AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
<http://ageconsearch.umn.edu>
aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

Growth effect of aid and its volatility: An individual country study in South Asian economies

T.Bhavan, Changsheng Xu, Chunping Zhong

School of Economics, Huazhong University of Science and Technology (HUST), China

e-mails: ttbhavan_ecn@yahoo.com; chshxu@hotmail.com; cpzenith@163.com

This paper empirically investigates the growth effect associated with aid and its volatility during the period 1995-2008 in the case of five South Asian economies. The aid is classified into short impact, long impact and humanitarian aid. We obtained results for each of the country by employing two-stage least squares method. The results suggest that gross aid is positively associated with growth rate where as its volatility negatively effects growth rate South Asian countries. Short impact and long impact aid positively effect on growth rate whereas respective aid volatilities have negative effects on all the economies, excluding at least one country in each case. Humanitarian aid and its volatility have mixed results. Thus, we come to a conclusion that, aid and aid volatility have strong association with growth rate in the South Asian countries, but varies considerably from country to country in terms of magnitude of effect and in relation to the growth rates.

JEL Classifications: F35

Keywords: Aid, volatility, growth rate, South Asia, fungibility.

Introduction

Aid is a voluntary transfer of resources, under the various categories from one country to another, given by individuals, private organizations, or governments in order to give support for the recipients' economic development. However, the debate over the effectiveness of foreign aid and its effect on economic growth has been revived in recent years (Quattara, 2006). The ultimate questions arise on aid that "Is aid effective?", "If yes-how far?", "If not - why?". Especially, macroeconomic impact of foreign aid is becoming hotly contested topic among the economist and policy makers in which most of the studies intently focus on growth and fiscal behaviour (McGillivray et al., 2006). Because, the magnitude and effectiveness of aid is measured as how it affects the behaviour of the fiscal activities and then growth rate of the economy. Further, as far as economic growth impact of aid flow is concerned, the topic of aid volatility is also a matter of concern in the analysis of effect of aid on growth and fiscal behaviour in the economies (Bulir and Hamann, 2008).

Since, the last decade has witnessed a revival on the interest in growth effect of aid and its volatility (Neanidis and Varvarigos, 2009), and the countries in South Asia have been one of the destinations of foreign aid, this study attempt to investigate growth effect of aid and aid volatility in case of five selected countries in the South Asian region. In this study, South Asian used to refer Bangladesh, Pakistan, India, Sri Lanka and Nepal.

Growth effect of aid

Foreign aid plays an essential role fulfilling saving gap, accumulating physical and human capital stock, developing infrastructure in the host countries (McGillivray, 2009), and thus promote economic growth in recipient countries. Studies on growth effect of foreign aid in the developing countries, in 70s, found zero correlation between growth and aid, but came under criticism that during 1970s and 80s the concept of aid, its implementation

process, and evaluation methods were new (Doucouliagos and Paladam, 2009). However, according to McGillivray et al. (2006) some researchers in 60s and 70s have also found that aid was associated either with higher savings or growth, while some others found the opposite. Later on, some findings came to various conclusions on the effect of aid on growth. In such a way, authors Doucouliagos and Paladam (2009) in their Meta study, which analyses previous studies and theories related to growth impact of foreign aid, concluded that the aid-growth effect is stronger in Asian countries. Using panel unit root tests, Asteriou (2009) investigated long-run relationship between foreign aid and economic growth in South Asian countries and found that there is a positive relationship between aid and GDP growth. Morrissey et al. (2006) analyzed whether loans and grants to the poor countries have different impact on growth, and concluded that aid loans are found to have a negative impact on long run growth, while grants have a positive impact on it. McGillivray and Ouattara (2005) analyzed the effect of aid inflow on the public sector fiscal behaviour, considering debt servicing in Cote d'Ivoires, found that as most of the aid is used for debt there is a weak relationship between aid and growth, and also suggest that aid doesn't appear to induce reduction in borrowing. Dalgaard and Hansen (2001), using neo-classical growth model, analyzed growth effect of aid being good policies, concluded that good policies is likely to reduce the growth effect of aid because they act as substitutes in the growth process. In contrast, Burnside and Dollar (2000) has different findings on aid, policies, and growth that aid has positive impact on growth in developing countries with good fiscal, monetary and trade policies. Hansen and Tarp (2000) also concluded their study on the link between aid and growth that aid is successful only when associated with good policies in the recipient countries. In the study they offer a re-examination of the literature on the aid -saving, aid -investment, and aid - growth relationship, and a comparative appraisal of more recent research contributions. Contrarily, Arellano et al. (2008) analyzed the effect of aid on consumption, investment, and the structure of production using two-sector general equilibrium model in Africa, suggested that a permanent flow of aid mainly finances consumption rather than investment and which is consistent with the historical failure of aid inflows to translate into sustain growth. McGillivray et al. (2006) surveyed 50 years of empirical research on aid effectiveness and on the link between aid and growth. According to that literature he gave as a partial conclusion that growth in the recipient countries would be lower in the absence of aid.

Growth effect of aid volatility

The aid volatility is known as a variation or instability in its flow, which may result in volatility of expenditure, instability policy and thus inhibit economic growth in recipient economies. Economists and policy makers further argue that volatility damages the macroeconomic effectiveness of aid, reduces the ability of the recipient public sector to implement investment programs and fiscal policies (Hudson and Mosely, 2008a). Moreover volatile in aid flows result in variability of expenditure and thus in a proliferation of half -complete projects, thus lowering their rate of return. Volatile inflows especially in the form of technical assistance and consultancy result in high staff turnover, discontinuity of relationships within the aid donor-recipient community, and as a consequence of the resulting low levels of social capital. Further, the unstable expenditure disbursement resulting from volatile inflows creates an unpredictable policy environment (Hudson and Mosely, 2008b). These issues did not feature prominently in the literature until fairly recently. Only few studies have reported the issues either with limited variables or known as preliminary studies. However, some studies attempt to explore how it effects in recipient economies. Building his previous analysis, Bulir and Hamann (2008) discussed the relative volatility of aid flows in the developing countries and their domestic revenues, concluded that volatility makes the macro economy hard to manage in very poor or aid dependent countries, whereas Neanidis and Varvarigos (2009) analyzed the growth effect, considering two types of aid such as directly productive and pure aid, found that aid can hurt the recipient's growth rate emerge only in case where foreign aid is volatile. But

Hudson and Mosely (2008a) argued that the poor countries have the highest volatility appears not to be correct, concluding that impact of aid on growth is depends on the types of aid, and further suggested that measures which increase trust between donor and recipient, and reductions in the degree of donor oligopoly reduce aid volatility without obviously reducing its effectiveness. Hudson and Mosely (2008b), in their another study, analyzed macroeconomic impact of aid volatility, taking aid volatility on GDP/GNP shares of expenditure into account, concluded that positive volatility reduces import shares whilst negative volatility increases consumer's expenditure shares.

Heterogeneity and fungibility of aid

Apart from the function of aid that objective of benefiting the recipients' economy and volatility in its flow, it is widely seen as aid has other functions as well: aid may be given as a signal of diplomatic approval, or to strengthen a military ally, to reward a government for behaviour desired by the donor, to extend the donor's cultural influence, to provide infrastructure needed by the donor for resource extraction from the recipient country, or to gain kinds of commercial access (Round and Odedokun, 2004). In addition (Chauvet, 2002) pointed out that humanitarianism and altruism are, nevertheless, significant motivations for giving of aid. Therefore, aid is seen as not only development financing factor but also a strategic weapon to implement donors' policies. Therefore, it is said that aid has heterogeneous function in the economies which could be diverted from the actual destination and its effectiveness in the recipient economies (Mavrotas, 2005).

The fungibility of aid is that, briefly, if the government spending pattern and the objectives of the donors are not coordinated in terms of actual destination of aid that leads to the meaning of fungibility of aid (McGillivray and Morrissey, 2000). On the other hand, fungibility refers to as whether aid is used for expenditure purpose other than those for which donors intended it (Feeny and McGillivray, 2003). McGillivray (2009), studied on bilateral and multilateral foreign aid impact on fiscal behaviour in Philippines and pointed out in his conclusion that multilateral program in the presence of economic reform program appears to be highly fungible.

Aid flow and volatility in South Asian countries

As the trend of aid and its volatility is concerned, under the various conditions that are put forwarded by the donors, most of the South Asian countries depend upon developed countries and donor agencies receiving aid for long-term, short-term and humanitarian development programs. Aid flow into the South Asian region is highly volatile shows no stability in its trend over the years. The Figure 1 shows that how the percentage shares of aid disbursement fluctuate among the South Asian countries during the period 1995-2008.

In addition, obviously, the South Asian countries are vulnerable facing civil conflict and guerrilla war, political instability, and natural disasters over the last few years, which allow foreign aid to be heterogeneous and fungible. Since studies on growth effect of aid and its volatility haven't so far been done taking individual country effects into account in South Asia, this study, therefore, with our strong intention, fulfills this gap mainly focusing on growth effect of aid and its volatility in each country in South Asia.

Thus, the objective of this study is to investigate how far gross and classified aid and respective aid volatilities affect economic growth in each of the countries. We classify aid into short impact, long impact and humanitarian aid. Because, there is a possibility that different types of aid and volatility may have different implications for their effectiveness on recipients' growth rate (Neanidis and Varvarigos, 2009).

The rest of the paper is organized as follows. Section A presents data and method. Section B presents and interprets the empirical findings.

FIGURE 1. PERCENTAGE SHARE OF AID AMONG SOUTH ASIAN COUNTRIES

Source: Statistics-OECD.

A. Data and method

Data

Our aim is to have individual investigation for each of the South Asian countries with respect to the growth effect of gross and classified aid and respective aid volatilities. A detail on classifications of aid which is shown in Table 1 is based on Neanidis and Varvarigos, (2009).

TABLE 1. CLASSIFICATION OF AID

Short impact	Long impact	Humanitarian
1.Conflict,peace and security	1.Education	1.Development food aid/food security assistance
2.Transport and storage	2.Health	2.Emergency food and aid
3.Communications	3.Population policies/ programmes and reproductive health	3.Other emergency and distress relief
4.Energy generation and supply	4.Water supply and sanitation	4.Reconstruction
5.Banking and financial service	5.Government and civil society	
6.Business and other service	6.other social infrastructure and services	
7.Agriculture,forestry and fishing	7.Construction	
8.Industry	8.Turism	
9.Mining and mineral resources	9.General environmental protection	
10.Trade policy and regulations	10.Women in development	
11.General budget support	11.Other multi-sectoral	
12.Other general programme and commodity assistance	12.Support to NGO's	
13.Action relating to debt	13.Unallocated/unclassified	

Sources: OECD; Neanidis and Varvarigos (2009)

The data set comprises time series data of five countries over the period 1995 to 2008, comes from three different sources. The data on gross and classified aid are drawn from the Organization for Economic Co-operation and Development (OECD) data base while the development indicators come from the World Bank data base. The data on natural

disasters is drawn from Centre for Research on the Epidemiology of Disasters (CRED). The empirical model contains gross and classified aid, and respective volatility variables as key variables, and development indicators as supporting variables. To study independent growth effect of each of the aid and volatility variables, we apply this model which is consistent for each country's time series data.

Method

The specification of empirical model takes form as:

$$g_t = \beta_0 + \beta_1 a_t + \beta_2 \phi a_t + \beta_3 ca_{jt} + \beta_4 \phi ca_{jt} + \beta_5 V_t + u_t,$$

where g_t denotes log of growth rate of GDP of country at time t , a_t indicates gross aid as percentage of GDP, ϕa_t denotes volatility of gross aid. The aid variables are classified into short impact, long impact and humanitarian aid, and aid volatility variables are also classified into three in similar way. Then, ca_{jt} is vector of classified aid variables as percentage of GDP which includes short impact aid, aid^s , long impact aid, aid^l , and humanitarian aid, aid^h , respectively. ϕca_{jt} is vector of classified aid volatility variables which includes volatility of short impact, $vaid^s$, long impact, $vaid^l$, and humanitarian aid, $vaid^h$, respectively. V_t is vector of development indicators such as log of tax income as percentage of GDP, $lntax$, life expectancy, le , fertility rate, fr , M2 to GDP, $m2$, log of GDP per capita income, $lnqpercap$ and gross capital formation as percentage of GDP, Gcf , and u_t is error term. Aid volatility variables are measured as squared of mean-adjusted relative change in the log of aid variables, shown as $\phi a_t = (va_t - mva_t)^2$, where ϕa is aid volatility, t is time, va denotes relative change in the log of aid, mva is mean of relative change in the log of aid.

Under the assumption of being aid variables with endogenous character in the empirical model, we tested endogeneity of the aid variables using regression based Hausman test. The result was favouring the use of 2SLS method to overcome the endogeneity issue. Although, in principle, the endogenous problem can be avoided using instrumental variable techniques, the fundamental problem is that there are no ideal instrumental variables. However, a good instrument would be a variable which is highly correlated with aid variables but not with error term in the regression. Further, under the suspicious of multicollinearity issue among the aid variables, the variables came under the joint significant F test. We found no multicollinearity issue among the classified aid variables, which allowed us to perform independent growth effect with respect to the classified aid variables. In this analysis, the endogenous variables are instrumented with the variables such as battle related deaths, brd , proxied as countries experience with civil or guerrilla war, incidents of shocks, pkd , proxied as natural disasters, donor concentration ratio, dcr , which indicates the dependence of the country on individual donors, or inversely as an indicator of the degree of monopoly of those donors (Hudson and Mosely, 2008b), and lags of endogenous variables. The hypothesis of this analysis is that short impact and long impact aid positively effect on economic growth as they are directly tied up with productive activities, while humanitarian aid may effect negatively as it's not transferred for production purposes, and aid volatility except humanitarian aid inhibits growth rate in recipient countries.

B. Empirical Findings and Interpretations

The results on growth effect of different types of aid and respective aid volatilities for Bangladesh, India, Nepal, Pakistan and Sri Lanka are shown in Table 2. The specifications (1)-(4) in each country's column show the results on gross, short impact, long impact and

humanitarian aid respectively. The results exhibit a reasonably good fit, with key and supporting variables.

The growth effect of gross aid depicted as specification (1) is positive in all countries and also reported significant except in Pakistan. The magnitude of effect of this coefficient is relatively high in India and low in Pakistan and Sri Lanka. Contrary, volatility of gross aid is found to have negative association with the growth rates in all countries. The growth inhibition of volatility is relatively high in India and Nepal, and low in Sri Lanka, at the same time which is also not significant in Pakistan as well. The results on short impact aid shown as specification (2) considering the link to the growth rate suggest that it positively impacts on growth in all countries. The degree of coefficient values of this variables show significance in all countries excluding Nepal.

TABLE 2. 2SLS RESULTS

Variables	Bangladesh				India				Nepal			
<i>aid</i>	0.1801*** (0.008)				0.4631** (0.046)				0.3329*** (0.000)			
<i>void</i>	-0.4706*** (0.000)				-0.6245** (0.073)				-0.6183*** (0.000)			
<i>aid</i> ^a	0.4479*** (0.000)				0.2336* (0.146)				0.0618 (0.477)			
<i>void</i> ^a	-0.4839*** (0.000)				-0.0187* (0.189)				-0.1745*** (0.001)			
<i>aid</i> ^b	0.3145*** (0.002)				0.9762*** (0.006)				0.1123*** (0.003)			
<i>void</i> ^b	-0.1782*** (0.001)				-0.0979*** (0.060)				-0.1050** (0.014)			
<i>aid</i> ^c		-0.7679*** (0.004)				-0.7495*** (0.023)				-0.0075 (0.949)		
<i>void</i> ^c		0.0522* (0.127)				-0.0017 (0.834)				0.0650** (0.025)		
<i>M2</i>	0.0469** (0.012)	0.0614*** (0.005)	0.0243* (0.109)	-0.0556*** (0.001)				0.1294*** (0.000)	0.0119 (0.744)	0.1891*** (0.001)	0.1226** (0.051)	
<i>lnTax</i>	0.2140* (0.083)	0.2832** (0.015)	0.0045 (0.963)	0.2445** (0.045)	0.3443* (0.150)	0.3350* (0.155)	-0.4063 (0.337)	0.2007* (0.290)	-10.6806*** (0.000)	-1.2057* (0.270)	-9.1729*** (0.000)	
<i>Le</i>	-0.2589*** (0.005)	-0.2589*** (0.005)	-0.1327** (0.064)	0.1764*** (0.003)	-0.0365* (0.115)	0.0037 (0.879)	-0.0040 (0.908)	0.0025 (0.917)	0.1000*** (0.000)	0.1051 (0.358)	-0.0908* (0.188)	-0.0229* (0.163)
<i>Fr</i>	-0.2548*** (0.001)	-0.8628*** (0.000)	-0.0653 (0.345)	-0.2101*** (0.000)					-0.9495*** (0.000)	-0.4586* (0.103)	-0.1554 (0.382)	-0.0206 (0.0779)
<i>lnGdp</i>					0.5219*** (0.000)	0.5449*** (0.000)	0.5333*** (0.000)	0.5378*** (0.000)				0.5352*** (0.000)
<i>Constant</i>	14.317*** (0.002)	26.5606*** (0.001)	8.6293** (0.040)	-8.1054*** (0.000)	2.3954** (0.045)	0.0776 (0.950)	1.4672 (0.375)	0.5470 (0.650)	5.5749*** (0.000)	-5.0888 (0.490)	16.5452*** (0.008)	2.6144** (0.163)
Wald chi ²	80.88	32.74	36.29	99.84	773.55	553.11	891.95	566.49	174.99	19.49	27.52	194.79
Prob>chi ²	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0034	0.0001	0.0000
R-square	0.7511	0.7806	0.7669	0.6294	0.9749	0.9758	0.9632	0.9823	0.9359	0.3062	0.6815	0.9464

Note: *, **, *** Denotes significance at a 10%, 5%, 1% level, respectively. *P* values are shown in parentheses.

TABLE 2. 2SLS RESULTS (cont-d)

Variables	Pakistan				Sri Lanka			
<i>aid</i>	0.0432				0.0231**			
	(0.636)				(0.075)			
<i>vaid</i>	-0.0166				-0.0852***			
	(0.856)				(0.010)			
<i>aid</i> ^b	0.0823*				0.4650***			
	(0.239)				(0.000)			
<i>vaid</i> ^b	0.0154				-0.4122***			
	(0.674)				(0.0000)			
<i>aid</i> ^d	2.7243**				-0.0907**			
	(0.090)				(0.119)			
<i>vaid</i> ^d	-0.5465***				0.1126***			
	(0.012)				(0.000)			
<i>aid</i> ^h		0.4655				0.0477*		
		(0.339)				(0.299)		
<i>vaid</i> ^h		-0.0332				-0.1001***		
		(0.421)				(0.003)		
<i>M2</i>	0.1837***	0.0231	-0.2473*	0.1590***	-0.0496***	0.0042	0.0126	
	(0.001)	(0.688)	(0.113)	(0.001)	(0.005)	(0.676)	(0.415)	
<i>lnTax</i>	-5.7003***	1.1550	5.2162*	-2.8330**	-0.7286***	1.7259**	3.1091***	-0.3260
	(0.016)	(0.547)	(0.106)	(0.079)	(0.001)	(0.049)	(0.000)	(0.554)
<i>Le</i>	0.1984	0.4398**	0.2021	-0.3280**	0.0278**	0.3665***	0.1160***	0.0737***
	(0.333)	(0.040)	(1.00)	(0.036)	(0.063)	(0.000)	(0.000)	(0.004)
<i>Fr</i>	-0.5525*	-0.6387*	-0.0788	-0.0469				
	(0.302)	(0.147)	(0.846)	(0.808)				
<i>lnGdp</i>					0.7908***			
					(0.000)			
<i>Constant</i>	-4.9076	-34.254**	-15.7880	-14.1494*	0.2852	-28.8159***	-14.8536***	-3.2572*
	(0.748)	(0.031)	(0.353)	(0.098)	(0.830)	(0.000)	(0.000)	(0.286)
<i>Wald chi²</i>	51.72	71.22	44.42	30.92	122.95	64.09	51.73	35.64
<i>Prob>chi²</i>	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
<i>R-square</i>	0.7409	0.8197	0.5010	0.8813	0.9331	0.7722	0.8586	0.7099

Note: *, **, *** Denotes significance at a 10%, 5%, 1% level, respectively. *P* values are shown in parentheses.

Looking at its volatility effect on growth, which is negative in case of all countries except Pakistan. The magnitude of the effect is relatively high in Bangladesh and Sri Lanka. Specification (3) depicts the findings on long impact aid which have almost unique sign in case of Bangladesh, India, Nepal and Pakistan that all positively effect on growth rates whereas which is negative in Sri Lanka. On the other hand, when long impact aid volatility has negative association with growth in all countries, only Sri Lanka has positive impact. Sri Lanka has completely opposite results to other countries in this case. As far as humanitarian aid effect is concerned, shown as specification (4) it has almost mixed results that shows negative association with growth rate in Bangladesh, India and Nepal, whereas which is positive in case of Pakistan and Sri Lanka. Coefficients for Pakistan and Nepal are reported insignificant. The volatility of humanitarian aid is reported as positive association with growth in Bangladesh and Nepal whilst which is negative in India, Pakistan and Sri Lanka. The degree of coefficient values is reported insignificant in Pakistan and India as well. Turning our attention on the supporting variables, a few variables are not so a statistically significant degree, but however the model shows good fit.

In our results, most of the variables are significant and strongly support the hypotheses. However, a few variables don't catch up our hypotheses and give contradiction results. In case of Pakistan and Sri Lanka, at least one case doesn't catch up our hypothesis, in which long impact aid shows negative association with growth in Sri Lanka whereas volatility in short impact aid positively effects growth in Pakistan. The reason may be due to the fungible characteristics of aid in developing countries. There is possibility that the aid may likely to change the actual destination in the recipient countries. Because, since the governments in developing countries still play an important role, for better or worse, and most of the aid is allocated through the public sector, and there is no proper monitoring system that could be proceeded by donors to investigate the actual destination of aid, the aid is vulnerable to be misdirected from the donors' objectives. Further, there is no reliable feedback system also maintained in the recipient side as well. In addition there is possibility that the effect of aid could vary from country to country, with respect to the socio-economic and political conditions (Feeny and McGillivray, 2003). Rajan and Subramanian (2005) give a theoretical argument on how aid could hurt growth rate that aid reduces the competitiveness of the traded goods sector and reallocate towards the non-traded sector. In this way aid could be negatively associated with growth rate.

As far as aid volatility is concerned in these countries, commitments with donors, conditions that put forwarded by them and natural disasters are seen as important sources of volatilities in aid flow, and also aid disbursements are pretty hard to predict from the recipient side, particularly on the basis of donors commitments (Bulir and Hamann, 2007). Particularly, the countries those that are tied with military activities and have experience with guerrilla and civil war fail to fulfill donors' conditions. Most of the South Asian countries are seen vulnerable considering in these factors and likely to have then instability in aid flow. Moreover, all the South Asian countries have been typical in receiving aid from same donors. G8 countries excluding Russia, and Austria, Australia, Belgium, Denmark, Finland, Ireland, Netherlands, Norway, New Zealand, Sweden, Switzerland, Korea, and Arabic countries are permanent donors whilst the countries such as Luxemburg, Spain, Greece, Portugal seems to be temporary donors for these countries, which comes under the fact that the donor concentration ratio or degree of monopoly of the donors is one of the factors that could determine volatility in aid flow (Hudson and Mosley, 2008b). However, there should be a separate study on the determinants of aid and aid volatility in these countries.

Concluding this section, the overall results explore that magnitude and the link between aid and aid volatility, and growth vary in terms of types of aid and from country to country, though the permanent donors are almost same for these countries. Though the magnitude of growth effect of different types of aid variables in most of the countries is very low, however, they have positive and significant effect on growth rate. In addition, we also conclude that the concept of aid volatility is also strong in South Asian countries, especially in Bangladesh, Nepal and Sri Lanka, while which is valid to some extend in Pakistan and India. Further, although some variables that contrast to our hypothesis also give support for the conclusion that aid and its volatility is strong in terms of growth in South Asian countries.

Conclusion

The objective of this paper was to investigate growth effect of different types of aid and aid volatilities focusing on five countries in South Asia. We classified aid into short impact, long impact and humanitarian aid, and calculated volatilities of respective types of aid. Using time series data, we employed two stage least-squares (2SLS) method under the hypotheses that short impact and long impact aid positively effect on growth rate while humanitarian aid may effect growth negatively, and aid volatility except humanitarian aid inhibits growth rate in recipient countries. Most of the coefficients with regards to the effects of different types of aid and aid volatility on growth rate strongly support our hypotheses. Not surprisingly, we also received some results which fail to catch up our

hypotheses, for which we put forward argument that generally aid in developing countries have fungible characteristics. The magnitude of effects of types of aid and aid volatilities vary considerably from country to country. We, thus, come to a conclusion in this paper that aid and aid volatility strongly effect economic growth in South Asian countries. At this point, we also suggest further analyses investigating determinants of volatilities and sectoral impact of the classified aid with respect to the South Asian countries.

References

- Arellano, C., Bulir, A., Timothy and Lipschitz, L., 2009. "The dynamic implications of foreign aid and its variability," *Journal of Development Economics*, Vol.88, pp. 87-102.
- Asteriou, D., 2009. "Foreign aid and economic growth: New evidence from a panel data approach for five South Asian countries," *Journal of Policy Modeling*, Vol.31, pp.155-61.
- Bulir, A. and Hamann, A., 2008. "Volatility of development aid: From the frying pan into the fire?," *World Development*, Vol.36, pp.2048-2066.
- Burnside, C. and Dollar, D., 2000. "Aid, policies, and growth," *The American Economic Review*, Vol.4, No.90, pp.847-868.
- Chauvet, L., 2002. "Socio-political instability and the allocation of international aid by donors," *European Journal of Political Economy*, Vol.19, pp.33-59.
- Dalgaard, C., and Hansen, H., 2001. "On aid, growth and good policies," *The Journal of Development Studies*, Vol.37, No.6, pp.17-41.
- Doucouliaios, H. and Paladam, M., 2009. "Aid effectiveness on growth: A meta study," *European Journal of Political Economy*, Vol.24, pp.1-24.
- Feeny, S. and McGillivray, M., 2003. "Aid and public sector borrowing in developing countries," *Journal of International Development*, Vol.15, pp.989-98.
- Hansen, H. and Tarp, F., 2000. "Aid effectiveness disputed," *Journal of International Development*, Vol.12, pp.375-98.
- Hudson, J. and Mosley, P., 2008a. "Aid volatility, policy and development," *World Development*, Vol.36, pp.2082-102
- Hudson, J. and Mosely, P., 2008b. "The macroeconomic impact of aid volatility," *Economics Letters*, Vol.99, pp.486-89.
- Mavrotas, G., 2005. "Aid heterogeneity: Looking at aid effectiveness from a different angle," *Journal of International Development*, Vol.17, pp.1019-1036.
- McGillivray, M. and Morrissey, O., 2000. "Aid fungibility in assessing aid: Red herring or true concern?," *Journal of International Development*, Vol.12, pp.413-28.
- McGillivray, M. and Ouattara, B., 2005. "Aid, Debt Burden and Government Fiscal Behaviour in Cote d'Ivoire," *Journal of African Economies*, Vol.14, pp.247-69.
- McGillivray, M., Feeny, S., Hermes, N. and Lensink, R., 2006. "Controversies over the impact of development aid: It works; It doesn't; It can, but that depends," *Journal of International Development*, Vol.18, pp.1031-1050.
- McGillivray, M., 2009. "Aid, economic reform, and public sector fiscal behaviour in developing countries," *Review of Development Economics*, 13(3), pp.526-542.
- Morrissey, O., Iseli, O. and Manja, D., 2006. "Aid loans versus aid grants: Are the effects different?," *CREDIT Research Paper*, University of Nottingham, No.06/07.
- Neanidis, C. and Varvarigos, D., 2009. "The allocation of volatile aid and economic growth: Theory and evidence," *European Journal of Political Economy*, Vol.25, pp.447-62.
- Ouattara, B., 2006. "Foreign aid and Government fiscal behaviour in developing countries: Panel data evidence," *Economic Modelling*, Vol.23, pp.506-514.
- Rajan, G. and Subramanian, A., 2005. "What undermines aid's impact on growth?," *IMF working paper*, WP/05/126.
- Round, I. and Odedokun, M., 2004. "Aid effort and its determinants," *International Review of Economic & Finance*, Vol.13, pp.293-309.