Foreign Aid-Growth Nexus in Pakistan:

Role of Macroeconomic Policies

By

Muhammad Javid

Department of Economics

Pakistan Institute of Development Economics Islamabad,

2010

Foreign Aid-Growth Nexus in Pakistan:

Role of Macroeconomic Policies

By

Muhammad Javid

A dissertation submitted in partial fulfillment for the degree of

Master of Philosophy in Economics

Department of Economics

Pakistan Institute of Development Economics Islamabad,

2010

CERTIFICATE

This dissertation by Muhammad Javid is accepted in its present form by the Department of Economic, Pakistan Institute of Development Economics Islamabad. It is certified that it is satisfactory in scope and quality as a dissertation in partial fulfillment for the degree of Master of Philosophy in Economics.

Supervisor

_____

Dr. Abdul Qayyum
Professor
PIDE, Islamabad

External Examiner

_____

Head of Department

_____

Dr. Ejaz Ghani
Head of Department
PIDE, Islamabad

DECLARATION

I hereby declare that this thesis is the result of my individual research and that it has not been submitted concurrently to any other university for any other degree.

Muhammad Javid

Dedicated to my Parents

Acknowledgements

Abstract

Despite receiving the large quantities of foreign aid, like many other Least Developing Countries, Pakistan has remained stagnant and become more aid dependent. This grim reality provokes vigorous debate on the effectiveness of aid. This study examines the effectiveness of aid, focusing on the ongoing debate on the interactive effect of aid and policy on sustainable economic growth. We disaggregate the total aid into bilateral and multilateral aid to examine the separate affect of these forms of aid on economic growth. The empirical analysis is based on the ARDL cointegration approach using the data for the period 1960 to 2008.

Empirical findings suggest that foreign aid has no role in economic growth of Pakistan under the period reviewed. Based on the empirical results we find that foreign aid and real GDP has negative relationship while aid-policy interactive term and real GDP growth has positive and significant relationship. The interesting results emerge; when Aid/GDP alone is introduced into the growth equation it has insignificant positive coefficient in the long run and negative and weakly significant coefficient in the short run. Similar results obtained when we disaggregate aid in term bilateral and multilateral component. The results strongly support the view that foreign aid does have positive impact on economic growth in Pakistan conditional on sound macroeconomic policies.

TABLE OF CONTENTS

List of Tables

List of Figure

Chapter 1

Introduction

Foreign aid has been a major source of external financing for developing countries over the past several decades. The rationale for foreign aid based on the tow gap model. In the least developed countries (LDC) the demand for investment cannot be met from domestic savings and exports earning are also insufficient to finance imports. The transfer of resources from abroad in the form of credits, grants, loan and foreign direct investment are used to meet the investment demand and imports requirements in the LDCs. Foreign aid is used as to fill both a savings-investment gap and a foreign exchange gap in the LDCs. Literature highlights four broad economic objectives of foreign aid. These includes: 1) foreign aid stimulates economic growth through building infrastructure, supporting productive sectors such as agriculture and manufacturing and bringing new ideas and technologies, 2) it strengthens the important sectors, such as education, health, environment and political systems, 3) Aid is used to support subsistence consumption of food, 4) aid help to stabilize the economy following economic shocks. It is important to determine whether foreign aid has been effective in achieving these objectives.

Foreign aid is highly a controversial topic in terms of its impact on economic growth of recipient country, the purposes for which it is allocated and the terms and condition under which it is transferred. The literature on effectiveness of foreign aid has three broad strands. The first one points positive effect of aid on

economic growth (Dalgaard and Hansen 2000, Hansen and Tarp, 2001; Asterious, 2009 and Lensink and White 2000; Clemens et al, 2004). The second strand suggest that aid has positive effect on economic growth conditional on sound economic policies, good governance, strong institution, and favorable geography (Burnside and Dollar, 1997 2000; Collier and Dehn, 2001; Alvi *et. al.,* 2008; Durbarry *et al*. 1998). The third stand of literature on aid effectiveness strongly contradict the first two stands by suggesting that not only foreign aid has no effect on growth, rather it may even hurts growth because it expands size of the public sectors which leads to bad governance. It enriches the elite in poor countries and encourages malpractice such as corruption (Griffen and Enos, 1970; Radelet, 2006; Mosley, 1980; Dowling and Hiemenz, 1982; Singh, 1985; Boone, 1994 and Rajan and Subramanian, 2005; Kourtellos, Tan and Zhang, 2007; Arellno et. al.2009). Based on the available literature we conclude that the empirical evidence on effectiveness of aid is mixed. These conflict views call for further research in the subject.

An alternate strand of literature stresses on the stability of macroeconomic policies to get favorable impact of aid on economic growth. To capture the effect of foreign aid on economic growth in the presence of macroeconomic policies, Burnside and Dollar (1997, 2000) incorporate aid-policy (AID*POLICY) interactive term in the model. The macroeconomic policy index consists of monetary, fiscal and trade policy. Burnside and Dollar (2000) focuses on the necessity of sound monetary, fiscal and trade policy as conducive for sustainable economic growth. A country with sound policy management would be one with

low inflation, small fiscal imbalance and an open trade regime. The main message of their studies is that aid only works when government policies are good and that aid should be allocated to countries with good macroeconomic policies. Capital inflows will be more effective in the countries which have stable macroeconomic policies and few distortions (The World Bank, 1990). Peter and Luis (2004) argue that policy stability can leads to of stable macroeconomic outcomes.

On the other hand donor's economic and strategic motives are considered as important factors which make aid less effective for the recipients. In the words of (Morgenthau, 1962)[1] "*foreign aid is today and will remain for some time an instrument of political power*". Lancaster (2007) argues that in order to understand the controversy over the effectiveness of foreign aid one must know the purpose of aid and the donor's motives. He suggests that in case of bilateral aid donor's personal interest is the most important factor. Lancaster further argues that total amount of aid given to the developing countries should not be assessed as a contributing factors for development because a considerable portion of it used for humanitarian, diplomatic, cultural and commercial purpose. Bilateral aid is likely to be more oriented towards the donor's economic and strategic interest. National interest is the most obvious motive of the donors in bilateral aid and the donors support countries with which they have strong cultural, political or strategic ties. Radelet (2006) argues that when bilateral donors effectively "tie[2]" a portion of their aid to some recipient it become more costly and less effective. In

---

[1] Cited by Lancaster 2007

2 Donors country demand that certain portion of aid used to purchase goods and services from the firms in donor's home country.

case of tie aid the recipient country receives much less amount of aid than allocated to him. Boone (1996) finding suggests that aid inflow are primarily focused on the donor's political and strategic interest rather than recipient needs.

Foreign aid can be classified into two types: bilateral aid and multilateral aid. Source of multilateral aid are the international institutions like World Bank, IMF Asian Development Bank, UNDP, etc and bilateral aid is transfer of resources between two countries.

Numbers of studies have been undertaken that have focused on the impact of foreign aid on economic growth in case of Pakistan. Most of the studies have found negative and insignificant relationship between foreign aid and economic growth (Ishfaq and Eatzaz, 2005; Khan and Ahmed, 2007; Khan, 1997). Khan and Rahim (1993) conclude that foreign aid has a negative relationship with domestic savings and has no significant impact on economic growth. Zafar (1997) concludes that foreign capital flows into the public sector has a positive impact on non- development expenditure and has little affect on development expenditure. The general conclusions of these studies suggest that foreign aid has insignificant or negative relationship with economic growth.

In the context of Pakistan, various studies on foreign aid and economic growth propose that ineffectiveness of aid is due to bad macroeconomic policies of the country and foreign aid may affects economic growth positively only if the macroeconomic policies are right (Husain, 1999; Ishfaq and Eatzaz, 2005; Khan and Ahmed, 2007).

1.1　Significance of the Study:

None of the study with reference to Pakistan analyzes impact of foreign aid on economic growth in the presence of macroeconomic policy and in the perspective of donor's motive. This study significantly differs from earlier studies for Pakistan in two aspects. First, we examine the impact of foreign aid on economic growth by incorporating the macroeconomic policy variable in the regression model. Second in this study we disaggregate the total aid in bilateral and multilateral aid in order to capture the separate contribution of these forms of aid on economic growth.

1.2　Objectives:

Overall objective of the study is to analyze the impact of foreign aid on economic growth in the context of macroeconomic policy.　The study will focus on the potential effects of foreign aid on economic growth in three respects.　First we examine the impact of total aid inflows on economic growth. Second we incorporate the interactive term of aid and macroeconomic policy index in our regression model to capture the effect of aid in the presence of macroeconomic policies. Lastly the study examines the impact of bilateral and multilateral aid on economic growth. The hypotheses of the study are:

- Foreign aid positively affects economic growth in Pakistan.
- Effectiveness of foreign aid depends on macroeconomic policies.
- Bilateral and Multilateral aid positively affect economic growth in Pakistan.

5

The outcome of the study will provide useful insight into the role of foreign aid, stable economic policies and will help the policy makers to address the issue of aid effectiveness.

1.3 Econometrics methodology and Data

An Autoregressive Distributed Lag (ARDL) approach to conintegration developed by Peasran,*et al.*(2001) has been used in this study to investigate the long run relationship among the variables of interest. Simple OLS technique is employed to estimate long run and short run coefficients of ARDL equations. ARDL technique is more appropriate for small sample size and can be implemented irrespective of whether the underlying variables are $I(0)$ or $I(1)$. In this approach long run and short run parameters of the model are estimated simultaneously.

The study is based on annual data covering the period from 1960 to 2008. The data are collected from Pakistan Economic Survey (various issues), World Development Indicator, and International Financial Statistics and World Penn table.

1.4 Plan of the Study

The remainder of the study organized in the following manner. The theories of foreign aid and empirical evidence of the macroeconomic impact of foreign aid on the recipient economies are discussed in chapter 2. Overview of Pakistan economy and foreign aid has been provided in Chapter 3. Model specification and econometrics technique used for estimation are described in chapter 4. Empirical results of aid growth regression have been presented and analyze in chapter 5. Chapter 6 contains concluding remarks and policy recommendations.

Chapter 2

Theories and Empirical Evidence of Macroeconomic Impact of Foreign Aid: Literature Review

2.1   Introduction

The purpose of this chapter is to review theoretical and empirical studies of aid effectiveness. As pointed out in chapter 1, sound macroeconomic policies of aid recipient country and donor's motive play crucial role for improving the effectiveness of foreign aid. Through review of literature, light can be shed on the causes of why foreign aid may not always have an impact on economic growth. In this chapter we thoroughly evaluate three generations of empirical cross-country work on aid effectiveness which is summarized by Hansen and Tarap (2000). We also assess the aid-growth literature specifically related to Pakistan. This survey literature ranging from the early two-gap model to the new growth model and conditions of sound macroeconomic policies.

Remaining chapter is organized as follow. Aid, savings and growth theories and empirical studies are discussed in section 2.2. Section 2.3 gives a summary of theories and empirical evidence explaining the aid, investment and growth linkages. Studies related to aid, growth and macroeconomic policy are discussed in section 2.4. Effect of aid inflow on fiscal behavior of recipient country is discussed in section 2.5. Finally, Section 2.6 gives a summary of some selected empirical studies.

2.2 Aid, Savings, and Growth: First Phase

The first phase of aid growth studies was start with the idea of "two-gap" model of Chenery and Strout (1966). According to this idea, foreign aid was considered as an exogenous net increment to the recipient's countries, capital stock. Easterly (2003) explain the two-gap model precisely that "In this model, the first gap is between the amount of investment necessary to attain a certain rate of growth and the available domestic saving, while the second gap is the one between import requirements for a given level of production and foreign exchange earnings". This model incorporates the Harrod-Domar growth process with idea that foreign aid enhances economic growth via saving and investment. The two-gap model illustrate that despite having surplus labor, developing countries constrained by lack of domestic savings (Saving gap) and the foreign exchange availability (Trade balance gap) to invest. Inflows of foreign capital fill both gaps simultaneously. The basic assumption was that each dollar of foreign resources would result in an increase of one dollar in import and investment. Therefore, more aid inflow will lead to higher investment and ultimately to higher growth. This assumption was challenged by many economists (Griffin 1970, Griffin and Enos 1970). It was argued that much aid used for consumption purpose rather than act as an increment to the capital stock. These studies pointed out that aid might have an immiserizing effect. The findings of these studies based on set of cross-sectional regressions relating aid inflows to savings rates of LDCs, most of which reported negative coefficient of aid on savings.

On the other hand Papanek(1972) finding suggests positive and significant effect of aid inflows on growth for aid recipient countries and he also pointed out that negative causal relationship between foreign inflows and savings is not proved by their quantitative analyses. Mosley(1980) use data covering from 1970-1977 for 83 LDCs and employs 3SLS techniques and fined negative link between aid and savings and he also highlighted that there is no positive and significant relationship between aid and growth as it was suggested by Papanek(1972). In another study Mosley et al (1987) include some other explanatory variables in the regression model and apply OLS and 3SLS techniques to estimate the impact of aid on growth. This paper failed to establish any statistically significant correlation between aid and the growth rate of GNP in developing countries.

The issues of aid effectiveness and its channels to affect economic growth in first phase of empirical work have continued into the nineties. However empirical and theoretical studies of this phase produced inconclusive or often contradictory findings. The implication of these earlier studies suggests that foreign aid has very little positive impact on output growth. Hansen and Tarp (2000) summarized the finding of empirical work of this era and concluded that evidence from these studies is that aid leads to an increase in total savings but not as much as the aid flow.

2.3   Aid, Investment, and Growth: Second Phase

In the second phase of empirical work, focus turned from the aid-savings relation to estimating the link between aid and growth. Some studies used the investment

channel to capture the affect of aid on growth and some studies estimated the direct affect of aid on economic growth. In this model economic growth depends on investment as share of GDP. The amount of investment will be the sum of domestic savings and foreign aid (Hansen and Tarp, 2000; and Easterly, 2003). The model can be written as:

$$g = \frac{\left(\frac{I}{Y}\right)}{\mu}$$

$$\frac{I}{Y} = \frac{A}{Y} + \frac{S}{Y}$$

Where I, is required investment, Y is output, g is target GDP growth, A is aid, and S is domestic saving. The parameter μ is the incremental capital-output ratio (ICOR). This model based on two key assumptions as pointed out by Easterly (1999), first aid will go into investment one for one, and second, there will be a fixed linear relationship between growth and investment in the short run. The data soundly reject these two predictions of the financing gap model. The hub of this model is Leontief production function with fixed requirements for capital and labor per unit of output. No substitution of labour for capital is possible in this model. Capital accumulation is the only way to growth in this model. Thus the potential impact of aid on economic growth in this model is considered through the accumulation of stock of physical capital, i.e. investment.

Easterly (2001) tested this model using time series data of 88 aid recipient countries over the period 1965-1995. In the first step he regress for each country the investment ratio to GDP on Overseas Development Assistance(ODA) ratio to

GDP (ODA/GDP) and found that only six out of 88 countries data showed positive relationship between investment and ODA. In the second step when he run regression for each country by taking GDP growth rate as dependent variables and the rate of investment as independent variable. Results of only four countries out of 88 showed positive and significant impact of investment on GDP growth. Only one country showed positive relation from aid to investment and then from investment to growth.

> "*The financing gap model in which aid increases investment and then that investment increases economic growth has dubious theoretical foundations and numerous empirical failings,*
>
> Easterly (2003, p.33)

Hansen and Tarp (2000) provides Survey of empirical research of this phase. They gave the finding of 71 studies of this phase and out of these 71 studies, 40 studies show positive impact of aid on economic growth, 31 show no statistical significant impact of aid on growth and one study show harmful effect of aid on growth.

2.4 Aid, Growth and Macroeconomic Policies: third phase

The study of Boone (1996) and Burnside and Dollar (1997) provide new basis for researcher to study aid effectiveness by introducing macroeconomic policy variable in the regression model. Paper by Boone (1996) on aid effectiveness was the turning point because this study linked the aid effectiveness to Political regime. He found that aid used to finance consumption rather than investment and

he also suggests that foreign aid has no role in improvement of living standard of the poor.

Burnside and Dollar (1997, 2000) consider aggregate production of the form $Y = BK^\theta$, where Y is production and K is capital. Assuming that aid can only affect the output growth through capital accumulation and effectiveness of aid can be approximated by

$$dY = \theta \frac{Y}{K} \frac{\partial K}{\partial A} dA$$

where $\theta\frac{Y}{k}$ is the marginal productivity of capital (MPK), If there is no aid inflow then MPK is equals the rate of return on capital. $\theta\frac{Y}{k}$ =MPK= r+δ

The above equation can be modified as

$$\frac{dY}{Y} = (r + \delta) \frac{\partial K}{\partial A} \frac{dA}{Y}$$

This equation can be interpreted as the derivative of growth with respect to aid is product of marginal productivity of capital times the marginal propensity to invest aid that is $(r + \delta)\frac{\partial K}{\partial A}$. Burnside and Dollar assumes that marginal productivity capital is varies with sound macroeconomic policies. Burnside and Dollar (1997) added policy variables into the neoclassical growth model and explore that aid has positive impact on growth in developing countries with sound macroeconomic policy and sound macroeconomic policy define as low inflation, small fiscal imbalance and an open trade regime. According to this study good policies not

only promote growth but also increase the effectiveness of aid. The composite policy index is developed by using regression coefficients.

Policy=1.28+6.85xBudget surplus-1.40*Inflation+2.16*Openness.

They used the interactive term of aid variable and policy index (Aid*Policy) in the regression model and found positive and significant coefficient of interactive term. Many studies reacted to Bunnside and Dollar results by introducing new variables in the regression model.

Hansen and Tarap (2000) examined the relationship between foreign aid and growth in real GDP per capita by using the cross country data and found that aid increase the growth rate via investment and not conditional on good policy. Dalgaard and Hansen(2001) reassessed the aid effectiveness using the same set of data and find that good policies spur growth but at the same time good policy is likely to reduce the growth effect of aid because they act as substitutes in the growth process.

Durbarry et al (1998) study support the view that foreign aid does have some positive impact on growth, conditional on a stable macroeconomic policy environment. They also find that these results vary according to income level, levels of aid allocation and geographical location.

Hudson and Mosley(2001) test the hypothesis that aid effectiveness can linked to good policies and found little empirical evidence in the support of it when good policies is restricted to free market policies. They found that good policies matter to stimulating growth but they do not appear to impact on aid effectiveness. Aid

increases the benefit from good policy and while at the same time good policy increases the impact of aid, thus the combination of good policy and aid produce the good results in term of growth and poverty reduction (Collier and Dollar, 2001).

Johnson and Hoddinott (2003) assessed the research by Bunside and Dollar on aid effectiveness and found that in the presence of country –fixed effects estimates the Bunside and Dollar claim that aid only work in the good policy environments collapses while this claim hold in the case of sub-Saharan Affrica. However in countries outside of sub-Saharan Africa, aid raises growth independent of policy. Dagaard, Hansen and Tarp (2003) empirical analysis suggests that aid is generally effective, even in "bad" environments. However, the degree to which aid enhances growth depends on climate-related circumstances. Easterly and Roodman (2004) found no evidence of a significant relationship between aid and growth conditioned on quality of policy even they used same specification as of Burnside and Dollar (2000) but including additional data. Dalgaard et.al. (2004) conclude that geography is critical and the aid raises growth only outside the tropics. Bunside and Dollar (2004) reexamine the relationship between aid and growth using a new data set and concluded from the cross country work that impact of aid depends on the quality of state institution and policies. Kourtellos, Tan and Zhang (2006) investigated the relationship between foreign aid and growth by using the sample splitting methods and found that the partial effect of aid on growth is very likely to be negative and also

suggested that aid is potentially counterproductive to growth with outcomes not meeting the expectations of donors.

Rajan and Subramanian (2005, 2006) examined the robustness the relationship across time horizon over the period 1960-1990 find no robust positive relationship between aid and growth. A study related to Poverty traps, aid and growth was carried by Kraay and Raddatz (2006). They examined that low saving or low technology at low level of development causes the poverty traps. However find no evidence in support of the idea that low saving and low productivity at low level of development generated poverty traps and author also suggest that large increase in aid will have disproportionate effects on economic growth in the low income countries.

Xiaoyong and Gong (2008) examined the effects of foreign aid on domestic capital accumulation and foreign borrowing. Comparative static analysis of this study show that a permanent increase in foreign aid leads to increase in both long run capital accumulation and domestic consumption. Asterious (2009) investigate the long-run relationship between foreign aid and economic growth using panel data set for five South Asian economies and study found positive relationship between aid and economic growth. Arellno *et. al. (*2009) examined the effects of aid and its volatility on consumption, investment, and the structure of production in the context of an intertemporal two sector general equilibrium model, using data for aid dependent countries in Africa. Finding of this paper suggest that permanent inflows of aid mainly finance consumption rather than investment.

Authors argue that their results are consistent with the historical failure aid inflows to translate into sustained growth.

Following studies carried out to measure the effectiveness of aid with reference to Pakistan

Siddiqui and Kemal (2006) investigated the impact of foreign capital inflow on the poverty using General Equilibrium Model in two different scenarios. One, the labour is homogeneous and the other labor is heterogeneous. This study suggested that capital owner gets the benefit of foreign capital inflow in the case of homogeneous labor and in the absence of trade liberalization. Moreover poverty reduction in the presence of trade liberalization is larger than the poverty reduction in the absence of trade liberalization.

Ishfaq and Eatzaz (2005) evaluated the foreign aid effectiveness in the economy of Pakistan and found negative and mostly insignificant relationship between foreign aid and GDP growth rate in Pakistan. Din (2005) argued that foreign aid positively affect GDP growth through structural transformation of the economy laid foundation of the industrial and agriculture sector assisted in the overcoming the budget deficits and the BOP deficits while negatively effect as aid seemed to have substituted for domestic saving and increase debt burden. Khan(1997) investigate the impact of aid and debt on economic growth and found that aid has negative causal impact on GDP and aid has a robust negative impact on economic growth after controlling for supply side shocks. Zafar, (1997) try to quantify the relationship between foreign capital inflows and government's fiscal

behavior in Pakistan by using iterative three stage least squares technique for the period 1976–95. A corroborate evidence suggests that foreign capital flows channeled through the government have strong positive impact on social and non-development expenditures. Such positive effect accentuates the negative impact of foreign aid on development expenditure. Chishti and Hasan (1992) examined the impact of foreign inflows (grants and loans) on the investment and consumption activities of the public sector in Pakistan and that foreign aid, in the form of grants, may have modest impact on the public investment, however, the same can not be said with regards to foreign loans. Khan and Rahim (1993) investigated the relationship between foreign aid, domestic saving and economic growth and found positive but statistically insignificant relationship between economic growth and different form of economic assistance. Although one year lagged value of foreign aid variable produce positive and statistically significant coefficient but the week explanatory power of the coefficient indicate that foreign aid has no contribution to economic activity. They also found negative coefficient of correlation between foreign aid and domestic saving.

Khan (1997), Khan and Ayaz (2007) and Ishfaq and Eatzaz (2005) found negative relationship between foreign aid and economic growth, although the impact of foreign aid on economic growth remained statistically insignificant. In contrast, Din (2005), Zafar (1997) studies suggest positive relationship between foreign aid and economic growth.

Earlier studies on effectiveness of foreign aid concluded positive as well as negative effect of foreign aid on GDP growth and poverty. Well known study of

Bunside and Dollar (2000) found that foreign aid has a positive impact on growth in developing countries with good fiscal, monetary, and trade policies. However in the presence of poor policies, on the other hand, aid has no positive impact on growth.

Large body of literature on aid –growth nexus include policy variables and have been used more sophisticated econometrics techniques in these studies, the results of the impact of aid on growth still remain controversial. Dalgaard and Hansen (2000) demonstrate that the relationship between good policy and foreign aid are substitute to each other. Durbarry et al., (1998) found that a stable macroeconomic policy environment contributes to a greater beneficial effect of aid on growth. They also found that the growth performance of developing countries depends on the external economic environment. Alvi *et. al.* (2007) revealed that policy is an important determinant of growth. They suggest that reasonably good policy is needed to achieve aid effectiveness.

In sum, two gap models predict a positive role of foreign aid through savings and investment channels, but the empirical literature on aid effectiveness seems rather more mixed and often contradictory. A number of macroeconomics complications have been advanced in the literatures which explain why there is no one to one relationship between foreign aid and economic growth of aid recipient country.

The other point of view is that aid has no effect on growth, and may even hurt growth over the long run, because it expands government bureaucracy which leads to bad governance, enriches the elite in poor countries and encourages the

corruption. Poor countries characterized with lack of institutions, rule of law, free markets and the poor has no role in the formulation policies,(Erixon, 2005). Erixon also pointed out that (1) aid is spent on the project that benefits the political leaders at the expense of the citizen; (2) it has strengthened corrupt regimes. In this context, in the next section we discuss some macroeconomic complication of foreign aid.

2.5   Aid and Fiscal Behavior of Aid receiving Country:

Theories suggest that there are possibilities that more aid inflow may not raise investment by as much as the value of aid inflow and therefore an increase in aid may not lead higher rates of economic growth. Government behavior regarding fiscal decision on taxation and expenditure play an important role for aid effectiveness (Rodriguez et al., 1998). Rodriguez indicated that aid is given primarily to government and impact of aid on economic performance will depend on how aid inflow affect government behavior, in particularly regarding fiscal decision on taxation and expenditure pattern. In order to examine the impact of aid on fiscal behavior, he estimated econometric model using 1956 -95 time series data for Pakistan. Results of this estimation indicate that half of aid has gone to government consumption and finding also show slightly positive impact on public investment and negative impact on tax effort.

 Grffin(1970) argue that aid inflows may displace domestic savings and "crowding out" private investment. This implies that a high level of aid inflow tends to reduce tax effort, lower domestic savings, increase government

consumption and crowd out private investments. Rajan and Subramanian (2006) argue that aid does not always good for economic growth even in the presence of good policies. According to them aid inflow caused the overvaluation of the real exchange rate which have adverse effect on the competitiveness of the country. Vos(1998) study regarding aid inflow and Dutch disease in case of Pakistan suggest that aid inflows tend to generate fairly strong Dutch Disease effect. Dutch Disease mean aid inflow may lead to appreciation of real exchange rate which reduce the competitiveness of the export of the recipient country. Rodriguez and Oliver (1998) also find a negative relationship between aid inflows and tax revenue in case of Pakistan

The possibility of over aid inflow which may hurt the economy of recipient country known as "absorptive capacity constraint"(Durbarry *et al*., 1998, p.10). These criticisms on aid growth relationship led to the development of displacement theories. Displacement theories suggest that there are possibilities that more aid inflow may not raise investment by as much as the value of aid inflow and therefore an increase in aid may not lead higher rates of economic growth. Further, aid inflows may displace domestic savings and "crowding out" private investment. This implies that a high level of aid inflow tends to reduce tax effort, lower domestic savings, increase government consumption and crowd out private investments.

2.6   Summary

This chapter has reviewed the theoretical and empirical aspects of aid effectiveness. Theoretically frame work for aid effectiveness pass through investment and saving channels. Aid is said to be effective if it increases the savings, investment and then economic growth. However, aid may not always be effective and some researchers criticized the recipient's country's policy mismanagement for this failure. In the literature, aid fungibility, Dutch disease, uncertainty of aid inflow, donor's interest and macroeconomic instability are considered as the major causes those can make aid less effective or harmful for recipient country. There has been an increasing consensus that country with stable and open economic environment in terms of low inflation, low fiscal deficit and a free trade regime are likely to get more benefit of aid inflow for sustainable economic growth.

Table 2.1: Aid, policies, and growth relationship: Some Selected Studies

Study	Sample Size and Countries case study	Explanatory Variables	Estimation Method	Variable with significant coefficients
Griffin and Enos(1970)	N=32 LA 1957-64	A	OLS	A(-1)
Papanek (1972)	N=34 LDCs 1955-1965	S,A,FDI,OF,L	OLS	A(+)
Gupta(1975)	N=40 LDCs 1960 -1968	S,A,FDI,OF,	OLS	A(+), OF(+)
Stoneman(1975)	N=188 LDCs 1955-70	S,A,FDI,OI	OLS	S(+), A(+) OI(+)
Mosley (1980)	N=83 LDCs 1970-77	S,A,.I	3SLS	None is significant
Mosley *et al.* (1987)	N=63 LDCs 1970-80	S,A,OF,GX,GL	3SLS OLS	GX(+), GL(+)
Dowling and Hiemenz (1983)	N=13 Asian 1968-79	S,A,FDI,OP,T,CG,FDI	OLS	A(+),S(+),FDI(+)
Mosley *et al.* (1992)	N=71 LDCs 1980-88	S,A,FDI,GX,GL,PI	OLS OLS	A(+),S(+), GX(+)
Burnside and Dollar (1997, 2000)	N=56 LDCs 1970-93	A,AP,YPC,BD,INF,OP, GC ,Inst, Ethas	2SLS	AP(+),Ins(+),Inf(-) OP)+)
Durbarry *et al.* (1998)	N=58 LDCs 1970-93	A,A^2, INF,BD,FD, S,OF,TOT	2SLS	A(+),A^2),S(+), OF(+),OT(+),INF(-
Hansen and Tarp(1999)	N=56 LDCs 1970-93	A,A^2,OP, INF,BD,GC, FDI, YPC	IV	All variables are significant
Habsen and Tarp(1999)	N=56 LDCs 1974-93	A,AP, OP, INF,BD, GC, FD,Inst,YPC	IV	OP(+) Inst(+)
Dalgaard and Hansen (2000)	N=56 LDCS 1970-93	Inst, M_2 , P, A, AP	OLS	Inst(+) P(+) AP(+)
Easterly *et al.* (2004)	N=56 LDCs 1970-97	A, AP, Inst, M_2 P, YPC	2SLS	AP(+), Inst(+) M_2 (+), P(+)
Rajan and Subramanian (2006)	N=56 LDCs 1960-2000	A, P, AP, A^2, YPC, LE, Inst, INF, M_2,BD	2SLS OLS GMM	Isnt(+) P(+) P(+),YPC(+) ,Inst(+),INF(+) BD(+)
Khan and Ahmed (2007)	Pakistan 1972-2006	FDI, I,A,LXG	ARDL	FDI(+) I(+) L(+)GX(+)

Note: A: Aid inflow, S: Saving, FDI: Foreign Direct Investment, OF: other financial inflow, L: population or   labor force, OI: other investment, GX: growth rate of export, GL: growth rate of literacy, OP: trade openness, t: tax revenue, PI : private investment, YPC: income per capita, CG: government consumption, P: macroeconomic policy, AP: interactive term between aid and policy, Ethas: interactive effect between ethnic and political assignation, Inst: Institutional quality, M_2: money supply, FD: financial development,   INF: inflation, BD: budget deficit, tot: terms of trade, LA: Latian American contries, LDCs: less developing countries, GLS: generalized least square, GMM: generalized method of movement, IN: instrumental variables, OLS: ordinary leat square. 2SLS: two stage least square.

Chapter 3

Overview of Pakistan Economy and Foreign Aid

3.1   Introduction

Pakistan's experience of foreign aid over the last several decades has not been much satisfactory. Pakistan has still away from the stage of self sustaining economic growth despite receiving the huge amount of foreign aid. Due to enormously large accumulated foreign debt, most of the aid is being used for debt servicing. Terms and condition of different type of aid, economic and strategic interest of donors and the influence of donors in Pakistan's economic policies are most important issues which badly affect the growth process of the country. In this chapter, we summaries the total aid inflow into Pakistan from different sources and its role in development process of the country.

In section 3.2, total aid inflow from different sources and different type of aid is discussed. Overview of Pakistan's economy is discussed in section 3.3. In section 3.4 summarize the role of aid in the development process of Pakistan economy.

3.2   Foreign Aid Inflow into Pakistan

Foreign aid has been one of the major components of external resource for Pakistan economy since independence. Each successive government in Pakistan relied on foreign aid to finance a significant proportion of investment and import requirement for self sustaining economic growth. Foreign aid play key role in

Pakistan economy through financing investment programmes of both the government and the private sector and paying for the country's import bill (Ahmed and Amjad, 1984). Pakistan's dependence on foreign aid was started since 1950s, however, gross foreign aid inflows were negligible during the fifties, and the first half of the sixties witnessed a rapid increase. Significance increase in aid inflow took place during sixties although after the 1965 war with India slowed down. Aid inflow to Pakistan during the different periods are given in Table 3.1

Table 3.1: Disbursement of Foreign Economic Assistance to Pakistan

	Aid Inflow	Aid % of GDP	Service Payments	Net Aid Inflow	Net Transfer as % of Total Aid
1960s*	541.4	9.08	72.78	468.6	87.2
1970s*	722.9	5.95	244.2	478.7	65
1980s*	1464.7	4.58	807.6	657.1	43.8
1990s*	2465.2	4.57	1762.7	702.5	28.7
2000	2241	3.03	1401	840	37.5
2001	2085	2.89	1557	528	25.3
2002	2756	3.8	1207	1549	56.2
2003	1921	2.3	1339	582	30.3
2004	1329	1.36	2995	-1666	
2005	2709	2.47	1471	1238	45.7
2006	3166	2.5	1581	1585	50.1
2007	3297	2.3	1612	1685	51.1
2008	3580	2.79	1766	1814	50.7
2009	3297		1320	1977	60.0

Sources: Government of Pakistan, Pakistan Economic Survey (2008-9)
*Figure represents the annual average

The pattern of aid inflow rose slowly till 1960s but increased in the first half of sixties growing from 8.4 percent of GDP in 1961 to 11.99 percent of GDP in 1965. In the latter half of the sixties, foreign aid slowed down from 8.2 percent of GDP in 1966 to 6.8 percent in 1969. Foreign aid inflow as percentage of GDP dropped down to about 5 percent of GDP in the first half of 1970s. During the second half of 1970s, aid inflow increased again and reached 6.5 percent of GDP on average. Due to oil price shock in 1970s governments of petroleum-exporting countries become major sources of foreign assistance. After 1973 Pakistan received a reasonable amount of foreign aid from Islamic countries. During the seventies foreign aid helped the economy to overcome the sever problem of high level of inflation. In the decade of eighties and nineties, aid inflow remained almost static at 4.6 percent of the GDP on average. In the early year of 21st centuries aid inflow increased drastically as a result of 9/11 attack on USA.

Overall aid inflows as percentage of GDP shows consistently declining trend form about 10 percent of GDP in 1960s to around 2 percent in 2008.

Figure: 3.1 Total Aid Inflows as Percentage of GDP (1961 to 2008)

25
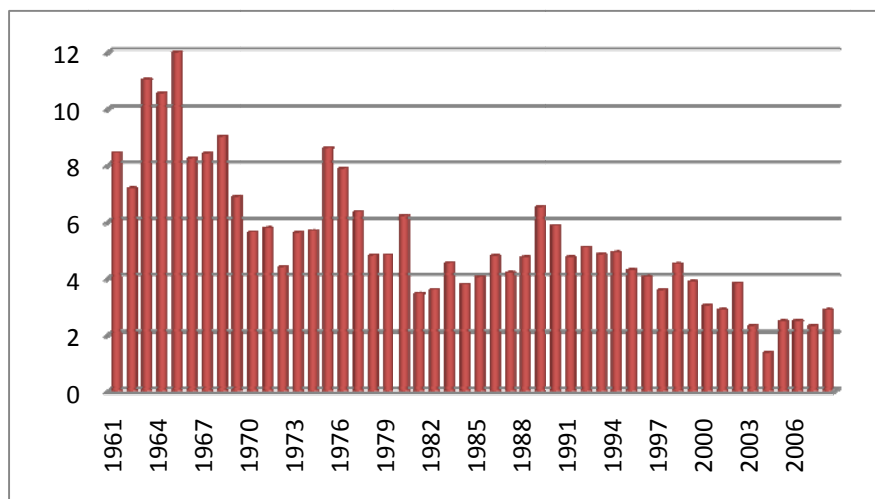
Aid inflow to Pakistan has a strong association with geo-political interest of donors. The increases in aid inflow in decade of 1960s in connect with Pakistan's signing of mutual defense assistance agreements with United State in cold war era. Aid inflow of 1980s can be visualized in perspective of Afghanistan war. In 1990s USA and other multilateral donor's economic assistance to Pakistan was cut off when Afghan war ended. Aid inflow to Pakistan was further dropped down after nuclear test in 1998 and military takeover in 1999. Most recent aid inflow is a result of Pak-US closer ties after 9/11.

The two main institutional sources of foreign aid are bilateral and multilateral .In terms of foreign aid inflow from different sources, till 1995 bulk of foreign aid came from bilateral donors. After 1995 there was substantial increase in the share of foreign assistance from multilateral institutions like the International Bank for Reconstruction and Development (IBRD), International Monetary Fund (IMF) and Asian Development Bank.

Figure 3.2: Aid inflow by Source of Aid
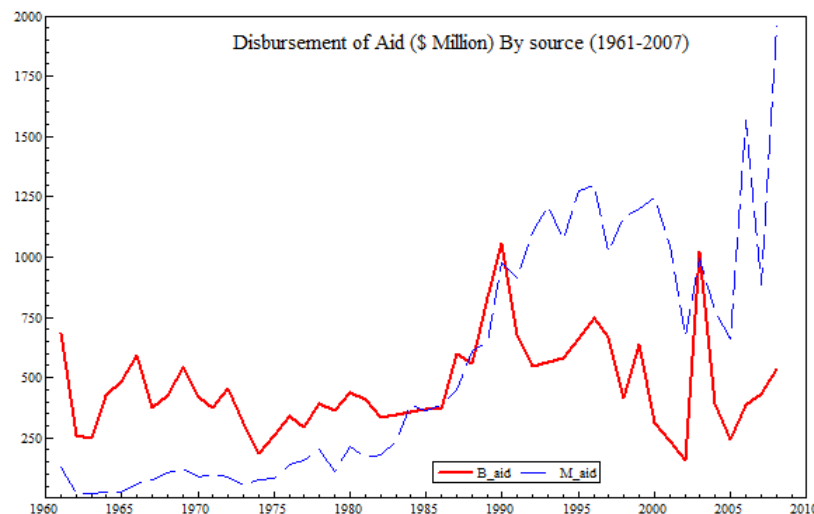
3.2.1 Net Aid Inflow to Pakistan

By subtracting the annual debt servicing (repayment of principal and interest) from the total aid inflow, we deduce the net foreign aid which is available to the recipient country for financing its import and gross investment. In case of Pakistan, debt servicing has gradually increased over the time and amount of aid resource available for the country has reduced, net foreign aid inflows averaged about 87 percent of total aid inflow during the sixties. From table 4.1, it can be seen that due to increase in annual debt servicing charges, net transfer as a ratio of total disbursements declined from 87 percent in the sixties to 65 percent in the decade of seventies. Net aid inflow as percentage of total aid inflows has further declined and reached to 43.8 percent and 28.7 percent in the period of eighties and nineties respectively. It is estimated that 58 percent of total aid inflow went back to donor countries as debt servicing charges over the period 1961 to 2009.Out of total disbursements of $ US 77.78 billion from 1961 to 2009, an amount of $ 45.05 billion (58% of total disbursed aid) was returned to the donor countries as dent servicing. Thus because of increase in interest payments and principal, a smaller proportion of net foreign aid has been made available to the country.

Figure 3.3: Aid Inflows, Debt Servicing and Net Aid Inflows (1961-2009)
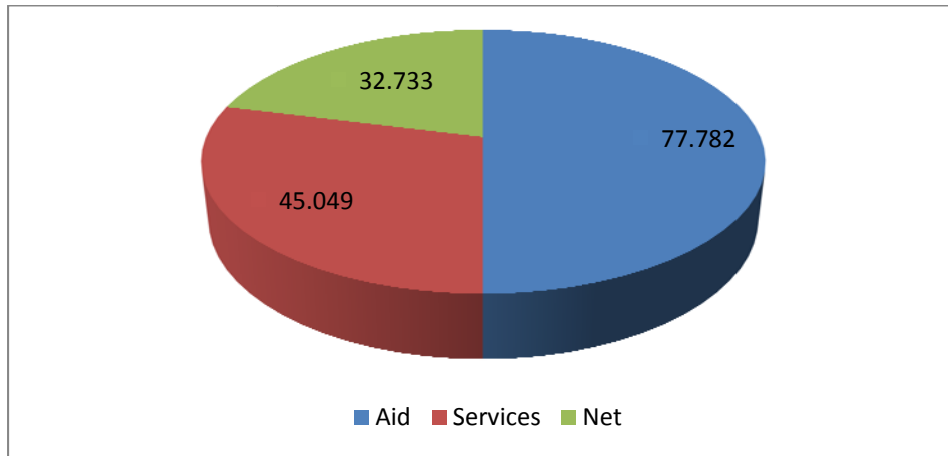
3.2.2 Type of Foreign Aid

Viqar and Amjid (1985) argue that most of the aid received by Pakistan was tied and as result that variety of goods and services have been purchased above average world market prices. Major type of foreign aid received by Pakistan may be classified as balance of payment support, commodity, food, non food, relief and project aid. During the period 1961 to 2009, Pakistan has received an amount of US$77.78 billion. Out of total $ 77.78 billion, an amount of $ 41.7 billion (55.3%) was disbursed as project aid, $ 8.5 billion (11.2%) as non-food aid, $ 7.2 billion (10%) as food aid, $ 13.7 billion (18%) for balance of payment and $ 4.3 billion (6%) as relief assistance. The large bulk of foreign aid received by Pakistan (Graph 3.4) has been in the form of project aid which is tide in most of the time. There are two type of tide aid, aid tide by source and aid tide by utilization. Aid tied by source means that aid recipients has to make its purchases from donor countries. Similarly, when aid is ties to utilization, it means that aid has to be spending on specific projects which have approved by donors countries.

Project aid allows donors countries to increase their influence on the recipient country.

Figure 3.4: Aid Disbursements by Type
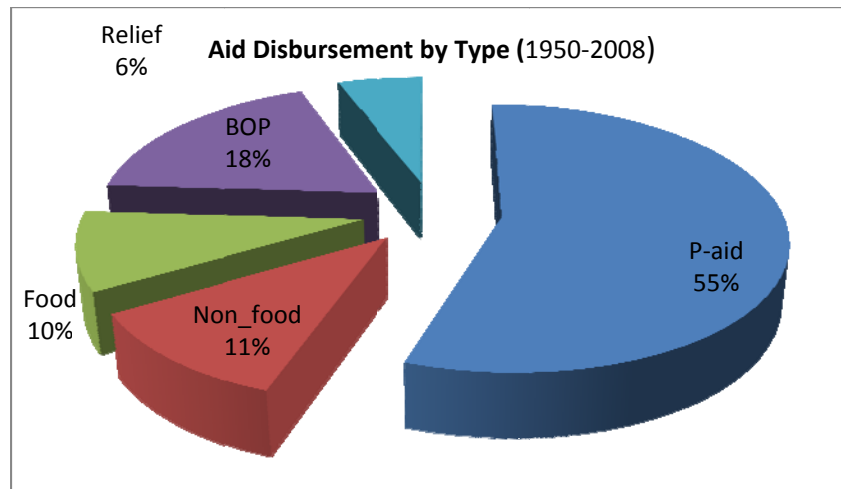
3.3 Overview of Pakistan Economy:

At the beginning in 1947 economy of Pakistan was dominated by agriculture sector and nearly four-fifths of the population depended on agricultural for their livelihood (Burki, 1999). Agricultural contributed to GDP around 53% and employing around 65% of the labour force in 1950s. The contribution of industrial sector and services sector was 8% and 39% respectively. With the passage of time the composition of GDP changed substantially, contribution of agricultural sector of GDP decline, share of industrial and services sector in GDP increased. Now the services sector has replaced agricultural sector as the dominant sector of the economy, contributing 53% to GDP in 2008 as compared to 1950.

Some important economic events like flow of refugees into the country; the decision not to devaluate the currency in 1949, Korean's war, and imports control, play critical role at the initial stage of economy for the period 1947 to 1958.

Table 3.2

Growth performance of Selected Macroeconomic Indicators of Pakistan Economy (1960-2008) Annual Average (in percentage)

	GDP growth	Agriculture	Manufacturing	Services Sector	Aid % of GDP	Aid inflow (Million US$)
1960's	6.8	5.1	9.9	6.7	9.08	541.4
1970's	4.8	2.4	5.5	6.3	5.95	722.9
1980's	6.5	5.4	8.2	6.7	4.58	1464.7
1990's	4.6	4.4	4.8	4.6	4.57	2465.2
2000	3.9	6.1	1.5	5.95	3.03	2241
2001	2	-2.2	9.3	4.8	2.88	2085
2002	3.1	0.1	4.5	3.1	3.81	2756
2003	4.7	4.1	6.9	4.8	2.31	1921
2004	7.5	2.4	14	5.2	1.36	1329
2005	9	6.5	15.5	5.9	2.47	2709
2006	5.8	6.3	8.7	8.5	2.49	3166
2007	6.8	4.1	8.3	6.5	2.31	3297
2008	4.1	1.1	4.8	7	2.88	3580
2009	2	4.7	-3.3	6.6		

Sources: Government of Pakistan, Pakistan Economic Survey (2008-9)

Table 3.1 gives the useful information to understand the nature and difference of economic growth of Pakistan in five decades. We can see very similarity between 1960s and in 1980s in terms growth performance of overall GDP, agriculture and manufacturing sectors.

The period of 1960s was marked with rapid economic growth in the country and high per capita income. The country's economic performance in terms of the growth rate of important sectors, i.e., agriculture, manufacturing, and per capita income, was remarkable. Table-3.2 shows that the performance of all the macroeconomic indicators .The rapid economic growth of this era was the result of sound and disciplined economic management along with large external capital inflow (Mahmood et.al. 2008). Growth rates in the agriculture sector were significantly high. The first significant year of the so-called 'green revolution' is between 1966-7 and 1967-78 when agricultural growth increased by 11.7 percent" (Ahmed and Amjad, 1985). The decade of sixties witnessed impressive growth rates in manufacturing and service sector. ODA as percentage of GDP was reasonable high in 1960s, low in the 1970s, and consistently decrease in the 1980s, and1990s. In the decade of sixties Pakistan economy show a best performance in terms of GDP growth that was 6.8% per annum and the foreign aid was 9.1% of GDP which is quite high. In this period government emphasized on high economic growth and poverty, income distribution were left to market forces with the belief that benefit of growth will trickle down. But at ground high economic growth and high foreign aid have not cause any real improvement in the

conditions of ordinary people, either in terms of more productive employment opportunities or better provision of basic necessities of life.

During the 1970s, industrial and financial sector of the economy were nationalized and land reforms were introduced, as a result private sector investments in productive sectors and the rate of economic growth decreased and recorded 4.8% per annum (Kemal, 2001). Decline in agricultural and industrial sector is also recorded. Table 3.2 shows that the performances of different sectors were not satisfactory during this decade. Nationalization policy of Bhutto, loss of East Pakistan, political instability and the 1973 oil price shock played havoc role in the economy of Pakistan. Foreign aid was 6% of GDP which was also low as compare to the 1960s. In this decade the worker's remittances was the major source of foreign exchange earnings.

The decade of 1980s was distinct by liberalization and deregulation as opposite to 1970s.Economic performance of 1980s was characterized by high growth rate (6.5% per annum), manufacturing sectors grew at an annual average rate of 8.2 percent and agricultural sector annual average grow rate was 5.4 percent. Inflow of worker's remittances and access to foreign aid due to the Soviet invasion of Afghanistan and increase in inflows of foreign direct investment were the major factors behind satisfactory economic performance of the eighties.

The 1990s was a very worse decade in terms of economic growth, poverty, income disparity and provision of basic needs. The growth rate has fallen significantly in the 1990s. Average growth rate was 4.6% and volume of foreign

aid was very low (4.6% of GDP) and was available only under IMF condition. Worker's remittances also decline and FDI increased as compared to earlier decades. Political instability, poor law and order situation, inconsistent policies of the changing governments of the time may be the causes of low economic performance of this decade.

The era of 2000s was marked by some external shocks including 9/11 event and tension with in tribal areas and tension with Afghanistan border. After 9/11 major part of the foreign debt was rescheduled or re-profiled, some loans were written off, lifting the economic sanctions and quantum of foreign aid increased. 9/11 event also helped economy to access to the market of USA and EU countries that result significant upsurge in export.

3.4   Impact of Foreign Aid on Economic Development

Pakistan's experience of foreign aid over the last several decades has not been all satisfactory. The country has accumulated an enormously large foreign debt without having developed the socio-economic infrastructure necessary to sustain a growth process with a reduce quantum of foreign aid (Ahmed and Amjad, 1985). We cannot see any significant improvement in social indicators since 1960s. Per capita income generally consider, as one of the most important indicators to assess the intensity of the growth and the average level of prosperity in the economy. The average annual grow performance of GDP per capita is not satisfactory. Its shows declining trend from an annual average of 3.64 percent in 1960s to 3.3 percent in the 2000.-09. GDP per capita was very low in the decade

of seventies and nineties as against sixties. Similarly health and education are two important components of social sector. Expenditure on health as percentage of GNP almost the same since 1970s while the expenditure on education as percentage of GNP increased fractionally. Regarding the performance of social indicators, peoples of Pakistan are still having no access to basic needs like education and health facilities. Inflow of foreign aid and reasonable growth rate completely fail to change the living standard of ordinary people of Pakistan. In case of Pakistan, foreign aid and government programs may have contributed to overall economic growth, but failed to promote social and political indicators like education, health, sanitation, fertility, gender equality, corruption, political instability and violence, and democracy -- for its level of income which cause elite domination and ethnic division(Easterly;2001). Easterly express his point view about aid contribution in Pakistan economy in the following words.

> *"Pakistan has had respectable per capita growth over 1950-99, intensive involvement by donors and international agencies ($58 billion in foreign aid), and has a well-educated and high-achieving elite and Diaspora. Yet Pakistan systematically underperforms on most social and political indicators -- education, health, sanitation, fertility, gender equality, corruption, political instability and violence, and democracy -- for its level of income. It systematically under-performs on improvements in these indicators for its rate of GDP per capita growth over time. I call this pattern "growth without development."* (William Easterly, 2001)

Kahn and Ahmed (2007) conclude that huge inflow of aid to Pakistan enrich the political elite in the government circle and was used for the interest of small influential group. Donor interest and political elite are main cause of aid

effectiveness in the developing countries. In the words of Easterly, Pakistan's impressive economic performance along with reasonable high inflow of external resources is questionable in terms of its affect on the improvement of the social indicators. Physical infrastructure such as irrigation, electricity, roads and highways, telecommunications, railways and other capital assets have been poorly maintained and have neither been replaced, nor expanded to keep up with the growing demand[Husain (1999)]. Ishafaq and Ahmed (2005) conclude that economic growth of Pakistan has remained independent of foreign aid.

Ahmed and Amjad (1985) conclude that different type of aid received by Pakistan from various sources reveals that Pakistan's relationship with the aid donor has not been based simply on the avowed objective of promoting economic development. Instead, it seems that aid has been used by donor countries and agencies to further their own strategic and economic interests to the detriment of the socio-economic interest of the recipient country.

3.5   Summary

In the light of above discussion, we have seen the role of foreign aid in the pace of economic development in the decades of sixties and eighties. During these decades Pakistan received substantial amount of aid and achieved high growth rate. Sound and stable macroeconomic policies of these decades along with reasonable inflow of foreign aid may be a cause of high growth rate. But the overall role of aid inflow in terms of increase in per capita income, self-sustainable economic growth, and an improvement in the living standard of

common people is not satisfactory. Huge dependency on foreign aid not only increases the external debt but also allow the donors to interfere in economic policies of the country.

Chapter 4

Dynamic Modeling for Aid, Policies and Growth

4.1   Introduction

The assessment of effectiveness of aid as discussed in chapter 2 reveals that unstable macroeconomic policies of aid recipient country, conditionality imposed by the donors and donor's motives in aid allocation are important issues which may undermine the positive contribution of foreign aid in the economic development of the recipient countries. Unstable and distortionary economic policies reduce the efficiency of capital investment and thus for the rate of economic growth. Donor's motive and tied aid decrease the real amount of aid allocated to the recipient country. Unstable macroeconomic policy and donor's motive in aid inflow are two prominent aspect of Pakistan economy since sixties. Aid inflow to Pakistan has a strong association with geo-political interest of donors which reflect the donor's motive. An increase in aid inflow in decade of 1960s connected with Pakistan's signing of mutual defense assistance agreements with United State in cold war era. Aid inflow of 1980s can be visualized in perspective of Afghanistan war. Most recent aid inflow is a result of Pak-US closer ties after 9/11. There has been no consistent and stable macroeconomic policy in Pakistan since independency. High political instability has been the major cause of unstable macroeconomic policies throughout Pakistan's history.

Keeping in mind the issues of macroeconomic policies and donor's motive, we specify the macroeconomic model in this chapter to examine potential effect of foreign aid on economic growth.

Rest of the chapter is organized as follow. Analytical frame work for aid- growth relationship in the presence of economic policies and donor's motive is explained in section 4.2. Model specification is discussed in section 4.3. Construction of policy index is discussed in section 4.4.

4.2   Dynamic Model of Aid, Policies and Growth

The aid growth relationship can be traced back to two gap-gap model, in which aid is considered as driving force for economic growth through capital accumulation in recipient country. The two-gap model illustrates that despite having surplus labor, developing countries   constrained by lack of domestic savings and the foreign exchange availability to invest (Chener and Strout, 1966). The first gap is between the investment and savings and the second gap is between imports and foreign exchange earnings (Easterly, 2003). The developing countries cannot overcome the shortage of savings and foreign exchange earnings from their own resources however, foreign aid promote the growth in developing countries by reducing the saving-investment and export-import gaps.

The main criticism on supporters of aid is that if two- gap models exists in LDCs economy and foreign aid is necessary to fill these gaps then why the majority of aid recipient countries could not achieved sustainable economic growth. In the recent year,   literatures on aid effectiveness stress on the stable macroeconomic

policy of the recipient countries to make aid more effective for economic growth. The World Bank has stressed on supportive macroeconomic frame work for successful structural adjustment. Macroeconomic framework is "stable when inflation is low and predictable, real interest rate are appropriate, fiscal policy is stable and sustainable, the real exchange rate is competitive and predictable, and the balance of payment situation is perceived as viable" World Bank (1990). Macroeconomic stability and fewer distortions make capital inflow more effective. Distortionary policies reduce the efficiency of capital investment and thus for the rate of economic growth (World Bank, 1990).

Burnside and Dollar (1997, 2000, and 2004) focuses on the necessity of sound monetary, fiscal trade policies as conducive for sustainable economic growth. A country with sound policy management would be one with low inflation, small fiscal imbalance and an open trade regime. They incorporate aid and aid-policy (Aid*pol) interactive term into the neoclassical growth framework. The main message of their studies is that aid only work when government policies are good and that aid should be allocated to countries with good macroeconomic policies. The statistical significance of the coefficient for interactive term may imply that foreign aid can affect growth, but only when policies are right.

Hudson and Mosley (2001) mentioned two reasons for the inclusion of the policy variables in regression model. First, there is possibility that countries with a good policy environment grow faster, regardless in the changes of factor of production. Second, there is possibility that in the presence of good policy environment, credit is translated into investment. However, Hansen and Tarp (2001), and Rajan and

Subramanian (2008) described that the role macroeconomic policy for aid effectiveness is ambiguous. The detail of the construction of policy index is given in section 4.5.

Based on the recent literature like Burnside and Dollar (2000, 2004), Collier and Dollar (2003), Hansen and Tarp (2001), Dalgaard, Hansen and Tarp (2004), and Rajan and Subramanian (2008) we specified the following model to examine the impact of aid on economic growth.

$$RGDP_t = f(INF_t, BD_t, TO_t, M2_t, AID_t, AP_t, \varepsilon_t) \qquad (4.1)$$

Where RGDPt is the real gross domestic product, AID stands for ratio of aid inflow to gross domestic product and relationship between aid inflow and economic growth is an ambiguous. INF is inflation rate which is used as measure of monetary policy and literature suggests negative impact of inflation on economic growth. Budget deficit (BD) ratio to GDP is used as proxy for fiscal policy as suggested by Easterly and Rebelo(1993) and it is expected that high budget deficit negatively affect the economic growth., TO is trade openness which measure as export plus import ratio to GDP and we expect positive relationship between trade openness. AP is included to capture the interactive effect of aid and macroeconomic policy($\frac{Aid}{GDP} * Policy$). Policy variable is composite trade policy, inflation and budget deficit (Burnside and Dollar 1997, 2000). We expect the positive and significant impact of aid-policy interactive term on economic growth. Money supply (M2) ratio to GDP is the financial institutional variable which is used to measure the financial depth. Following by

Fisher (1993) inflation is used as measure of monetary policy. Export plus import ratio to GDP is used for trade openness. ε_t is the normally distributed error term.

Radelet *et.al.* (2005) proposed that not all type of aid contributes in economic growth. They disaggregated into three type, humanitarian assistance; early impact aid to finance infrastructure, direct investment in agriculture sector and others sector; and late impact aid to finance in human and social capital. Ram (2003) decomposes the foreign aid into two major components, bilateral aid and multilateral aid on the basis of their characteristics and effectiveness. Bilateral and multilateral aid may differ from each other with three aspects, namely, donor's motive, aid conditional ties and closeness of the relationship between the donors and recipients. Radelet (2006) argues that when bilateral donors "tie[3]" portions of their aid it become more costly and less effective. Donors force the recipient country spend portion of aid money on the donors' goods and charge the noncompetitive price which become more costly for aid recipients. Thus in case of tie aid, recipient receives much less amount of aid allocated to him. Donor motive is more prominent in case of aid inflow to Pakistan. So in this study, we disaggregate the aid on the basis of source of aid to examine the impact of aid on real economic performance of the country. Disaggregated aid inflow, i.e. bilateral aid, multilateral aid, is included in the following specific form.

$$RGDP_t = f(INF_t, BD_t, TO_t, M2_t, MAID_t, \ BAID_t AP_t, \varepsilon_t) \qquad (4.2)$$

---

3 Donors country demand that certain portion of aid used to purchase goods and services from the firms in donor's home country.

Where *MA* ratio of multilateral aid to GDP, B*A* is ratio of bilateral aid to GDP, All others variables are defines as previously.

4.3   ARDL, Model Specification

Muchapondwa (2008) discussed briefly three approaches to cointegration with their limitation.   (1) the most widely known single equation approach to cointegration is the Engle-Granger two- step procedure. There are some important shortcomings in this approach; this procedure does not say anything about which of the variables can be used as regressor. The problem obviously becomes far more complicated when we have more than two variables to test for long run relationship. Second problem is s that when there are more than two variables there may be more than one cointegrating relationship, and the Engel –Granger procedure using residuals from a single relationship cannot treat this possibility. Third problem is that it relies on a two step estimator. The first step is to generate the error series and the second step is to estimate the regression for this series in order to see if the series is stationary or not. Hence, any error introduced in the first step is carried into the second step. (2) The Johansen estimation procedure deals with this problem but like the Engle-Granger procedure, this method also assume that all variables are cointegrated of the same order with certainty. However, the power of unit root test is low hence it can never be known with certainty.

(3)The recently developed method known as autoregressive distributed lag (ARDL) approach to cointegration proposed by Pesaran et al. (2001) overcomes some of these problems. Firstly, this approach captures both short-run and long-

run dynamics when testing for the existence of cointegration. Secondly, it permits the estimation of cointegration relationships when variables are I(0), I(1) or a mixture of the two. However the pre-testing for the order of integration of the variables in the model is required because the procedure is not valid for I(2) series. Thirdly, it offers explicit tests for the existence of a unique cointegration vector rather than assuming one. Finally, test is applicable for small sample. In this procedure cointegration relationship is estimated by OLS once the lag order of the model is identified.

ARDL procedure developed by Pesaran et al (2001) can be summarized as follow

Consider $\{Z_t\}_{t=1}^{\infty}$ a (k+1)-vector random process whose data generating process is the VAR

model of order *p* presented in equation

$$\emptyset(L)(z_i - \mu - \gamma t) = \epsilon_t \qquad\qquad 4.3$$

Where L is the lag operator, μ and γ are unknown (k+1) vector of intercept and trend coefficients and $\emptyset(L) = I_{k+1} - \sum_{i=1}^{p} \emptyset_i L^i$ is the (k+1, k+1) matrix lag polynomial, assuming that $I_{k+1} - \sum_{i=1}^{p} \emptyset_i L^i = 0$ the roots of this equation are lie outside unit circle or satisfy Z=1, ruling out the possibility of explosive root. Equation 4-3 can be written as

$$\Delta z_t = a_0 + a_1 t + \pi z_{t-1} + \sum_{i=1}^{p-1} \Gamma_i' \Delta z_{i-1} + \varepsilon_t \quad_{t=1,2} \quad 4.4$$

z_t is the vector of variables y_t and x_t $\quad z_t = (y_t, x'_t)$ where y_t is a dependent variable defined as log of real GDP and x_t =[inf, BD, TO, M_2 , Aid AP] is a vector of explanatory variables of order I(0) and I(1).

Assuming that the process $\{x_t\}_{t=1}^{\infty}$ as long run forcing for $\{y_t\}_{t=1}^{\infty}$ as there is no feedback from the level of y_t. Under this assumption it is restricted that there exists at most one conditional level relationship between y_t and x_t , irrespective of the level of integration of the process $\{x_t\}_{t=1}^{\infty}$.

Therefore the ECM now becomes

$$\Delta y_t = \alpha_0 + \sum_{i=1}^{q} \gamma_i \Delta INF_{t-i} + \sum_{j=1}^{q} \varphi_j \Delta BD_{t-j} + \sum_{k=1}^{q} \omega_k \Delta TO_{t-k} + \sum_{l=1}^{q} \pi_l \Delta M2_{t-l}$$

$$+ \sum_{m=1}^{q} \theta_m \Delta AID_{t-m} + \sum_{n=1}^{q} \rho_n \Delta AP_{t-n} + \sum_{i=1}^{p} \vartheta_i \Delta y_{t-i} + \beta_1 y_{t-1}$$

$$+ \beta_2 INF_{t-1} + \beta_3 BD_{t-1} + \beta_4 TO_{t-1} + \beta_5 M2_{t-1} + \beta_6 AID_{t-1}$$

$$+ \beta_7 AP_{t-1} + \varepsilon_t \qquad\qquad (4.5)$$

Where y_t is log of real GDP and β_i are long run coefficients, α_o is the drift and ε_t are white noise errors. Now we disaggregate total inflow of aid into bilateral and multilateral aid in the following equation.

$$y_{t=} \alpha_0 + \sum_{i=1}^{q} \gamma_i \, \Delta INF_{t-i} + \sum_{j=1}^{q} \varphi_j \, \Delta BD_{t-j} + \sum_{k=1}^{q} \omega_k \, \Delta TO_{t-k} +$$

$$\sum_{l=1}^{q} \pi_l \, \Delta M2_{t-l} + \sum_{m=1}^{q} \theta_m \, \Delta BAID_{t-m} + \sum_{m=1}^{q} \theta_m \, \Delta MAID_{t-m} +$$

$$\sum_{n=1}^{q} \rho_n \, \Delta AP_{t-n} + \sum_{i=1}^{p} \vartheta_i \, \Delta y_{t-i} + \beta_1 y_{t-1} + \quad \beta_2 INF_{t-1} + \beta_3 BD_{t-1} +$$

$$\beta_4 TO_{t-1} + \beta_5 M2_{t-1} + \beta_6 BAID_{t-1} + \beta_7 MAID_{t-1} + \beta_8 AP_{t-1} +$$

$$\varepsilon_t \qquad\qquad\qquad\qquad (4.6)$$

The estimates of long run coefficients of equation 4.5 and 4.6 can be estimated by setting all first difference to zero. This is based on the assumption that in the steady state growth equal zero.

4.4   Econometrics Methodology

4.4.1   Unit Root Test

To avoid the problem of spurious regression, we test the time series properties of the data. Stationarity is important because if the series is non-stationary then all the typical results of the regression analysis are not valid. In stationary time series, shocks will be temporary and over the time their effects will be die out. In this study Augmented Dickey Fuller (ADF) has been used to test for stationarity. Dickey and Fuller (1981) developed a procedure to test for non-stationarity. The key point of this procedure is that testing for non-stationarity is equivalent to testing for the existence of a unit root. Dickey and Fuller provide following three possible forms of unit root test.

$$\Delta y_t = \gamma y_{t-1} + \sum_{i=1}^{p} \beta_i \, y_{t-1} + \varepsilon_t$$

45

$$\Delta y_t = \gamma y_{t-1} + \sum_{i=1}^{p} \beta_i \, y_{t-1} + \varepsilon_t$$

$$\Delta y_t = \alpha_0 + \gamma y_{t-1} + \alpha_2 t + \sum_{i=1}^{p} \beta_i \, y_{t-1} + \varepsilon_t$$

We use general to specific approach to test the null hypothesis that there is unit root ($\gamma=0$) against the alternative that the series is stationary ($\gamma<0$).

4.4.2 Cointegation Test

The first step in ARDL approach is to estimate equation 4.5 and 4.6 by ordinary least square (OLS) in order to test for the existence of a long run relationship among the variables by conducting the F-test for joint significance of the lagged levels of the variables i.e., $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$ against the alternative that $\beta_1 \neq \beta_2 \neq \beta_3 \neq \beta_4 \neq \beta_5 \neq \beta_6 \neq \beta_7 \neq 0$. In other words, the null hypothesis states that there is no long run relation among the variables of interest. The F computed is compared with critical value proposed by Pesran et al. (2001). If computed statistics is greater than upper bound of critical value than the null hypothesis of no log run relationship would be rejected, otherwise is accepted. The test statistic for the null hypothesis is the Wald statistic or the F-statistic. However, their asymptotic distribution which depends on the dimension and cointegration rank of the forcing vari-ables {xt} is non-standard. Pesaran et al. (2001) consider two polar cases where, (i) the process for {xt} is purely integrated of order zero and (ii) the process for {xt} is purely integrated of order one. They generate two sets of critical values for the F-statistic, i.e. the lower bound corresponding to the case

where all variables are I(0) and the upper bound corresponding to the case where all variables are I(1). These provide critical value bounds for all possible classifications of {xt} into I(0); I(1) and mutually cointegrated processes. If the F-statistic if below the lower bound one concludes that there is no cointegration and if the F-statistic is above the upper bound, one concludes that there is cointegration.

4.4   Construction of Policy Index

According to Fischer (1993), causation runs from good macroeconomic policy towards economic growth. He argues that growth is negatively associated with high inflation, large budget deficits, and distorted foreign exchange market. High inflation reduces growth by reducing investment and productivity growth. Budget deficit also reduces both capital accumulation and productivity growth. Randel.*et.al* (2004) study suggest that noninflationary monetary policy and low budget deficits is essential for savings and for accumulating capital.   High inflation and large budget deficits cause the financial instability and discourage the savings and investment. Montiel and Serven(2004) study proposed that developing countries achieve the progress with appropriate fiscal, monetary policy and the volatility in behavior of these variables caused the macroeconomic instability. They considered a stable macroeconomic policy environment attribute a fiscal stance safely consistent with fiscal solvency, a monetary policy with low and stable rate of inflation. Easterly and Rebelo (1993) suggest that the effect of most of fiscal variables has statistically fragile and negative effects on economic growth. Abdiweli M. Ali (2005) study shows that that fiscal volatility is strongly

47

and negatively correlated with economic growth. Zafar and Zahid (1998) study regarding Pakistan, conclude that budget deficit is negatively related with growth rates in per capita real income and real GDP. Two reasons were mentioned about negative relationship between fiscal deficit and growth in context of Pakistan. First is that when fiscal deficit is financed through distortion taxation, it would lower the incentive for saving and investment, thereby lowering the rate of capital accumulation and economic growth. The second argument is that higher budget deficit crowds out private investment.

Openness to trade is considered an important factor to raise growth through several channels, such as access to advanced technology from abroad, possibilities of catch-up, greater access to a variety of inputs for production, and access to broader markets that raise the efficiency of domestic production through increased specialization Durbarry et al. (1998).

Burnside and Dollar (2000) assume that distortions affect growth that will determine the effectiveness of aid. Therefore, in the construction of policy index, they assigned the weights to the policy variables according to their correlation with growth. This policy index is developed by using regression coefficients as weights of inflation, budget deficit, and trade openness.

Policy=1.28+6.85*Budget surplus-1.40*Inflation+2.16*Openness.

They used the interactive term of aid variable and policy index (Aid*Policy) in the regression model and found positive and significant coefficient of interactive term.

Burnside and dollar preferred to find overall measure of economic policy by using the regression coefficients of inflation, budget deficit and trade openness. Unlike Burnside and Dollar (1997, 2000) and we construct the policy index using the principal component methodology. In order to find the weights of three variables inflation, budget deficit and trade openness. First principal component represents the high correlation so we start from the first components to construct policy index.

The Policy index for period is based on the formula

Policy Index = -α_1 inflation + α_2 budget deficit + α_3 trade openness

Where α1, α2, α3 are represents of the weights of the first component. The graphic representation of the policy index is depicted in figure 4.1. Sign of parameters α1, α2, α3 are very important in the construction of policy index. On the basis recent studies we take α1 <0 and α2 >0 and α3>0.

Policy Index = -0.4856 INF +0.1475* BD + 0.3669* TO*

Figure 4.1
Graph of Policy Index
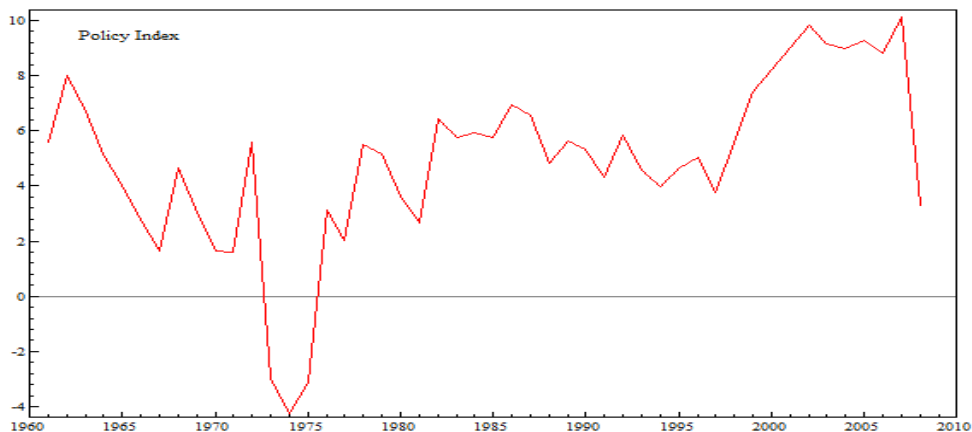
Above figure clearly indicate highly unstable macroeconomic policies in Pakistan. Monetary, fiscal and trade policies in Pakistan badly affected by external and internal shocks during the period reviewed. The inflation has a large impact on the policy index, followed by the trade openness and budget deficit has the least impact on policy index. Index is negative during the mid 1970 reflect the   high inflation and large budget deficit. The mean of the index is 4.9 and standard deviation is 3.1.

Figure 4.2: Inflation and Budget Deficit (1960-2008)
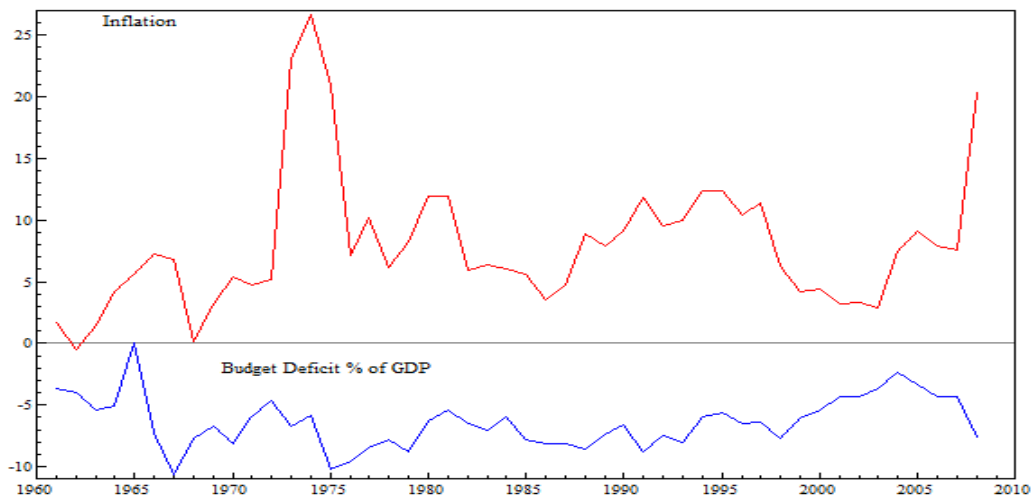
Policy index shows a persistent declining trend in sixties and seventies. High budget deficit in late sixties and high inflation early seventies were the major source of policy deterioration in the economy. Political disturbance of late sixties, 1965 war with India, separation of the East Pakistan, and oil price shock were the major events of two decades. As results this period remarked with high inflation

and high budget deficit. In the decade of eighties, the movement of inflation and budget deficit somehow depict inverse relationship. 1980s can be remarked with high budget deficit and low inflation up to some extent as compared to 1990s decade which is characterized with high inflation and high budget deficit. The fiscal deficit that was significantly high in eighties continued to remain high in the period of nineties. The inflation rate was 7.3% in 1980s on average as compared to 12.2% on average in 1970s .However the trend of inflation and budget deficit was reversed in decade of nineties that can be characterized with high inflation and high budget deficit episode which have negative impact on policy index. In 1990 government of Pakistan adopted trade liberalization policy and financial reforms along with tariff reform which showed some positive sign for the economy but failed to achieve the objective due political instability, law and order situation and inconsistence in the macroeconomic policies. Nuclear test, freezing of the foreign currency account and military takeover in 1999 led to further warrens the economy. In the first five years of 21st centuries remarked with low and stable inflation along with low budget deficit because abundant inflow of capital in the form of remittances and aid contributed to the macroeconomic stability. After 2005, international financial crisis, high food and oil prices and most terrible law and order situation badly deteriorate the macroeconomic stability in the country

4.5   Summary

This chapter has provided a theory of aid –growth nexus. The model developed in this chapter deal with the importance of macrocosmic policies of recipient country

and role of donor's economic and strategic interest for aid effectiveness. Mainly focused on the issue whether aid work better in the presence of good policy environment and incorporate the aid – policy interactive term in growth model. Total aid inflow is decomposed into bilateral and multilateral aid to see the effect of donor's strategic and economic interest on effectiveness of aid.

Chapter 5

Empirical Results

5.1   Introduction

We use these basic equations (4.5, 4.6) in two ways to make them more compatible with recent developments in literature regarding the aid effectiveness. Firstly we examine whether there is any evidence of a direct relationship between aid and real GDP growth in the absence of interaction of policy and aid. Secondly, we incorporate the Burnside and Dollar definition of good policy into each equation in order to examine relationship between aid real GDP growths in presence of macroeconomic policy environment. An autoregressive distributed lag (ARDL) methodology as discussed in chapter 4 has been utilized in order to get the long run and short run parameter simultaneously. The estimation procedure involves two stages. First, cointegration relationship between the variables under consideration is tested by computing F statistics to test the null of the significance of lagged levels. After examine the long run relationship, the long run and short run parameters are estimated in the next stage.

5.2 Unit Root test

By following the standard practice in time series econometrics, the estimation process starts by testing the time series properties of data using the augmented Dickey-Fuller (ADF) test. To ensure that the variables are not I(2) because bound test based on the assumption that variables are I(0) or I(1). Therefore, pre-testing for unit root in the ARDL procedure still might be necessary in order to ensure that none of the variables is integrated of order 2.ADF results are given in table 5.1

Table: 5.1 Test of non-stationarity of Variables

Variables	Constant/ Trend	Level	First Difference	Order of Integration
LRGDP	C,T	-1.7599	-6.988***	I(1)
Inf	C	-3.48**		I(0)
BD	C	-3.87**		I(0)
TO	C,T	-3.02	-7.4348***	I(1)
M2	C,T	-1.44	-5.898***	I(1)
Aidg	C,T	-3.18	-7.66***	I(1)
AP	C,T	-2.8039*	-7.973***	I(1)
BAID	C,T	-2.4024	-7.7013***	I(1)
MAID	C,T	-1.938	-10.049***	I(1)

Note; c,t denotes constant and trend, * indicate significance at 10 percent, ** significant at 5 percent and *** indicate significant at 1%,.

The test statistics indicate that the variables are not integrated of the same order. As can be seen from the table, two variables budget deficit and inflation are stationarity at level and all the remaining variable including LRGDP, M2, trade openness(TO) Aid ratio to GDP(Aidg), Aid policy interactive term(AP), bilateral aid ratio to GDP(BAID) multilateral aid ratio to GDP are non-stationary at level and become stationary after taking first difference. This implies that these series are integrated of order one, i.e. I (1). Table 5.1 shows that order of integration of all the variables are not same, therefore the mixed results obtained from the unit root test justify using ARDL technique to estimate the long-run and short-run relationship among the variables under investigation.

5.3   Bound test for cointegration:

In the first step of the ARDL analysis, we tested the presence of long run relationships in equation 4.6. General to specific modeling approach has been used. The number of lags of first differenced variables is selected on the basis of Akaike Information Criteria (AIC). Initially we set 2 lags and by using the general to specific methodology delete the insignificant variables from the model. By deleting the insignificant variables from the model justify when AIC and adjusted R^2 move in the right direction. Final model is selected when the estimated equations satisfied all the diagnostic checks including the Jarque-Bera statistic for normality of the residuals, the Breusch-Godfrey test for serial correlation, ARCH residual for homosedasticity and the Ramsey RESET test for specification error. CUSUM and CUSUMSQ statistic indicate no evidence of mis-specification and structural instability for the period estimated. The results of cointegration test are presented in Table 5.2

Table 5.2: Results of Cointegration Test

Dependent Var.	F-statistics	I(0)	I(1)	outcome
F_y(y/INF, BD, TO, M2, AID)	4.49	2.27	3.28	Cointegration
F_y(y/INF, TO,)	9.33	3.23	4.35	Cointegration
F_y(y/INF, BD, TO, M2, AID, AP)	5.85	2.86	4.01	Cointegration
F_y(y/INF, BD, TO, M2y, MAID, BAID)	4.18	2.32	3.5	Cointegration
F_y(y/inf, BD, TO, M2, MAID$_y$, BAID, AP)	6.05	2.22	3.39	Cointegration

Note: The critical values are taken from Pesaran,*et al*. (2001).

Results of cointegration test presented in table 5.2 show that each in specification
of aid growth relationship, F-statistic rejects the joint null hypothesis of no long
run relationship because computed F-statistics is greater than upper bound of the
tabulated F-statistics.

5.4.1 Real GDP Growth and Foreign Aid

Once we have established the long run relationship among the different
specification of aid growth nexus, the short run and the long run estimate of
ARDL are reported in table 5.3.

Tble 5.3: Estimates of Equation Aid and Growth Regression

Dependent Variable (Δy_t)

Variables	Coefficient	t-Statistic
Δy_{t-2}	-0.280909	-2.055654
Δinf	-0.595714	-6.831970
ΔInf_{t-2}	-0.243461	-2.798014
ΔBD_{t-2}	0.214608	1.287760
ΔTO	0.256342	1.905448
$\Delta M2$	-0.778617	-3.475492
Δaid_{t-1}	-0.570368	-1.723309
y_{t-1}	-0.041584	-2.315034
Inf_{t-1}	-0.380505	-3.654771
BD_{t-1}	-0.160735	-0.757583
TO_{t-1}	0.610052	4.104881
$M2_{t-1}$	0.033148	0.302615
aid_{t-1}	0.224490	0.720677
C	0.316382	2.066718
R2	0.69	
Adjusted R2	0.56	
DW	1.84	

Diagnostic Test	
Serial Correlation LM Test	0.0435[0.9575]
JB Normality Test	1.9228[0.3823]
Ramsey Test	0.0012[0.9910]
ARCH Test	2.2564[0.1405]
F test	4.49

Note: p- values are stated in [ ]. Breusch-Godfrey Serial Correlation LM and ARCH Test

are based on F-statistics. While normality test is based on Chi-square test
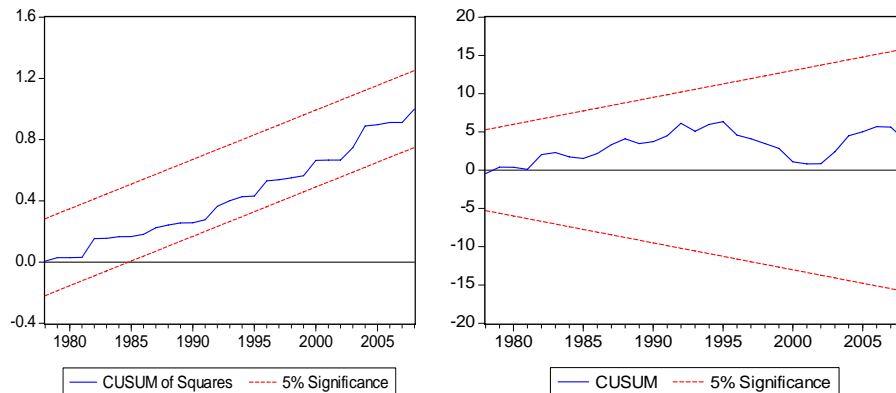
Long –run Estimates: t-Values are given parenthesis.

$$y_t = 7.61 - 0.09INF_t - 0.03BD_t + 0.15TO_t + .007M2_t + 0.05AID$$
$$(2.06) \quad (-3.65) \quad (-0.75) \quad (4.10) \quad (0.30) \quad (0.72)$$

In the above table, budget deficit ratio to GDP, and foreign aid ratio to GDP are

insignificant in short run as well as in the long run while M_2 ratio to GDP are

insignificant in the long run. This equation shows that only two variables inflation

and trade openness are significant both in short run as well as in the long run with

appropriate sign. M2 and Aid/GDP are significant only in the short run.

After deleting these insignificant variables from the model results are reported

below in equation 5.1. We see no difference in the sign and size of the

coefficients after deleting the insignificant variables at first stage. It can be

inference from second stage of regression that results of first equation are reliable and do not change after the removing the insignificant variables.

$$\Delta y_t = 0.41 - 0.27\Delta y_{t-2} - 0.61\Delta inf - 0.26\Delta inf_{t-2} + 0.23\Delta TO - 0.78\Delta M2$$

$$(5.43) \quad (-2.12) \qquad (-7.66) \qquad (-3.50) \qquad (1.86) \qquad (-4.07)$$

$$-0.57\Delta Aid_{t-1} - 0.05 y_{t-1} - 0.38 inf_{t-1} + 0.64 TO_{t-1} \qquad\qquad 5.1$$

$$(-2.17) \qquad\quad (-4.81) \qquad (-4.23) \qquad (4.96)$$

Diagnostic Test (P-values are in brackets)

R^2=0.67 $\qquad$ adjR^2 =0.59 $\qquad\qquad$ DW=1.93 $\qquad$ LM =0.0016[0.998]

Normality Test =1.016[0.6016] $\qquad$ Ramsey Test = 0.003[0.9598]

ARCH Test=0.689[04109]

The ARDL regression results with aid but without aid-policy interactive term shows that the coefficient of Aid/GDP is not different from zero in the long run. It implies that total foreign aid in aggregate form does not contribute in economic growth in Pakistan. Foreign aid as percentage of GDP appears weekly significant with negative coefficient in the short run. The results support the finding of Kahan and Ahme d(2007), Khan (1997), Khan and Rahim (1993), and Ishfaq and Ahmed (2005) who found negative relationship between foreign aid and economic growth, although the impact of foreign aid on economic growth remained statistically insignificant. Deteriorated macroeconomic policies may be the cause of adverse affect of foreign aid on Pakistan economy (Isfaq and Ahmed, 2005). According to Kahan and Ahmed (2007) donor's conditionality, poor governance, tied aid, kickbacks paid to the foreigner contractor and weak state institution are

might be the causes of failure of contribution of foreign aid in development process of Pakistan economy.

The strongly significant variables are inflation and trade openness which are consistent with the empirical growth literature. The coefficient of inflation is highly significant and negatively correlated with log of real GDP both in the short run and in the long run. High and unstable inflation reduces growth by reducing the investment. Positively significant impact of trade openness on economic growth is broadly consistent with literature and economic theory. Trade openness positively affect economic growth through several channels like access to advance technology, access to variety of inputs for production, access to foreign market for domestically produced goods. The coefficient of budget deficit is positive and insignificant in the short run while negative and insignificant in the long run. M2 coefficient is insignificant in the long run but significantly negative correlated with growth rate of real GDP in the short run.

5.4.1 Real GDP Growth, Aid and Macroeconomic policy.

To examine the affect of aid on growth in the presence of good policy environment, we estimate the equation 4.6 the results are reported in table 5.4.

Table 5.4: Estimates of Equation Aid, Growth and Policy

Dependent Variable (Δy_t)

Variables	Coefficient	t-Statistic
Δinf	-0.797604	-4.181153
ΔBD	0.296897	1.334780
ΔTO	0.432065	2.195539
ΔTO_{t-1}	-0.378136	-1.887530
ΔTO_{t-2}	-0.476695	-2.729746
ΔM2	-0.651507	-2.632195
Δaid	1.050133	1.805333
Δaid_{t-2}	-0.622013	-1.585436
ΔAP	-0.186590	-1.816736
ΔAP_{t-2}	0.123886	3.243547
y_{t-1}	-0.061006	-2.849553
Inf_{t-1}	-0.699143	-2.935574
BD_{t-1}	0.210988	0.741307
TO_{t-1}	1.003019	4.028781
$M2_{t-1}$	-0.050498	-0.385615
aid_{t-1}	0.777884	1.334630
AP_{t-1}	0.209079	2.107160
C	0.480074	2.729100
R^2	0.70	
Adjusted R^2	0.52	
DW	1.86	

ARDL Diagnostic Test	
Serial Correlation LM test	0.0292[0.8655]
JB Normality Test	0.8241[0.6623]
Ramsey Test	0.5703[0.4569]
ARCH Test	0.0253[0.8744]
F test	3.40

Note: p- values are stated in [ ]. Breusch-Godfrey Serial Correlation LM and ARCH Test

are based on F-statistics. While normality test is based on Chi-square test
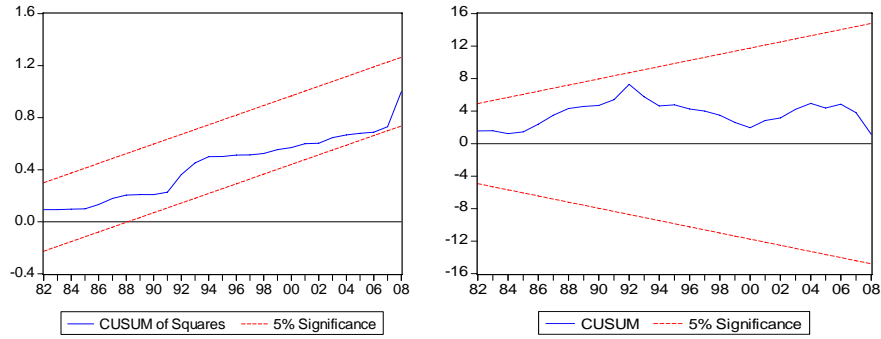
Long –run Estimates: t-Values are given parenthesis.

$$y_t = 7.86 - 0.11INF_t + 0.03BD_t + 0.16TO_t - .008M2_t + 0.12AID_t + 0.034AP_t$$
$$\quad (2.73)\quad (-2.93)\quad\;\; (0.74)\quad\;\;\; (4.02)\quad\;\;\; (-0.38)\quad\;\;\; (1.33)\quad\;\;\; (2.10)$$

When we include the aid-policy interactive term in the regression equation 4.6, the coefficient of budget deficit ratio to GDP is again insignificant both in the short run as well as in the long run. Similarly coefficient of M2 ratio to GDP and coefficient of aid ratio to GDP are also not statistically different from zero. After eliminating these insignificant variables from the regression equation, we end up with the following results. The values given in the brackets are t-statistics.

$$\Delta y_t = 0.61 - 0.22\Delta y_{t-2} - 0.52\Delta\inf + 0.25\Delta TO - 0.29\Delta TO_{t-2} - 0.66\Delta M2$$
$$\quad\;\; (4.43)\quad (-1.60)\quad\quad\;\; (-5.64)\quad\;\; (1.92)\quad\;\; (-2.11)\quad\quad\quad (-3.22)$$

$$+0.10\Delta AP_{t-2}\; - 0.07y_{t-1} - 0.61\inf_{t-1} + 0.91TO_{t-1} + 0.10AP_{t-1}\quad (5.2)$$
$$\;\;(3.63)\quad\quad\quad\;\; (-4.15)\quad\;\; (-3.81)\quad\quad (4.18)\quad\;\; (2.11)$$

Diagnostic Test (P-values are in brackets)

R^2=0.66 R^2 adj=0.55   DW=1.96   LM =0.3074[0.737]

Normality Test =0.854[0.65]   Ramsey Test = 0.4669[0.4993]

ARCH Test=0.00364[0.8497]

When Aid/GDP alone is introduced into the growth regression it has an insignificant positive coefficient in the long run and significant negative coefficient in the short run. An interesting story emerge, however when Aid/GDP*Policy variables is added in the above equation. Aid still has a insignificant coefficient in the long run, but aid interacted with policy is significantly positive both in the short run and in the long run. This result implies that the impact of aid on growth is function of level of policy. There are two possible justifications for the positive effect of aid on growth in the presence of good policy. Stable macroeconomic indicators are more attractive for the investor. High inflation and high budget deficit may cause the macroeconomic instability which discourages the investment. Montiel and Serven(2004) argue that when "other things equal, reduced aggregate volatility and lower inflation likely had a positive impact on the income of the poor" 2) high non developing expenditure cause the high budget deficit. In case of high budget deficit, foreign aid may be used for government consumption instead of investment purpose.

5.5   Real GDP Growth and Bilateral and Multilateral Aid

In this section we separately estimate equations for bilateral and multilateral aid. In the first stage we regress log of real GDP on the set of explanatory variables inflation, budget deficit, trade openness, M2 ratio GDP; results are presented in table 5.4.

Table 5.5: Bilateral and Multilateral Aid and Growth

Table 5.5: Dependent Variable ($\Delta LGDP$)

Variables	Coefficient	t-Statistic
Δy_{t-2}	-0.221999	-1.627330
Δinf	-0.645092	-6.454440
ΔInf_{t-2}	-0.290853	-3.385994
ΔTO	0.303702	2.100153
$\Delta M2$	-0.642738	-2.870233
$\Delta maid$	0.802929	0.898880
$\Delta maid_{t-1}$	1.130842	1.157209
$\Delta baid_{t-2}$	0.719233	2.103113
y_{t-1}	-0.073720	-3.017044
Inf_{t-1}	-0.353005	-3.156108
to_{t-1}	0.631571	3.916707
$M2_{t-1}$	0.248135	1.736674
$maid_{t-1}$	0.698297	0.782373
$baid_{t-1}$	-0.454722	-1.367156
c	0.568178	3.189008
R^2	0.69	
Adjusted R^2	0.56	
DW	2.13	

Diagnostic Test

Serial Correlation LM test	1.3210[0.2824]
JB Normality Test	1.4159[0.4926]
Ramsey Test	1.8567[0.1832]
ARCH Test	0.0076[0.9306]
F-test(6,31)	4.18

Note: p- values are stated in [ ]. Breusch-Godfrey Serial Correlation LM and ARCH Test

are based on F-statistics. While normality test is based on Chi-square test

In the next stage we regress the log of real GDP on the same set of explanatory variables along with one additional variable aid policy interactive term and results are presented in Table 5.6. The results reported in table 5.5 indicates that multilateral aid have positive but insignificant relationship with real GDP growth both in short run as well as in the long run. Statistically insignificant coefficient of multilateral aid in this study supports the early finding of Gounder (2001, 2002). Gounder found multilateral aid coefficient statistically not differ from zero both for Fiji and Solomon Island. However, bilateral aid has positive and statistically significant relationship with real GDP growth in the short run but negative and statistically insignificant relationship with real GDP growth in the long run. This negative relationship between bilateral aid and economic growth in the long run strength the idea that resources transfer from develop countries to developing countries are oriented towards their own economic and strategic interest instead of needs of the recipients. In case of Pakistan bilateral aid dominates the foreign aid inflow. Till 1990, major portion of foreign aid inflow into Pakistan was in the form of bilateral aid and historically, there is a strong association between aid inflow to Pakistan and geo-political interest of donors. These donors' motives and interest may be the cause of failure of aid contribution in the development process of the Pakistan economy. Radelet (2006) indicate that considerable portion of bilateral aid are tide and tide aid is more costly and less effective for aid recipients. Burnside and Dollar (1997) finding suggest that aid associated with donor interest, primarily bilateral aid increase the government consumption, which has no positive impact on the economic growth. Randel.*et al.* (2004)

64

pointed out that following weakness of bilateral aid that may hurt the economic growth in the aid recipient country.

- When aid recipients unwilling to adopt the policies of donors and donor country suddenly cutoff aid which could hurt the development.

- The aid may be given with the best interest of the donor in mind, not those of the recipient country.

- The aid inflow may benefit the exporter rather than the recipient.

5.4.1 GDP Growth, Bilateral and Multilateral Aid and Macroeconomic Policy

In the last step we incorporate the aid-policy interactive term with bilateral and multilateral aid in the growth equation. Results reported in table 5.5

Table 5.6: Bilateral and Multilateral Aid, Macroeconomic Policy and Growth

Dependent Variable (ΔLGDP)

Variables	Coefficient	t-Statistic
Δy_{t-2}	-0.342108	-2.887724
Δinf	-0.433587	-4.960405
ΔTO	0.334228	2.871965
ΔTO_{t-1}	-0.642679	-3.842679
ΔTO_{t-2}	0.549600	3.995189
$\Delta M2$	-0.918494	-5.299651
$\Delta maid_{t-2}$	-2.205275	-2.883633
$\Delta baid_{t-1}$	-0.507854	-1.724165
ΔAP_{t-2}	0.148065	5.293645
y_{t-1}	-0.105357	-5.665835
Inf_{t-1}	-0.939883	-5.604070
to_{t-1}	1.579224	6.515143
$maid_{t-1}$	0.817769	1.351582
$baid_{t-1}$	0.677542	2.593782
AP_{t-1}	0.241560	3.983866
C	0.776277	5.478971
R^2	0.81	
Adjusted R^2	0.70	
DW	1.93	

Diagnostic Test

Serial Correlation LM test	0.4296[0.6554]
JB Normality Test	0.7098[0.6805]
Ramsey Test	0.2075[0.6525]
ARCH Test	0.2603[0.6126]
F-test(6,27)	8.75

Note: p- values are stated in [ ]. Breusch-Godfrey Serial Correlation LM and ARCH Test

are based on F-statistics. While normality test is based on Chi-square test

when (Aid/GDP*Policy) is added in the regression equation, multilateral aid has insignificant positive relationship with real GDP growth in long run and statistically significant but negative relationship in the short run. By the addition of this new variable in the model, the coefficient of bilateral aid has become positive and significant in the long run. Strongly positive and significant coefficient of aid-policy interactive term implies that impact of aid on growth is function of macroeconomic policy.

Theoretically, aid has positive impact on the host economy. Aid is said to be effective if an increase in aid raises savings, investment and export earnings. In case of Pakistan aid does not show any significant and positive effect on economy, it might be due to country's policy mismanagement. According to the World Development Report 1997, institutions are crucial factor in determining economic outcomes. Thus a country needs both effective institutions and capable state agencies to ensure that sound economic management can be promoted and that sustainable economic growth can be achieved.

5.5   Summary

The negative effect of foreign aid on economic growth in Pakistan can be justified on the following grounds. First, foreign aid inflow may be used to invest either in less productive sectors or to increase government consumption. This is consistent with finding of Ishfaq and Ahmad (2005) that foreign aid leakage into non-productive expenditures in the public sector may be the cause of negative relationship between foreign and economic growth. Second, unstable aid inflow

and volatile macroeconomic environment have spoiled the favorable impact of aid on economic growth. Aid inflow is highly volatile in history of Pakistan. It was very high in military era while in democratic period aid inflow was very low. Third, in case of Pakistan aid inflow is seemed to be more oriented toward the donor's economic and strategic interest instead of economics motives. Fourth, foreign aid inflow into Pakistan is used to substitute government's inability to tax its own citizens because of political pressure from elite groups.

Chapter 6

Conclusions

The belief that foreign aid help to promote sustainable economic growth and improve the welfare in developing countries is debatable issue since its start. A large body of literature now available on aid effectiveness but the issue regarding its contribution for growth and welfare remain controversy. While developing the aid growth theories, aid effectiveness studies have incorporated the number of variables like institutional quality, political instability, governance issues into the analytical frame work in order to assess the role of aid on economic growth of recipient country. Researcher highlights some key issues which may undermine the impact of foreign aid on economic growth. These include donors conditionality attached to aid inflow, stable macroeconomic environment in aid recipient country, institutional quality, governance issues; donors tide the some portion of aid and donors strategic motives for the allocation of aid. Among these two reasons are highly concerned in the management of aid inflow into Pakistan and its contribution for Pakistan economy. These reasons are donor's strategic interest in aid allocation to Pakistan and macroeconomic policy instability in Pakistan. We have briefly discussed the role of stable macroeconomic policy (monetary, fiscal and trade policy) for economic growth in chapter 4. From stable macroeconomic policies, we mean noninflationary monetary policy, low budget deficit and open trade regime. Low and stable inflation along with low budget

deficits provide a favorable environment for saving and investment which is perquisite for economic growth.

Since independence Pakistan relied heavily on external resources of financing for development. The inflow of external resources strongly associated with donor's strategic motives rather than the needs of the country. Pakistan received reasonable amount of external resources in the period of Cold War era, Soviet Union invasion on Afghanistan and aftermath of 9/11 attack on USA. Pakistan access to foreign aid has been stopped in 1970s and 1990s on account for having nuclear technology. These huge inflows of external resources have failed to contribute in economic development process of country and in the improvement of living standard of the ordinary people. The objective of the study is to identify the cause of failure of external financing in the development process of country and to see if macroeconomic policies have failed to create momentum on the space created by aid. A composite policy index comprise monetary, fiscal and trade policy has been constructed by using principal component analysis and this policy index. The aid growth model has been empirical tested for Pakistan over the period 1961-2008 by incorporating the policy index in the regression model. The dynamic analysis is employed to measure the interactive effect of aid and macroeconomic policy on the economic growth. In this study, foreign aid has been used both at aggregate level and disaggregate level (Bilateral and multilateral).

The major point emerging from this study is that foreign aid has no role in economic growth of Pakistan under the period reviewed. Based on the empirical

results we find that foreign aid and real GDP has negative relationship while aid-policy interactive term and real GDP has positive and significant relationship. The interesting results emerge; when Aid/GDP alone is introduced into the growth equation it has insignificant positive coefficient in the long run and negative and weakly significant coefficient in the short run. When Aid/GDP x Policy is added, aid still has a zero coefficient in the long run and aid policy interactive term has positive and significant coefficient both in the long rum and short run. Similar results obtained when we disaggregate aid in term bilateral and multilateral component.

Policy implications

Our finding suggests that sound economic management policy in terms of low inflation, trade openness and low budget deficit is crucial for aid effectiveness. There is need to implement appropriate policy measure, in order to achieve the positive impact of foreign aid on economic growth through minimizing budgetary deficits, lower the inflation rate and to achieve trade openness.

Aid inflow is a highly unstable and unpredictable source of external financing and it is always depend on donor's strategic interest. Policy makers take into account the stable and sustainable sources of external financing like exports, FDI and portfolio investment for stimulating growth of economy.

References

Ahmed, V. and A. Rashid (1985) The Management of Pakistan's   Economy, 1947-82   *Oxford University Press, Karachi*

Alvi, E. D. Mukherjee, and E. K. Shukrallah (2008) Aid, Policies, and Growth in Developing   Countries: A New Look at the Empirics. *Southern Economic   Journal* 74, 693-706

Arellano, C., A. Bulir., T. Lane, and L. Lipschitz (2009) Them Dynamic Implications of Foreign Aid and its Variability. *Journal of Development Economics* 88, 87-102

Asterious, D. (2009) Foreign Aid and Economic Growth: New Evidence   from a Panel Data Approach for Five South Asian Countries. *Journal of Policy Modeling* 31, 155-161

Barro, R. and Sala-i- Mrtin, X (1995) Economic Growth, New York: *MaGrraw-Hill.*

Boone, P. (1996). Politics and Effectiveness of Foreign Aid. *European Economic Review* 40, 289-329

Boone, P. (1994) The Impact of Foreign Aid on Saving and Growth. Centre For Economic Performance: Working paper No. 677 London School of Economics.

Burnside, C. and D. Dollar (1997). Aid, Policies and Growth. Policy Research
Working Paper1777, The World Bank, Development Research Group,
Washington, D. C.

Burnside, C. and D. Dollar (2000) Aid, Policies, and Growth. *American*

Economic Review 90:4, 847–68.

Burnside, C. and D. Dollar (2004) Aid, Policies, and Growth: Revisiting   the
Evidence: World Bank Policy Research working paper 3251

Chenery, H.B and A. Strout(1966) Foreign Assistance and Economic
Development. *American Economic Review* 56,679-733

Chishti, S. and A. Hassan (1992) Foreign Aid, Defense Expenditure and Public
Investment in Pakistan. *The Pakistan Development Review* 32, No 4.

Clemens, M. A., S. Radelet, and R. Bhavnani (2004), Counting

Chickens When They Hatch: The Short-Term Effect of Aid on

Growth, CGD Working Paper No. 44 Washington: Centre for Global
Development.

Collier, P. and H. Anke, (2002) Aid, Policy,   and   Growth   in   Post-conflict
Societies, Policy Research Working Paper Series 2902, The World Bank

Collier, P. and D. Jan,(2001) Aid, Shocks, and Growth, The World Bank   Policy
Research Working Paper No. 2688.

Dalgaard, C. and H.Henrik (2001) On Aid, Growth and Good Policies, *Journal of*
Development Studies, August 37: 6, 17–41.

Dalgaard, C., H. Henrik. and F. Tarp (200) On the Empirics of Foreign Aid and

      Growth, *The Economic Journal* 144, F191-F216

Development Assistance Committee Online database (2006). Paris Development

      Assistance Committee (DAC). URL:www.oecd.org/dac/stats/idsonline

Din, G.M. (2005) Impact of Foreign Aid on Economic Development in

      Pakistan1960-2002   Online at: http://mpra.ub.uni-muenchen.de/1211/

Dowling, J. and Hiemenz, V. (1982) Aid, Savings and Growth in the   Asian

      Region: the Macroeconomic Impact of Development Aid: A Critical

      Survey, *Journal of Development Studies* 28: 2, 163-240

Dowling, J. Malcolm, and U.Hiemenz, (1982) Aid, Saving, and Growth in the

      Asian Region, Report No.3 Manila: Economic Office, Asian

      Development Bank.

Durbarry, R., N. Gemmell and D.Greenaway (1998) New Evidence on

      Development and International Trade, University of Nottingham.

Easterly, N., Levine, and D. Roodman, (2004) Aid, Policies, and Growth: The

      Impact of Foreign Aid on Economic Growth. Centre for Research in

      Economic Development and International Trade, University of

      Nottingham

Easterly, W. (2003) Can Foreign Aid Buy Growth? Journal of Economic

      Perspectives 17:3, 23–48

Easterly, W. (1999) The Ghost of Financing Gap: Testing the Growth Model used

      in the International Financial Institutions, Journal of Development

      Economics 60,423-438

Easterly, W., R. Levine, and D. Roodman (2004) Aid, Policies, and Growth: Comment, American Economic Review 94: 3, 774-780

Easterly, W. (2002) What Did Structural Adjustment Adjust? :The Association of Policies and Growth with Repeated IMF and World Bank   Adjustme Loans. Working paper, Center for Global Development; available at www.cgdev.org.

Easterly, W. (2001) The Political Economy of Growth without Development:A case Study of Pakistan. Paper for the Analytical   Narratives of Growth Project, Kennedy School of Harvard University

Easterly, W. and R. Sergio (1993) Fiscal Policy and Economic Growth: An empirical Investigation, Journal of Monetary Economics 32:3, 417-458

Erixon, F. (2005) Aid and Development: Will it work this time   International Policy Network 3rd Floor, Bedford Chambers. The Pizza   London WC2E 8HA UK

Fischer ,S. (1993) The Role of Macroeconomic Factors in Growth. NBER Working   Paper # 4565

Griffen, K. B. and J. L. Enos (1970) foreign Assistance: Objectives and Consequences. Econ. Development and Cultural Change18, 3: 313-327

Gounder, R. (2001) Aid Growth Nexus: Empirical Evidence from Fiji.   Applied Economics, 33,1009-1019

Hadjimichael, M. Ghura D., Muhleisen N, Nord. R., and Ucer. E (1995)   Sub-Saharan   Africa : Growth, Savings and Investment 1986-1993. IMF Occasional Paper No 118, IMF Washington D.C

Hansen, H. and F. Tarp (2000). Aid Effectiveness Disputed, *Journal of International Development* 12:3, 375–98.

Hansen, Henrik and Finn Tarp (2001) Aid and Growth Regressions. *Journal of Development Economics* 64:2, 547–70.

Hudson, J. and P. Mosley (2001) Aid policies and growth: in search of the Holy Grail, *Journal of International Development 13, 1023-1038*

Husain,I. (1999) *Pakistan the Economy of an Elitist State*. Karachi: Oxford University Press.

Iqbal, Z.(1997) Foreign Aid and the Public Sector: A Model of Fiscal Behavior in Pakistan. *The Pakistan Development Review* 36.

Ishfaq, M. and E. Ahmad (2005) Aid Effectiveness: The Case of Pakistan. *The Middle East Business and Economic Review* 17: 2

Khan, S. R. (1997) Has Aid Helped in Pakistan? *The Pakistan Development Review* 36.

Khan, M. A. and A. Ahmed (2007) Foreign Aid-Blessing or Curse: Evidence from Pakistan. *The Pakistan Development Review* 46: 3

Khan, N.Z and E. Rahim (1993) Foreign aid, Domestic Savings and Economic Growth in Pakistan: 1960-1988. *The Pakistan Development Review* 32:4, 1157-1167

Kourtellos, A., C. M. Tan and X. Zhang (2007) Is the Relationship between Aid and Growth Nonlinear. *Journal of Macroeconomics* 29:3, 515-540

Kraay, A. and C. Raddatz (2007) Poverty Trap, Aid and Growth. *Journal of Development Economics 82,315-347*

Lancaster, C. (2007) *Foreign Aid, Diplomacy, Development, Domestic Politics.* The University of Chicago press Chicago and London

Lensink, R. and H.White(2000) Assessing Aid : AManifesto for Aid in 21st Century, Oxford Development Studies 28:1

Montil, P. and L. Serven (2004) Macroeconomic Stability in Developing countries: How much is enough? World Bank Policy Research Working Paper 3356

Mosley, P. Hudson, J and Harrell, S. (1992) Aid, The Public Sector and the market in Less Developed Countries: A Return to the Scene of the Crime *Journal of International Development* 4:2, 139-50.

Mosley, P. (1980) Aid, Savings, and Growth Revisited, *Oxford Bulletin of Economics and Statistics* 42:2, 79-95

Mosley, P. Hudson, J and Harrell, S, (1987) Aid , The Public Sector and the market in Less Developed Countries: *The Economic Journal* 97, 616-641

Papanek, G..F (1972) The Effect of Aid and other Resource Transfer on Savings and Growth: In Less Developing countries. *The Economic Journal,* 82: 327, 934-950

Pesaran, M.H.Y.Shin, and R.J.Smith (2001) Bound Testing Approach to the Analysis of Level Relationships. *Journal of Applied Econometrics* 16, 289-326

Radelet, S. (2006) A Primer on Foreign Aid working paper Number 92, Center for Global Development.

Radelet, S., M. Clemens, and R. Bhavnani, (2005) Aid and Growth: *The. Current Debate and Some Evidence" The Macroeconomic Management of Foreign Aid*, International Monetary Fund

Rajan, R. and A. Subramanian (2005) Aid and Growth: What Does the Cross-Country Evidence Really Show? IMF Working Paper 05/127 Washington: International Monetary Fund.

Rana, P. and Dowling, J (1988) The Impact of Foreign Capital on Growth: Evidence from Asian Developing Countries. *The Journal Development Economics* 26.

Rati, R. (2003) Roles of Bilateral and Multilateral Aid in Economic Growth of Developing Countries, *Kyklos* 56 :1, 95–110.

Rodrioguez ,S. Franco and Olivray (1998) Aid and the Public sector in Pakistan: Evidence with Endogenous Aid, *World Development* 26:7, 1241-1250

Roodman, D. (2006). Building and Running an Effective policy Index: Lessons from the Commitment to Development Index, Center for Global Development, Washington, DC.

Sing. Ram D. (1985) State Intervention, Foreign Economic Aid, Savings and Growth in LDCs: Some Recent Evidence Kyklos 38: 2,

Stonemen, C. (1975) Foreign Capital and Economic Growth, *Applied Economics* 25, 481-488

Vos, R.(1998) Aid Flows and "Dutch Disease" in a General Equilibrium Framework for Pakistan. *Journal of Policy Modeling* 20, 77-109

World Bank (1990), Adjustment Lending Policies for Sustainable Growth, Policy

and Research Series, No. 14, The World Bank, Washington, D.C.

White, H. (1998) Aid and Macroeconomic performance: Theory, Empirical Evidence and LDCs: Some Recent Evidence, Kyklos 38: 2

Xiaoyon, C. and Liutanh (2008) Foreign Aid, Domestic Capital Accumulation, and Foreign Borrowing, *Journal of   Macroeconomics* 30, 1269-1284

Appendix

year	LRGDP	INF	BD/GDP	AID/GDP	AID*POL	TO	M2/GDP	MAID/GDP	BAID/GDP
1961	8.52	1.64	-3.64	6.23	34.93	18.92	29.16	0.42	6.41
1962	8.57	-0.52	-3.93	8.97	71.63	22.66	29.95	0.40	5.83
1963	8.63	1.46	-5.37	10.70	71.78	22.38	32.80	0.53	9.43
1964	8.70	4.18	-5.13	9.95	51.41	21.68	34.07	0.45	9.45
1965	8.78	5.57	0.07	8.48	34.02	18.28	34.31	1.04	10.11
1966	8.81	7.23	-7.26	5.65	15.85	20.14	36.33	1.14	5.78
1967	8.87	6.81	-10.66	6.51	10.65	17.76	35.64	1.39	5.79
1968	8.95	0.17	-7.67	4.95	22.96	15.95	35.57	1.51	6.71
1969	8.99	3.19	-6.67	3.80	11.52	15.17	37.01	1.04	4.88
1970	9.08	5.35	-8.17	4.20	6.86	14.82	34.98	0.97	3.76
1971	9.09	4.73	-5.98	3.90	6.19	12.99	35.38	0.83	4.29
1972	9.11	5.18	-4.67	3.27	18.20	23.91	32.83	0.56	3.33
1973	9.12	23.07	-6.67	4.46	-13.26	25.12	32.61	1.17	2.96
1974	9.15	26.66	-5.79	5.06	-21.49	26.04	28.38	0.91	2.98
1975	9.19	20.90	-10.23	5.79	-18.04	23.29	24.28	1.24	2.99
1976	9.28	7.16	-9.50	7.59	23.67	21.80	26.09	1.18	2.23
1977	9.32	10.13	-8.50	3.87	7.90	22.39	28.19	1.34	2.58
1978	9.42	6.14	-7.81	3.55	19.51	26.25	29.43	0.62	2.03
1979	9.44	8.27	-8.81	3.59	18.59	28.61	32.91	1.09	2.21
1980	9.51	11.94	-6.24	4.98	18.19	28.27	32.33	0.72	1.72
1981	9.54	11.88	-5.41	2.92	7.72	25.11	31.85	0.65	1.20
1982	9.66	5.90	-6.48	2.97	19.08	27.93	29.56	0.76	1.13
1983	9.72	6.36	-7.03	2.53	14.52	26.89	32.94	1.35	1.24
1984	9.80	6.09	-5.99	2.34	13.90	26.66	31.99	1.17	1.18
1985	9.86	5.62	-7.79	2.46	14.19	26.30	32.04	1.24	1.18
1986	9.91	3.51	-8.09	2.86	19.91	26.88	33.75	1.41	1.88
1987	9.98	4.68	-8.16	2.45	16.05	27.33	34.49	1.82	1.68
1988	10.06	8.84	-8.52	3.52	16.99	28.29	32.82	1.68	2.17
1989	10.11	7.84	-7.40	3.51	19.80	28.73	31.08	2.43	2.64
1990	10.13	9.05	-6.57	2.82	15.09	29.21	32.88	2.28	1.70
1991	10.19	11.79	-8.77	3.01	12.95	30.86	32.41	2.42	1.20
1992	10.27	9.51	-7.47	2.08	12.17	31.54	34.51	2.49	1.16
1993	10.28	9.97	-8.07	1.95	8.91	28.90	36.74	2.09	1.13
1994	10.32	12.37	-5.90	3.09	12.25	29.56	37.06	2.45	1.28
1995	10.38	12.34	-5.65	1.35	6.29	31.30	36.36	2.14	1.23
1996	10.41	10.37	-6.50	1.39	6.99	30.05	36.42	1.61	1.05

year	LRGDP	INF	BD/GDP	AID/GDP	AID*POL	TO	M2/GDP	MAID/GDP	BAID/GDP
1997	10.44	11.38	-6.38	0.95	3.58	27.90	35.68	1.87	0.66
1998	10.47	6.23	-7.64	1.69	9.39	26.46	37.06	1.93	1.02
1999	10.53	4.14	-6.10	1.16	8.59	28.13	35.85	1.98	0.50
2000	10.55	4.37	-5.39	0.95	7.81	30.37	36.61	1.41	0.32
2001	10.62	3.15	-4.27	2.68	24.24	30.54	36.25	0.93	0.22
2002	10.64	3.29	-4.28	2.95	28.97	32.84	39.34	1.38	1.42
2003	10.70	2.91	-3.70	1.29	11.81	30.30	42.63	0.93	0.47
2004	10.78	7.44	-2.30	1.46	13.11	35.25	44.06	0.67	0.25
2005	10.83	9.06	-3.34	1.48	13.72	38.61	45.55	1.43	0.35
2006	10.91	7.92	-4.27	1.68	14.77	36.17	44.86	0.70	0.34
2007	10.97	7.60	-4.35	1.55	15.68	39.39	46.69	1.37	0.38
2008	10.96	20.29	-7.56	1.70	5.58	38.85	44.75		