-0.47
Kyrgyz star	-1	-0.8	-0.72	-1.03	-1.09	-0.68	-0.65	-0.8	-0.7
Laos	-1.75	-1.67	-1.71	-0.26	-0.28	-0.01	-0.74	-1.01	-0.84
Lebanon	-0.74	-0.34	-0.4	-0.72	-1.18	-1.94	-0.25	-0.28	-0.64
Pakistan	-1.19	-1.05	-1.01	-1.56	-1.7	-2.61	-0.59	-0.55	-0.73
Philippines	0.14	0.03	-0.2	-0.66	-1.05	-1.41	-0.17	-0.11	0
Tajikistan	-1.25	-1.16	-1.32	-1.37	-1.34	-0.74	-1.18	-0.99	-0.88
Thailand	0.34	0.03	-0.56	0.38	-0.6	-1.19	0.17	0.36	0.11
Turkey	-0.28	-0.05	-0.19	-1	-0.53	-0.73	0.05	0.2	0.2
Turknenis	-1.93	-1.99	-2.06	-0.4	-0.26	0.23	-1.36	-1.42	-1.16
Uzbekistan	-1.66	-1.82	-1.9	-1.21	-1.8	-0.91	-1.12	-1.1	-0.68
Vietnam	-1.5	-1.43	-1.62	0.33	0.37	0.32	-0.46	-0.3	-0.31

Table 1b: Governance indicators

	Regulatory quality			Rule of law			Control of corruption		
countries	2002	2005	2008	2002	2005	2008	2002	2005	2008
Armenia	-0.08	0.11	0.32	-0.51	-0.5	-0.36	-0.7	-0.61	-0.54
Azerbaijan	-0.69	-0.53	-0.32	-0.87	-0.79	-0.76	-0.99	-0.97	-1
Bangladesh	-0.94	-0.95	-0.82	-0.77	-0.83	-0.7	-1.08	-1.31	-1.1
China(pR)	-0.52	-0.26	-0.22	-0.36	-0.41	-0.33	-0.41	-0.67	-0.44
Georgia	-0.84	-0.56	0.59	-1.27	-0.78	-0.34	-1.16	-0.4	-0.23
India	-0.36	-0.21	-0.21	0.03	0.18	0.12	-0.44	-0.34	-0.37
Indonesia	-0.71	-0.48	-0.27	-1.01	-0.84	-0.66	-1.13	-0.87	-0.64
Jordan	0.09	0.25	0.34	0.21	0.44	0.49	0.06	0.34	0.41
Kazakhstan	-0.82	-0.46	-0.37	-1	-0.78	-0.78	-1.08	-0.89	-0.95
Kyrgyz star	-0.17	-0.72	-0.32	-0.75	-1.05	-1.26	-0.81	-1.1	-1.06
Laos	-1.31	-1.2	-1.25	-1.08	-1.1	-0.9	-0.92	-1.16	-1.23
Lebanon	-0.33	-0.19	-0.2	-0.29	-0.35	-0.73	-0.4	-0.5	-0.83
Pakistan	-0.8	-0.59	-0.47	-0.79	-0.89	-0.92	-0.81	-0.99	-0.77
Philippines	-0.1	-0.05	-0.05	-0.52	-0.42	-0.49	-0.52	-0.64	-0.75
Tajikistan	-1.3	-1.04	-0.97	-1.22	-0.93	-1.12	-1.06	-1.09	-0.99
Thailand	0.15	0.41	0.26	0.25	0.11	-0.03	-0.33	-0.13	-0.38
Turkey	0.04	0.18	0.22	-0.13	0.11	0.09	-0.46	0.01	0.1
Turknenis	-1.95	-2.07	-2.03	-1.16	-1.4	-1.3	-1.23	-1.35	-1.34
Uzbekistan	-1.55	-1.71	-1.41	-1.4	-1.39	-1.18	-1	-1.17	-1.08
Vietnam	-0.71	-0.58	-0.53	-0.54	-0.33	-0.43	-0.7	-0.8	-0.76

Table 2: Aid flow in ASIAN countries

Net official development assistance and official aid received (constant 2007 US$)			Aid as a percentage of GDP		
countries	2002	2005	2008	2002	2005	2008
<u>Armenia</u>	4.01E+08	1.88E+08	2.86E+08	4.575659	1.500219	1.655723
<u>Azerbaijan</u>	4.3E+08	2.41E+08	2.22E+08	1.7652	0.63974	0.315187
Bangladesh	1.28E+09	1.48E+09	1.98E+09	0.929454	0.906362	1.005356
china(pR)	1.84E+09	1.83E+09	1.41E+09	0.046382	0.034517	0.019238
Georgia	4.1E+08	3.24E+08	8.49E+08	3.351167	2.056931	4.299439
India	1.87E+09	1.94E+09	2.03E+09	0.098178	0.079193	0.065554
Indonesia	1.65E+09	2.59E+09	1.2E+09	0.272901	0.367236	0.143341
Jordan	7.08E+08	7.2E+08	7.17E+08	3.676723	3.060327	2.402813
Kazakhstan	2.48E+08	2.44E+08	3.15E+08	0.247097	0.185306	0.192046
Kyrgyz star	2.52E+08	2.99E+08	3.4E+08	3.239187	3.363943	3.176365
Laos	3.73E+08	3.28E+08	4.68E+08	4.641246	3.38062	3.842333
Lebanon	6.39E+08	2.72E+08	1.01E+09	1.840508	0.699334	2.219056
Pakistan	2.86E+09	1.78E+09	1.49E+09	1.019685	0.524314	0.383386
Philippines	6.9E+08	5.8E+08	79640000	0.323007	0.231781	0.027171
Tajikistan	2.12E+08	2.76E+08	2.76E+08	2.855863	2.857772	2.292513
Thailand	3.22E+08	-1.2E+08	-5.4E+08	0.086235	-0.02769	-0.10762
Turkey	5.85E+08	4.71E+08	1.87E+09	0.093468	0.060328	0.211597
Turknenis	51540000	34830000	16490000	0.353537	0.154057	0.053431
Uzbekistan	2.4E+08	1.78E+08	1.75E+08	0.54933	0.340226	0.26065
Vietnam	1.73E+09	2.03E+09	2.4E+09	1.215639	1.140453	1.081434

Table 3: Regression results of first specification

Panel data Models: Dependent variable Aid per capita						
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Independent variables	FE	FE@	RE	FE@ with AR(1)	GMM (1991)	GMM (1998)
Aid per capita (-1)	--------	------------	--------------	-------------	0.3316103*** [0.0093449]	0 .4195553*** (.0154295)
GDP growth	-1.052673 (-1.447882)	-0.5868** (0.2244)	-0.903834 (-1.298305)	-0.491242* (0.263821)	-0.496682 (0.4626279)	-0.578178 (0.5260604)
EGS	-1.93E-11 (0.362905)	-9.02E-12 (7.02E-12)	-2.08E-11 (-0.469777)	-1.22E-11 (1.10E-11)	-5.61e-11*** (1.85e-11)	-2.17e-11*** (6.46e-12)
Interest rate	5.81E-10 (0.174556)	4.24E-10 (7.12E-10)	-3.11E-09 (-1.079926)	9.60E-12 (8.60E-10)	-2.60e-10 (1.37e-09)	-3.77e-10 (1.24e-09)
Population	-1.81E-07 (-0.564572)	-2.61E-08 (7.13E-08)	-2.23E-08 (-0.717491)	-4.95E-08 (1.03E-07)	-2.60e-10 (1.94e-07)	-2.07e-07* (1.26e-07)
VA	18.85275 (1.057225)	6.495074 (5.523230)	-4.147988 (-0.343935)	1.665943 (7.048310)	-11.92865** (4.898309)	3.178149 (10.2397)
PS	-18.15787** (-2.060159)	-3.3667 (2.38229)	-12.51521* (-1.734394)	-5.294363* (3.111386)	-16.55565*** (2.863332)	-34.19708*** (4.383888)
GE	28.46727 (0.908574)	12.0586* (7.24316)	-1.841184 (-0.065641)	14.79264 (9.460142)	19.55341** (9.931904)	28.74314 (18.63557)
RQ	49.98562** (2.400038)	13.90342** (5.606021)	50.0276*** (2.737257)	22.03168** (8.551870)	77.84356*** (5.763176)	76.95671*** (14.15137)
RL	-56.96165* (-1.977822)	-16.574** (7.02725)	-41.31953 (-1.626510)	-21.08212** (9.351351)	-68.07046*** (10.46457)	-12.19174 (21.73817)
CC	-9.700724 (-0.424408)	-8.430892* (4.695567)	16.11095 (20.90439)	-12.30564* (6.275808)	-53.37714*** (7.33794)	-32.3476** (15.10777)
Constant	74.31717 (1.330048)	46.4089*** (14.0799)	52.94421*** (2.948075)	43.69738** (20.61037)	-21.4781 (27.91301)	63.18072*** (11.71236)
AR(I)	--------	------------	----------	0.168603 (0.111975)	--------------	------------
Model summary						
R²	0.826317	0.931892	0.147901	0.920892	--------	---------
Arellano-Bond test	-------------	--------------	--------------	---------------	Z1= -1.307 Z2= 1.1957	Z1= -1.3249 Z2= 0.8402
DW	1.603004	1.773109	1.278302	1.800374	-------------	-----------
Sargan test	---------	------------	--------------	-------------	chi2(14)= 6.644	chi2(19)= 8.32
LM	---------	------------	chi2(1) = 85.36***	-----------	---------	------------
Wald chi²	-------	-------	22.39**	23.71**	87886.09***	77997.82***
F-test	18.04609***	51.8991***	2.239084**	34.53499***	--------	--------
Hausman test			-0.84			
Fixed effect(F-test)	$F_{(19, 110)} =$ 12.29***	-----------	------------	-----------	$F_{(5,45)}=$ 25.17***	----------
Cross-sections included	20	20	20	20	20	20
Total panel observations	140	140	140	140	140	140

Notes: 1. The LM test has χ2 distribution and tests the null hypothesis that unobservable individual effects are irrelevant in explaining the dependent variable, against the alternative hypothesis of relevance of unobservable individual effects in explaining the dependent variable. 2. The Hausman test has χ2 distribution and tests the null hypothesis that unobservable individual effects are not correlated with the explanatory variables, against the null hypothesis of correlation between unobservable individual effects and the explanatory variables. 3. The Wald test has χ2 distribution and tests the null hypothesis of insignificance as a whole of the parameters of the explanatory variables, against the alternative hypothesis of significance as a whole of the parameters of the explanatory variables. 4. The F test has normal distribution N(0,1) and tests the null hypothesis of insignificance as a whole of the estimated parameters, against the alternative hypothesis of significance as a whole of the estimated parameters. 5. ***, **, and *denote significance at 1, 5 and 10 % level of significance respectively. 6. The Sargan test has χ2 distribution and tests the null hypothesis of significance of the validity of the instruments used, against the alternative hypothesis of non-validity of the instruments used. 7. The Z1 test has normal distribution N(0,1) and tests the null hypothesis of absence of first order autocorrelation, against the alternative hypothesis of existence of first order autocorrelation. 8. The Z2 test has normal distribution N(0,1) and tests the null hypothesis of absence of second order autocorrelation against the alternative hypothesis of existence of second order autocorrelation. 9. EF, CS, BP-LM, SD denotes fixed-effect, cross-section, Breusch and Pagan's Lagrange multiplier for random effect, and standard deviation respectively. 10. [----] denotes results are not computed. 11. @ denotes that model is estimated with Panel EGLS (Cross-section SUR) method.

Source: Author's calculation

Appendix 1: List of countries included in the analysis, descriptive statistics and correlation analysis

List of countries included in the analysis

Armenia	Georgia	Kazakhstan	Sri Lanka	Turkmenistan	Pakistan
Azerbaijan	India	Kyrgyzstan	Syria	Malaysia	Uzbekistan
Bangladesh	Indonesia	Lebanon	Tajikistan	Mongolia	Vietnam
Cambodia	Iran	Philippines	Thailand	Nepal	
China (PRC)	Jordan	Saudi Arabia	Turkey	Oman	

Descriptive statistics

	AIDPC	GDP growth	EGS	Interest	Population	VA	PS	GE	RQ	RL	CC
Mean	38.69078	7.941837	6.49E+10	1.49E+09	1.66E+08	-0.8306	-0.8115	-0.440	-0.5174	-0.6221	-0.721643
Median	15.24296	7.421355	9.66E+09	2.49E+08	20473317	-0.7150	-0.8850	-0.46500	-0.44500	-0.7450	-0.795000
Maximum	279.2990	34.50000	1.00E+12	1.12E+10	1.32E+09	0.4700	0.5100	0.36000	0.59000	0.5100	0.440000
Minimum	-13.54016	-0.175548	45265296	10551000	3059964.	-2.1100	-2.6100	-1.4200	-2.1900	-1.4100	-1.420000
Std. Dev.	51.64651	4.467341	1.66E+11	2.13E+09	3.52E+08	0.6663	0.6416	0.43425	0.60483	0.4814	0.418106
Skewness	2.201800	2.395608	4.230548	1.835529	2.571804	-0.0241	-0.0666	-0.0615	-0.7285	0.5028	0.832062
Kurtosis	8.502143	13.65415	20.98201	6.753991	7.984014	2.0798	2.6453	2.07458	3.1393	2.4686	3.314563
Jarque-Bera	289.7141	796.0554	2303.833	160.8198	299.2331	4.9532	0.8373	5.08399	12.4968	7.5458	16.73152
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.0840	0.6579	0.07870	0.00193	0.0229	0.000233

Correlation analysis

	AIDPC	GDP Growth	EGS	Interest	Population	VA	PS	GE	RQ	RL	CC
AIDPC	1										
GDP Growth	-0.060	1									
EGS	-0.2607	0.08090	1								
Interest	-0.33367	-0.19448	0.44957	1							
Population	-0.31421	0.04368	0.79660	0.525303	1						
VA	0.07945	-0.27299	-0.1114	0.453664	0.117462	1					
PS	-0.0287	0.22802	0.17575	0.00606	0.061198	-0.234	1				
GE	0.107389	-0.176281	0.37442	0.538754	0.3429165	0.6120	0.21710	1			
RQ	0.28507	-0.17503	0.17081	0.382665	0.131877	0.6987	0.096462	0.89516	1		
RL	0.15099	-0.155741	0.22368	0.465728	0.3183861	0.6053	0.2499023	0.90062	0.80924	1	
CC	0.2749	-0.16841	0.19156	0.434326	0.2092778	0.5156	0.1935270	0.87152	0.77934	0.90487736	1