Foreign Aid and the Fiscal Behaviour of Government of Pakistan

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C O N T E N T S

List of Tables

List of Figures

ABSTRACT

This study examines the effect of foreign aid on the fiscal behaviour of the Government of Pakistan. It applies the Autoregressive Distributed Lag model to analyse the relationship that prevailed between grant aid, domestic borrowing, domestic revenue and development expenditure allocations during the period 1960 to 2010. The results reveal that foreign grants have adversely affected government's fiscal responsibility. In fact it has reduced domestic revenue collection while amassing foreign debt. During periods of fiscal imbalances when cutting expenditures should have been the norm, both development and non-development expenditures were allowed to increase. The results also show that these effects vary considerably in relation to the mode aid was delivered. There is much scope for efficient utilisation of foreign financial resources while the foremost need is to improve revenue collection and discipline expenditures. It is up to the government and not the donor whether it uses the grants for reducing domestic borrowing or spending or increasing aggregate availability of resources.

1. INTRODUCTION

Pakistan, a capital deficient country since its inception, has depended on foreign assistance for financing its different socio-economic development projects. The optimal use of these financial resources could have helped in raising the living standards of the nation but unfortunately that did not happen [Hasan (1998)]. The economic environment has remained volatile due to excessive and wasteful government expenditures. The government is facing large fiscal deficits due to failure of its fiscal policies and has accumulated huge public debt through donor bailout packages [Hasan (1998)].

As the amount of aid is generally limited, it must be used judiciously. But many developing countries fail in this respect. This is due to various factors, such as corruption, bureaucratic procedures and unproductive consumption [Qureshi (1968)]. Some authors also point out less absorptive capacity as another factor which contributes to inefficient usage [Hasan (1998)].

Pakistan received grant type aid only till 1977. After that aid mostly came in the form of loans and credit [Hasan (1998)]. Since Pakistan's savings and productivity rates are very low, its debt servicing capacity is also depressed. Its large budget and balance of payment deficits do not permit it to pay back the principal restricting it to the payment of only the servicing charge. Mohey-ud-din (2005) is of the view that foreign aid has made the country irresponsible in its expenditure behaviour and it has been spending these resources on less signifant development projects as well as on non-development projects.

Economists disagree on the effectiveness of aid in the development of Pakistan. The proponents are of the view that it is on account of foreign assistance that the growth level has remained high despite low savings [Qureshi (1968)]. On the other hand, opponents think that foreign aid has had no significant impact on economic performance [Boone (1996)].

It was generally believed that aid would be very useful in filling the gap between savings and investments in a capital-starved country like Pakistan. But research showed that foreign assistance induced government to allocate larger proportion of aid to consumption. Also, it affected the domestic saving level negatively which prolonged dependence on foreign support [Griffen (1970)].

The returns from aid are considered important from the policy perspective [Burnside and Dollar (2000) and Collier and Dollar (2001, 2002)] since ultimately it affects donors' policy in distribution of aid among different developing countries. It implies that in the long run the productivity of aid is

directly affected by the policies of the recipient country. Carl-Johan's (2004) analysis showed that the productivity of aid is hampered by poor economic management of the receiving state. Another study by the Uganda Debt Relief Network (2000) underscores the idea of aid fungibility by exposing that only 35 percent of aid is utilised for its designated purpose [Gariyo (2000)].

In case of Pakistan it is quite obvious that despite the big quantum of foreign aid received since its inception its social and economic performance has been far from satisfactory. Many studies have examined the impact of foreign assistance on Pakistan's GDP growth, while some others have dwelled on expenditure levels, but the issue of fiscal behaviour has not been studied to any great extent. Therefore in this study an attempt has been made to analyse the effect of grants on government's domestic revenue raising efforts, public expenditure, debt accumulation and project and non-project aid. So in the main this study is focussed on the fiscal behaviour of the Government of Pakistan in relation to foreign assistance it has received. It analyses the impact of foreign aid on efforts to collect domestic revenues and how it has lead to accumulation of debt and liberal expenditure. The study also suggests different reforms to lessen the burden of foreign aid.

The study is organised as follows. After the introduction, the overview of aid patterns is discussed in Section 2. The relevant literature for this issue is presented in Section 3. Model, methodology and data sources are discussed in Section 4. The discussion and analysis of the results are given in Section 5. The final section of the study includes conclusion and policy implications.

2. OVERVIEW OF PAKISTAN'S FOREIGN AID PATTERNS DURING PAST SIX DECADES

In this section the different economic policies relating to management, planning and foreign aid followed by the government since the country's inception have been briefly discussed divided into six distinct periods.

2.1. The Flat Fifties 1947-1958

The early years of Pakistan were marred by political instability and slow economic growth. The country started with a very weak industrial and trade base. The Indian government devaluated its currency but Pakistan did not. As a result the imports of Pakistan became cheap and exports became expensive which benefitted the country but India blocked its imports by suspending bilateral trade. The Korean War increased the demand for Pakistan's raw materials increasing the country's export earnings and improving the balance of payments. This gave a boost to the development of the industrial sector.

During the decade of 1950-60 and 1960, government employed foreign aid to accelerate economic growth which could ultimately help in debt repayment. But GDP growth in the earlier years was as low as 2.5 percent and

agricultural growth was also stagnant. This coupled with political instability kept the national economy constrained by deficits.

2.2. The Golden Sixties 1958-1971

The sixties can be called the golden era of Pakistan's economic growth. This was the period of Ayub Khan's martial law whose fear during which prices under control and increased revenue collection. Industrial and agricultural sectors picked up together recording an impressive annual growth of 20 percent. In the first five years of this era, manufacturing grew by 17 percent per annum while in the second half, agriculture and industry grew by 6 percent and 10 percent respectively.

The growth strategy of the 1960s was considered to be successful in the sense that external borrowing generated enough resources to boost growth levels. Had this situation persisted the trend of debt accretion could have been reversed at some stage. But the war with India in September 1965 put resources under great strain as foreign assistance had to be diverted to meet defence needs. This halted the development momentum of the economy. Later, the country broke up with the secession of its Eastern wing.

During this period the overall GDP growth remained as high as 6.2 percent and the tax policies were also not changed.

2.3. The Socialist Seventies 1972-1977

Zulfikar Ali Bhutto after assuming power heralded major changes in the direction of the economy. First the intermediate goods industry was nationalised but soon after in 1976 this process was extended to other industries such as ginning factories, rice husking flour mills industries and then to banks and insurance companies. Progressive labour policies were introduced which gave advantage to the organised labour and strengthened labour union power. In 1972 Pakistani rupee was devalued by 120 percent which resulted in increase in exports but deterioration in its import bill as well as in the balance of payments following increase in OPEC prices in 1973. A serious worldwide stagflation also hurt Pakistan's export performance after 1973.

The balance of payments problem in the 1970s needed sizable external resources to fill the gap. The rising debt servicing payments was another serious constraint. Another issue was the payment of the debts relating to its former Eastern wing. Will that burden also pass on to the Government of Pakistan? At that time, Pakistan arranged three protracted debt agreements which provided her the needed debt relief. An interim debt relief arrangement was signed in May 1972 covering May 1971–June 1973 for US $ 233.5 million. A second arrangement was signed in July 1973 for US $107 million for a year. In June 1974, Pakistan asked the consortium to reschedule its long-term debt. The relief amounting to US $ 650 million was for four years from January 1974. During

the years 1974-5 and 1977-8, the assistance from OPEC countries reached the highest level of US $ 1.2 billion annually. A major cause of fiscal imbalance was the huge allocation to defence. As a result GDP growth during this period stagnated at 4.4 percent. No change was made in taxation. There was labour unrest that affected output.

2.4. The Revivalist Eighties 1978-88

When General Zia ul Haq took over in 1977 the first change that he made in the economic philosophy was that of denationalisation. He was helped in his economic liberalisation by the Soviet invasion of Afghanistan in 1979 to counter which the US needed Pakistan's help. Zia plunged Pakistan into the fray for the "peanuts" he received in exchange. The aid flows reached the $ 2 billion level by the mid 1980s which helped Pakistan in reducing its resource gap. As the nature of these flows kept changing over time, the official capital inflows' composition changed from grant type aid to loans and credits. In 1982-83 worker remittances were rising continuously and totalled nearly US $3 billion. Also, the US $7 billion that were meant for Afghan mujahedin were channelled through Pakistan and helped in boosting the economy. This era became known for its flourishing trade in narcotics and arms. Besides these external factors the apparent good performance of the economy is attributed to policy changes in the realm of borrowing from banks, providing additional incentives for exports and better environment for investment in agriculture and industry. As a result the share of public sector in total investment rose from 33 percent to 46 percent in 1989.

But in reality however the apparent economic growth masked a number of factors such as long run structural problems, and hidden low level of national savings as well as rising fiscal deficits. The growth in smuggling and in sale of weapons as well as in drug business negatively affected the basic foundation of the economy. Illegal imports by around the mid 80s were estimated at about $1.5 billion. This caused the fiscal burden to rise to 8 percent of GDP [Hussain (1999)].

Evaluation of economic policies of this era put GDP growth at 6.6 percent with the share of agriculture, industrial and the services sector at 33 percent, 24 percent and 43 percent respectively.

2.5. The Muddled Nineties 1988-99

In 1988 the democratic government revived with the election of Benazir Bhutto as prime minister but this was a period of great political instability. The economy of Pakistan was dependent on the international lending agencies such as the World Bank and IMF. A "Structural adjustment programme" was introduced for four years (1988-1992) for short to medium term and for medium to long run stabilisation. In all agreements, IMF advised Pakistan to reduce its

fiscal deficit to 4 percent of its GDP and it was possible only if high taxation was imposed and development expenditures slashed.

2.6. The Reforming 1999-2008

In October 1999, General Musharraf assumed power in a bloodless military coup. The new government faced many challenges among which the four main were heavy external and domestic indebtedness; high fiscal deficit and low revenue generation capacity; rising poverty and unemployment; and a weak balance of payments with stagnant exports [Husain (2009)]. Also after May 1988, the important reserves of external liquidity, also known as foreign currency deposits, experienced a steep fall. The workers' remittances which were received through official channels dipped to as low as $ 1 billion.

The government formulated a comprehensive set of reforms for the revival of the economy and to improve the governance efficiency. The level of foreign investments decreased to $ 400 million. The imports bill doubled sharply from $ 1.3 billion to $ 2.6 billion in just one year because of increase in oil prices from $14-$15 per barrel to $ 28-$30 per barrel [Husain (2009)].

Although the increase in textile exports was notable, but in reality the unit value of such exports had fallen considerably. This produced a wide gap between external receipts and external payments which ranged between $2.3 billion to $ 3 billion. Pakistan therefore signed a standby agreement with the IMF in 2000 followed by a three year programme namely the PRGF (poverty reduction and growth facility [Husain (2009)].

The period from 2002-2007 showed a positive change in growth with the help of improved economic governance and structural reforms. The economic growth rate increased from 3.1 percent to 7 percent in 2001-2002. The poverty level fell to between 5 percent and 10 percent. Likewise the unemployment rate also showed a great decrease as it fell from 8.4 percent to 6.5 percent. In the period 1999–2008, the government also created approximately 11.8 million new jobs. Total enrolments at the primary school level also showed a record increase [Husain (2009)].

2.7. Pattern of Foreign Aid in Pakistan

Pakistan has been relying on foreign economic assistance since 1950s to augment its scarce domestic resources. As a result Pakistan is laden with large foreign loans and massive debt servicing which cannot be repaid without the help of IMF, World Bank, ADB and rescheduling the already taken debt from the Paris club. The foreign aid inflows are continuously increasing as shown by the following Figure 2.7.1.

Fig. 2.7.1. Aid Burden Situation in Pakistan

Source: Economic Affairs Division
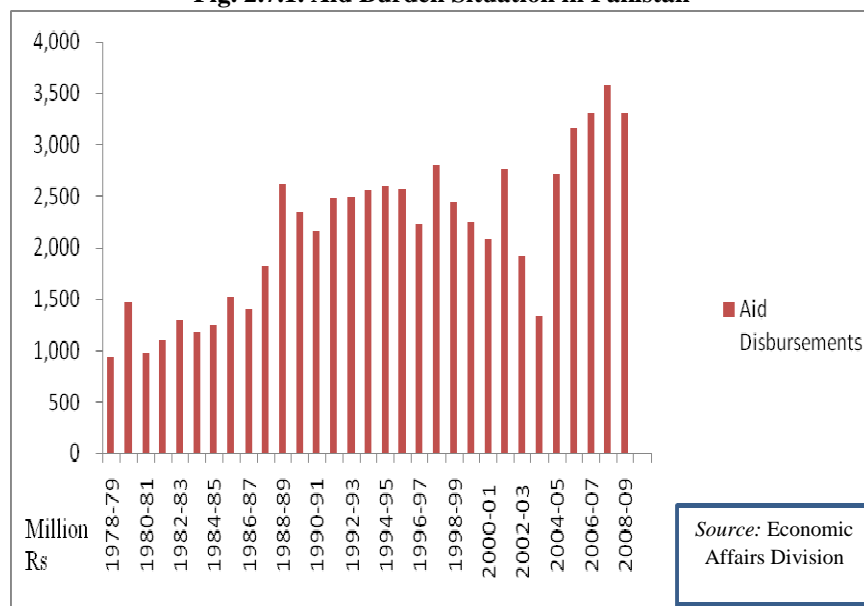
Pakistan has received external aid in diverse forms: to support annual budget deficit and as project specific aid, and these have further sub-categories intermediate between the two main forms. Table 2.7.1 shows the plan wise commitments and disbursements of foreign aid to Pakistan. It shows that in the First Plan, foreign aid was about US $ 842 million which increased to US $

Table 2.7.1

Different Forms of Foreign Aid (1951-2001) Million US $

Plan Period	Project Aid (Commit)	Project Aid (Disburse)	Non-Project Aid (Commit)	Non-Project Aid (Disburse)	Commit-ment	Disburse-ment
Non Plan (1951-53)	170	406	167	436	337	842
I(1955-60)	527	–	548	–	1057	–
II(1960-65)	1072	1209	1209	1185	2911	2394
III(1965-70)	1582	1811	1355	1234	2937	3043
Non Plan (1970-1978)	3762	2556	3205	3174	6967	5730
V(1978-83)	4659	3363	2574	2430	7233	5793
VI(1983-88)	9132	4882	2775	2301	11907	7183
VII(1988-93)	9961	7643	3952	4438	13913	12081
VIII(1993-98)	8882	9654	3270	3184	12152	12748
IX-plan(1998-2001)	3650	4447	–	–	7928	7853
Grand Total (2001-02)	44027	35971	19055	18382	67342	57667

Source: Government of Pakistan: (1988) Five Years' Plans, Planning Commission of Pakistan. Ministry of Planning and Development, Islamabad.

12,081 million in the Seventh Plan reaching US $12,748 million in the Eighth. Among issues related to aid fungibility, the volatility and unpredictability of aid is important. Pakistan along with other developing countries faces problem of uncertainty in aid as commitments by donors are not kept. This affects payment schedule of development projects and results in delays. This fact can be ascertained from the following Figure 2.7.2.

Fig. 2.7.2. Difference in Aid Commitments and Disbursements

Source: Ministry of Economic Affair Division
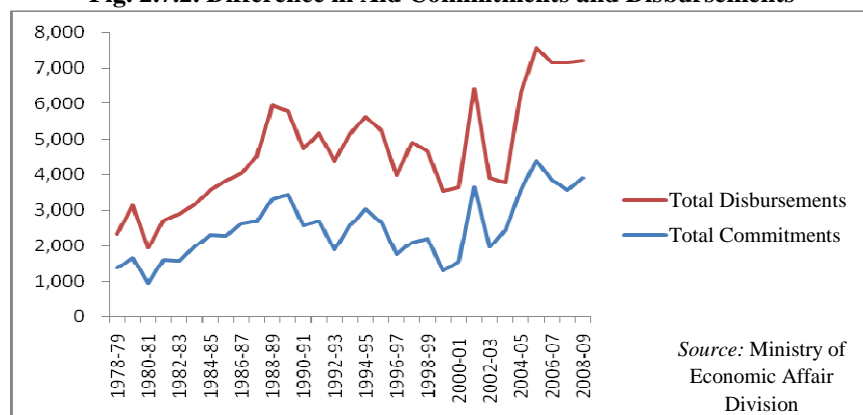
Pakistan's external debt and foreign aid issues are also important in its resultant macroeconomic policies and performance views. For example, in the 1980s, Pakistan public sector deficit was financed through a blend of external borrowings, foreign assistance and domestic debt. So fiscal deficit can be identified as one single factor on which the entire structural adjustment programme of 1988-1993 was based. In fact budget deficit and its financing has become a major problem for the government of Pakistan over the last three decades. During periods of political instability budget deficits have increased depressing GDP growth levels which have caused substantial increase in money supply, inflation and depreciation of the Pak rupee [Shah (2002)].

In Pakistan, there are three options which can be used for filling this deficit gap. One of them is domestic bank borrowing which means printing money which results in high inflation. The other two options are domestic non bank borrowing and external borrowing. But both options exacerbate the debt burden and the debt servicing problem for the future [Haq (2003)].

Pakistan's budget deficit has been showing an increasing trend since 1960. During 1980-81 this deficit was recorded at 5 percent of the GDP. It increased to 9 percent in 1990-91. Then in 1994-95, it was brought down to 5.5 percent. Overall during this period it stayed around 6 percent. In 2005 however it scaled down to 3.5 percent from 6 percent in 1999 Economic Survey of Pakistan (2005). The prevalence of such a high fiscal deficit ratio to GDP has

compelled the government to borrow both from internal and external sources as shown by the Figure 2.7.3.

Fig. 2.7.3. Average of External Aid for Financing Net Budget Deficit

Source: Economic Survey of Pakistan
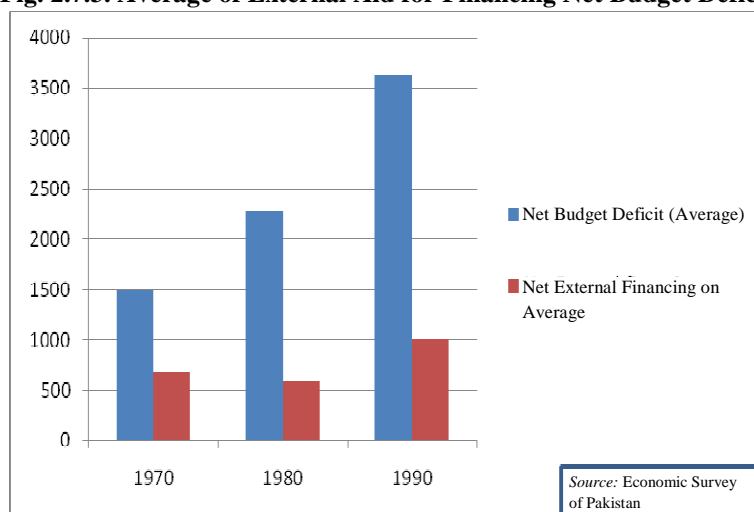
2.8. Composition of Foreign Aid

The composition of foreign aid can be seen in the pie chart (2.8.1) which shows that the donor community has assigned the greater portion of aid to project development. From 1978–2009, 55 percent of foreign aid was received under the head of project aid and 28.5 percent under the category of non-project aid.

Fig. 2.8.1. Allocation of External Aid

Source: Ministry of Economic Affairs Division
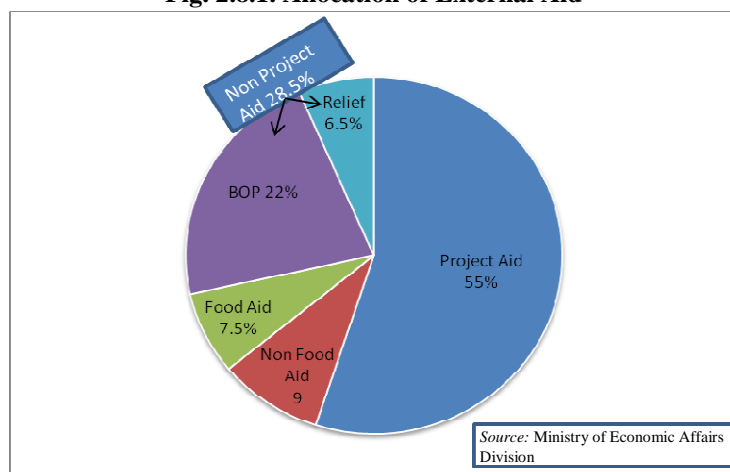
The donor community's preference for project aid is due to its amenability to supervision. It is generally believed that such project aid proves very costly to the recipient country in long run since it entails the purchase of capital goods and other raw material from the donor country [Malik (1994)].

2.9. Factors that Raise Debt Burden

For more than two decades, the primary reason for Pakistan's rising debt burden and related economic problems has been the country's persistent low level of national savings. Pakistan, like many other developing countries, has been relying heavily on foreign resources since the 1950s but has not been able to achieve self sufficiency Debt Committee Report (2001).

The Figure 2.9.1 supports the view that aid has led to irresponsible expenditure behaviour and has contributed less to development [Mohey-ud-Din (2005)].

Fig. 2.9.1. Pakistan Government's Expenditure's Behaviour

Source: Ministry of Finance
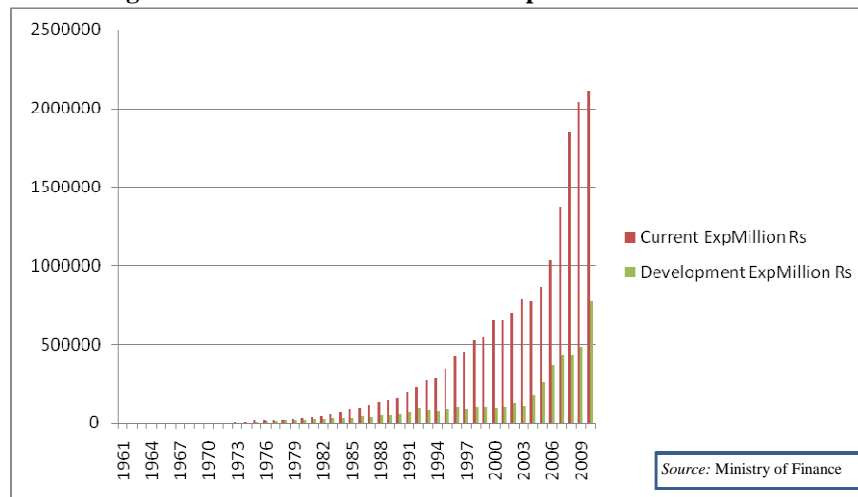
Now it is hardly surprising that the fiscal deficit has persisted at a permanent high level whereas the increase in public debt has been progressive. Despite frequent restrictions imposed by the IMF, the average fiscal deficit has remained around 7 percent of GDP for the last five years. This can be attributed to two current problems: stagnant revenues and increasing interest payments on debt. The Figures 2.9.2 and 2.9.3 show the increasing trend of the deficit with the increase in public debt and in foreign aid.

10

Fig. 2.9.2. Public Debt and Budget Deficit Situation in Pakistan

Source: Ministry of Economic Affair Division
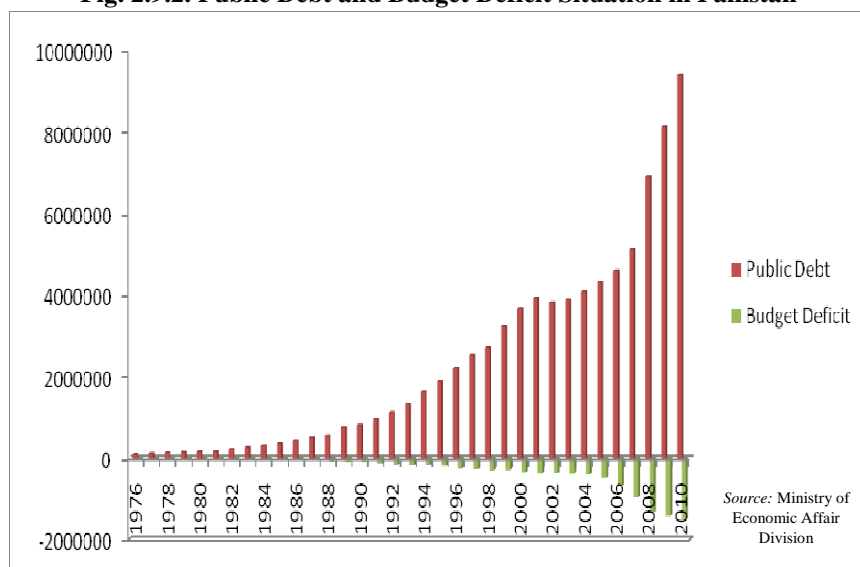
Fig. 2.9.3. Foreign Aid and Budget Deficit Situation in Pakistan

Source: Ministry of Economic Affair Division
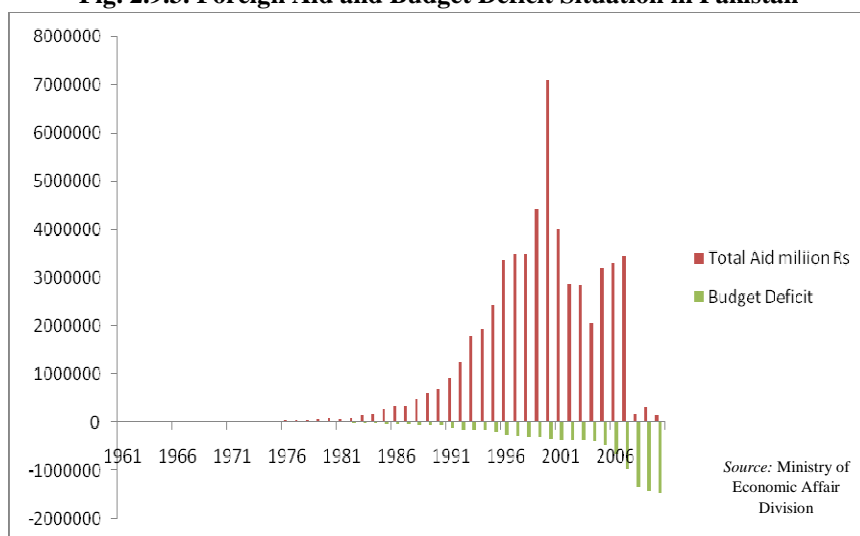
The interest rate costs due to excessive primary fiscal balance i.e., the balance before interest payments, has been driving public debt. The cost of servicing on external debt is increasing because of real depreciation of exchange rate in the economy. As a result, government's fiscal resources are constantly being eaten up by the rising interest payments.

Fig. 2.9.4. Principal Repayments Along With Interest Payments

Source: Economic Affairs Division
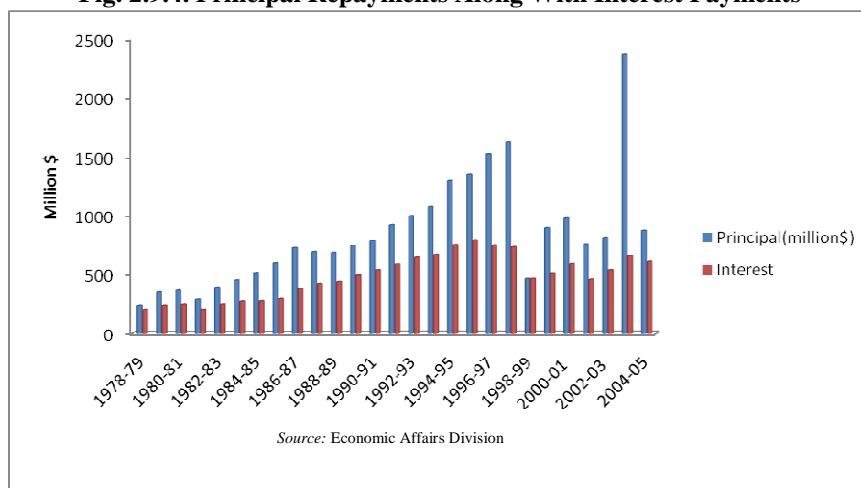
3. LITERATURE REVIEW

The foreign aid and its impact on various macroeconomic variables—government revenues, expenditures, savings, investment, imports, exports and growth—has been widely researched. In this section some relevant literature in this area is reviewed briefly.

The story of foreign aid begins with the "Two Gap Model" of Chenery and Strout (1966) which presents the rationale of developing economies for accepting foreign aid as their inability to achieve prosperity targets due to their low financial strength.. This is mainly due to their inadequate domestic savings rate. Hence if these under-developed countries want to expand their economy they would need foreign support to fill their financial gap. However McGillivray (2000) has applied a three stage least square procedure to estimate how aid inflows affect revenue collection in Pakistan. He introduces domestic borrowing to finance both capital and recurrent expenditure. The results reveal that aid has no incremental effect on taxation and it is also related to the expenditure level, not just consumption.

However Griffen (1970) and Heller's (1975) results are quite different in this respect. They show different ways by which foreign aid may negatively affect domestic savings such as unconstructive ways of spending aid that influence government's revenue generation methods; and reduction in domestic borrowings together with increase in government expenditures on consumption.

Gupta (1995) has used the ordinary least squares and three-stage non-linear-least-squares estimator to show that non development expenditures increase due to foreign aid. Swaroop, *et al.* (1999) have applied OLS procedure to find the role of foreign aid in India at the federal and states' government level. His results are quite different from those found by Gupta and show that foreign

aid leads to increased development expenditures and has negligible effect on non-development expenditure.

In Pakistan, some studies have explored the part foreign aid has played in the economic development of the country. Iqbal (1997) has tried to demonstrate the impact of foreign assistance on the social sector, which comprises of both development and non-development expenditures, by applying the iterative three stage least square method. He finds that aid positively affects general expenditure but on development its impact is small. On the contrary, Khan (1993) finds that in Pakistan foreign aid plays a major role in maintaining the pace of development, especially in investment and import areas where reliance on aid amounts is heavy.

 Mohey-ud-din (2005) uses the quadratic regression model to find that GDP in Pakistan has a positive relationship with foreign aid but this trend has been on the decline. Njeru (2003) concluded differently using the utility model and observed that if external assistance increased by 1 percent then it lead to an 88 percent increase in government's general spending. This shows budgetary dependence on foreign aid. Chishti and Hasan (1992) have prepared a theoretical model for Pakistan and estimate it by using the efficient Iterative three-stage least squares technique which finds that 28 percent of public sector non-development expenditures are financed by domestic borrowings. Foreign grants show a modest impact on public investment but not foreign loans. But Rodriguez and Morrissey (1988) have used the structural and reduced form equation and have discovered that aid affects investment positively and has negative effects on other indicators such as taxation and consumption.

Ouattara (2006) has used panel data of 68 countries and finds that aid has constructive effects on public investment level and it has no part in increasing government consumption or wasteful expenditure. Osei (2003) apply VAR analysis to examine the effects of aid on the budget allocation of Ghanaian government. The results of impulse response function depict that a sustained level of aid leads to increase in the level of government consumption and contributes very little to investment. They conclude that foreign aid in Ghana has been used to assist fiscal adjustments rather than for financing higher non-development expenditure. Batten (2009) and Karen (2004) have applied the vector error correction model and found that aid contributed to government's irresponsible behaviour in development expenditures and led to decline in domestic tax collection. The results from error correction model studies for lower income nations suggest that external assistance and government spending have a positive relationship between them.

Different authors have worked on aid effectiveness. McGillivray and Feeny (2010) have applied the non-linear three stage least square method on fragile economies which show that the government of Papua New Guinea was not using aid in an effective manner. It was being used for filling the budget deficit. Dowling (1998) and Tendulkar (1971) reached the conclusion that

foreign aid quite often had no or very bad effect on the recipient country. It can be said that not only the opponents but the proponents also are in a difficult position due to the widely-acknowledged theoretical possiblity of aid being fungible. Some authors are of the opinion that most of the aid money is used on increasing the investment ratio in the recipient country which negatively affects the already poor level of employment in the economy. Both sections of opinion are agreed on the fact that aid worsens the situation for the poor and increases income inequalities in the country [Naziger (1990); Todaro (1991)].

The Millennium Development Goals mainly focus on reducing the percentage of those people who live below the poverty line. In 1990-1999, the percentage of people who were living on less than a dollar a day rose from 47 to 49 percent in Sub Saharan Africa (SSA). Addison, *et al*. (2005) found that aid contributed to growth in SSA and reduced poverty level. The low growth rate in Africa could not therefore be attributed to aid ineffectiveness

In the recent past some studies have related aid efficiency to better governance. A series of working papers by British Department for International Development (2000) and Canadian International Development Agency (2002) have supported the investigation of Burnside and Dollar (2000) concluding that development assistance can contribute to poverty reduction in countries pursuing sound policies, and good governance and sound policy environment are the most important determinants of aid effectiveness.

Likewise many other studies such as Burnside and Dollar (1997, 2000, 2004) Collier and Dollar (2001, 2002) are of the view that the positive impact of aid depends on the fiscal strategy of the recipient countries, because it facilitates those states which have a favourable policy environment. But there are also some other studies such as Hansen and Tarp (2000, 2001) Lensink and Morrissey (2000) which suggest that the performance of aid is not related to the quality of economic policies.

Dollar and Levin (2006) have tried to study this question in those countries where governance is not sound. Their results show that earlier aid donors preferred countries with poor economic conditions but now their preferences have changed. They like to help those countries which have sound economic policies.

4. METHODOLOGY AND DATA

The methodological framework and data is discussed in this section**.**

4.1. Model Specification

The theoretical model is structured on a utility-maximising approach, where the recipient government is deriving benefits through allocation of its funds between development expenditures, DE_t, and non-development expenditures NE_t at time period t. It is assumed that the preferences of

government is represented by Cobb-Douglas utility function. The domestic resource collection and foreign aid can determine the budget constraint faced by the recipient government. The foreign aid is disaggregated between project aid and non-projected aid. The difference between the expenditure and revenue can be adjusted through government's debt levels (borrowing) or alternatively the deficit/surplus D_t. The government utility maximisation problem can be presented as relationship (Equation 3)

$$MAX \quad U(DE_t, NE_t) \quad s.t. \quad R_t + S_t + \varphi P_t) + D_t - P_{DEt} . DE_t + P_{NEt} . NE_t = 0 \qquad (3)$$

Where E is total expenditure, DE is total development expenditure of government, NE is non-development expenditure of government, G is grant revenue received by government, S is grant revenue budget support, P is grant revenue program support, D is public debt, R is domestic revenue collection and B is domestic financing of budget deficit. The specific amount of aid that the recipient country perceives to use for lowering taxes and changing the composition of non-development and development expenditures is represented by φ.

The solution of Equation 3 gives a system of interdependent fiscal equations which relate foreign aid to development and non-development expenditure levels, changes in public debt, and domestic revenue as follow:

$$DE = f(R, S, P, D)$$
$$NE = f(R, S, P, D)$$
$$R = f(DE, NE, S, P, D$$
$$D = f(DE, NE, R, S, P)$$
$$A = f(DE, NE, R, D)) \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad \ldots \qquad (4)$$

The system of interdependent fiscal relationships can be estimated by using Vector Error Correction Model (VECM) framework to analyse the impact of grant inflows G on fiscal aggregates: domestic revenue collection, total expenditure and levels of domestic borrowing.[1] The external financing of budget deficit is taken as the excluded variable from the system to capture the impact of aid grants rather than donor loans. This avoids the estimation of an identity which would cause the results to become meaningless [Fagernas and Roberts (2004)]. The first model analyses the impact of grant flows on domestic revenue collection, total expenditure and levels of domestic borrowing.

The current study examines the relationship between foreign aid, domestic borrowing, domestic revenue, development and non-development expenditure by applying the Autoregressive Distributed Lag model which is a

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[1]The system of interdependent fiscal relationships given in system (4) can be estimated by using Vector Autoregressive (VAR) model, However VAR analysis requite stationarity of the variables. In case variables are non-stationary but integrates of same order, then analysis can be done by Vector Error Correction Model (VECM) framework [Hamilton (1995)].

more efficient technique.[2] Therefore, with the help of this approach, the divergent impact of grant revenues, specified for budget support, on the fiscal behaviour of government is analysed for the period 1960–2010.

The first model analyses the impact of grant flows on domestic revenue collection R, total expenditure E and levels of domestic borrowing B to finance budget deficit given in error correction model (Equation 5):

$$\Delta \ln B_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1t} \Delta \ln B_{t-i} + \sum_{i=0}^{n} \alpha_{2t} \Delta \ln G_{t-i} + \sum_{i=0}^{n} \alpha_{3t} \Delta R_{t-i} + \sum_{i=0}^{n} \alpha_{4t} \Delta \ln E_{t-i} +$$
$$\gamma_1 \Delta \ln B_{t-1} + \gamma_2 \ln G_{t-2} + \gamma_3 R_{t-1} + \gamma_4 \ln E + \varepsilon_t \qquad \dots \ (5)$$

The second model considers the impact of grant revenues and domestic revenues on the composition of fiscal expenditures between the development DE and non-development expenditure NE categories in error correction model (6). As such, the model estimates the following relationships (Equation 6):

$$\Delta \ln B_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1t} \Delta \ln B_{t-i} + \sum_{i=0}^{n} \alpha_{2t} \Delta \ln G_{t-i} + \sum_{i=0}^{n} \alpha_{3t} \Delta R_{t-i} + \sum_{i=1}^{n} \alpha_{4t} DE_{t-1} +$$
$$\sum_{i=0}^{n} \Delta \ln NE_{t-1} + \gamma_1 \Delta \ln B_{t-1} + \gamma_2 \ln G_{t-2} + \gamma_3 R_{t-1} + \gamma_4 \ln ED_{t-1} + \gamma_5 \ln EG_{t-1} + \varepsilon_t \qquad \dots \ (6)$$

The third model separates the grant aid variable into two components: budgetary support S and project or program aid P to determine whether these components have differential impact on the contribution of grant aid to each of these fiscal relationships given in error correction model (Equation 7):

$$\Delta \ln B_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1t} \Delta \ln B_{t-i} + \sum_{i=0}^{n} \alpha_{2t} \Delta \ln S_{t-i} + \sum_{i=0}^{n} \alpha_{3t} \Delta P_{t-i} + \sum_{i=0}^{n} \alpha_{4t} \Delta \ln R_{t-i}$$
$$+ \sum_{i=0}^{n} \alpha_{5t} \Delta DE_{t-1} + \sum_{i=0}^{n} \alpha_{6t} \Delta P_{t-1} + \gamma_1 \Delta \ln B_{t-1} + \gamma_2 \ln S_{t-2} + \gamma_3 P_{t-1} + \gamma_4 \ln R_{t-1}$$
$$+ \gamma_5 \ln DE_{t-1} + \gamma_6 NE_{t-1} + \varepsilon_t \qquad \dots \qquad \dots \qquad \dots \qquad \dots \quad (7)$$

4.2. Data and Sample

The data from 1960–2010 is used for analysing the impact of foreign assistance on the fiscal behaviour of the government of Pakistan. The sources from where the required statistical data of the variables has been used in this thesis include: *Economic Survey of Pakistan* (*various issues*), Economic Affairs'

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[2]There are a number of reasons on the basis of which this model is more desirable. Unlike FRM, where the reduced form parameters are used to determine structural coefficient parameter, the VECM gives a highly tractable framework [Franco (2000)]. VECM will treat aid and fiscal behaviour as interdependent variables which will follow the rule that whenever there is an adverse shock on the fiscal side of the economy, it will also have impacts on aid side. Also this model will allow external assistance and fiscal variables to relate with each other in a dynamic manner both contemporaneously as well as with a number of lags. Another feature of this model is that it adds features of error correction to a multi factor model such as vector autoregressive model [Hamulton (1995)].

Division, Islamabad; Ministry of Finance, Islamabad; a *Hand book of Statistics 2010* issued by the State bank of Pakistan.

5. EMPIRICAL RESULTS

The empirical results of the relationship between foreign aid, domestic borrowing, domestic revenue and government expenditure 1961 to 2010 are presented in this section. The first model is an aggregate model which captures the impact of grant flows on domestic revenue collection, aggregate expenditure and levels of domestic borrowing. The second model considers the impact of grant revenues and domestic revenues on the composition of fiscal expenditures between development and general expenditures. The third model separates the grant aid variable into two components: budgetary support and project or program aid to determine whether these components have differential impacts on the contribution of grant aid to fiscal behaviour.

5.1.1. *Stationarity Testing*

In the estimation, the very initial step is to check if the desired variables are stationary or not. The Augmented Dickey Fuller test and the Phillips Perron test are used for this reason. The results of these tests are presented in Table 5.1.1. All the variables are non-stationary at level; however these variables are stationary at first difference.

Table 5.1

Unit Root Test

	Phillips Perron Test		Augmented Dicky Fuller Test	
	Level	First Difference	Level	First Difference
AC	–0.39	–15.00*	–0.33	–7.37*
D	–0.07	–5.14*	–0.02	–5.13*
S	–0.94	–19.99*	–0.49	–7.81*
R	0.89	–5.76*	0.31	–5.60*
DE	0.19	–4.97*	0.52	–4.93*
NE	0.45	–5.30*	0.55	–5.27*
G	–1-61	–8.43*	–1.61	–8.49*
B	0.65	–4.78*	1.03	–4.84*
P	–1.41	–8.03*	–1.41	–7.96*
E	0.37	–4.56*	0.71	–4.57*

Note: The null and the alternative hypotheses for both the tests respectively are H_0: series is non-stationary and H_1: series is stationary. * implies significance at 1 percent.

5.1.2. *Cointegration Testing*

To estimate the model, Log-Linear specification is used. The cointegration technique known as Autoregressive Distributive Lag Model or bound testing introduced by Pesaran (1997), Pesaran and Shin (1999), Pesaran and Smith (2000), and Pesaran, *et al.* (2001) has been applied.

5.2. Model of Fiscal Aggregates

The first model is the aggregate model given in Equation (5). It captures the impact of grant flows on domestic revenue collection, aggregate expenditure and levels of domestic borrowing. In Equation (5), αs represents the short run dynamic relationship whereas γ*s* represents the long run relationship. In the first step, cointegration is tested using the F-test with critical values called bound test.[3] The F-test is sensitive to the number of lags imposed on each first differenced variable [Pesaran, *et al*. (2001)]. Therefore, the Vector Autoregressive Model (VAR) model is estimated first for lag selection. The VAR with one lag is selected based on Schwatz Baysian Criteria and Table 2 results. Pesaran and Shin (1999) show that for the ARDL model the SBC method is superior to the AIC method; therefore the SBC criterion in lag selection is adopted. The results of the F test for cointegration among the variables of model one are given in Equation (5) and reported in Table 5.2.1. The result shows that F-statistic 6.75 is greater than the critical values 1.99 and 2.94, which supports that a long-run relationship exists between domestic financing of budget deficit, grant revenue, domestic revenue and government expenditure level.

Table 5.2.1

F-statistics for Cointegration Relationship

	Critical Value Bounds of F-Statistics with Intercept and no Trend (k=4) at 1%	
F-Value	I(1)	I(0)
6.50	1.99	2.94

Note: Critical value bounds are from Table F in Pesaran and Pesaran (1997).

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[3]The null hypothesis $\gamma_1=\gamma_2=\gamma_3=\gamma_4 =0$ are tested against the alternate $\gamma_1\neq\gamma_2\neq\gamma_3\neq\gamma_4 \neq0$. The ARDL test verifies the null hypothesis of no cointegration against existence of cointegration. The results of *F-statistic* are compared with the critical value tabulated by Pesaran, *et al*. (2001) Pesaran and Pesaran (1997). The null hypothesis of no cointegration can be rejected if the results of F-stat are greater than the upper critical value. Likewise the null hypothesis will not be rejected if the results of F-stat are lesser than the lower critical value. But if the results of F-stat lie between the value of upper and lower bound, then the decision will be inconclusive.

In the second stage, after establishing long-run relationship, the estimation of the short-run and error adjustment coefficient of budget deficits, grant revenue, domestic revenue and total expenditures and the results are reported in Table 5.2.2. These VECM results show that in fiscal imbalance situation which of the variable will adjust itself to correct such imbalance. The short-run effect of variations in the explanatory variable on the dependent variable is shown by variable coefficient. The explanation of this short-run coefficient is that domestic borrowings, grant revenues, domestic revenues and government expenditures show dynamic adjustment. In Table 5.2.2 the columns report the coefficient estimates of all lagged variables in the ARDL model short-run coefficient estimates. The factor of error adjustment carries anticipated negative sign and is significant which indicates that if there is disequilibrium then adjustment takes place automatically. All this behaviour shows that there exists a long-run relationship among different fiscal behaviour such as grant revenue, domestic revenue, budget deficit and in total expenditures level. The result of the diagnostic test indicates no heteroskedasticity, no autocorrelation and no functional mis-specification in the model, and the residuals are normally distributed.

Table 5.2.2

Short Run Relationship with Error Adjustment in Aggregate Model

Lag Order	ΔB	ΔG	ΔR	ΔE
0		0.03*	–1.51*	–0.07
		(3.85)	(-3.21)	(–0.46)
1	–0.38*	0.02*	–0.64	1.06*
	(–2.04)	(2.02)	(–1.42)	(4.94)
$ECT2_{t-1}$	–0.44*			
	(–5.39)			
Goodness of Fit Diagnostic Test				
R^2	0.98			
χ^2 LM Autocorrelation	1.07 (0.35) No autocorrelation			
χ^2 JB	13.08 (0.11) Normal			
χ^2 Ramsay Reset	0.09 (0.75) No Mis-specification			
White Heteroskedasticity	1.23 (0.30) No Heteroskedasticity			

Note: The * indicates significance at 1 percent, ** at 5 percent and *** at 10 percent respectively.

The normalised long-run cointegrating relationship can be written in equation format as below.

$$B_t = 1.52E_t - 0.06G_t - 0.14DR_t + \varepsilon_t$$

Many important results are found as the value of domestic financing of budget deficit is taken as unitary [Lutkepohl (1991)]. The Grant aid coefficient is negative and significant which implies that over the long run, grant revenue has been used as a substitute for domestic borrowings. This means that government has relied more on grant revenue. Likewise domestic revenue also has a negative and significant coefficient which means that as domestic revenue increases, domestic borrowing decreases. The government's total expenditure variable is positive and significant which implies that as government expenditure level increases, it results in increase of domestic borrowings.

The above short-run model can be written as follow;

$$\Delta B_t = 0.03\Delta G_t - 1.51\Delta R_t - 0.07\Delta E_t - 0.38\Delta B_{t-1} + 0.02\ \Delta G_{t-1}$$
$$- 0.64\Delta R_{t-1} + 1.06\Delta E_{t-1} - 0.44ECT_{t-1}$$

The stability of selected ARDL model specification is evaluated using the cumulative sum (CUSUM) of the recursive residual test for structural stability [Brown, *et al.* (1975)]. If the plot of the statistics remains within the critical bounds of the 5 percent significance level then the null hypothesis, i.e. the regression equation is correctly specified, cannot be rejected. It is clear in Figure 5.2.1 that plot of CUSUM lay within the boundaries; therefore these results show the stability of the long run coefficients of regressors.

Fig. 5.2.1. CUSUM Graph for Testing Structural Stability of Model I
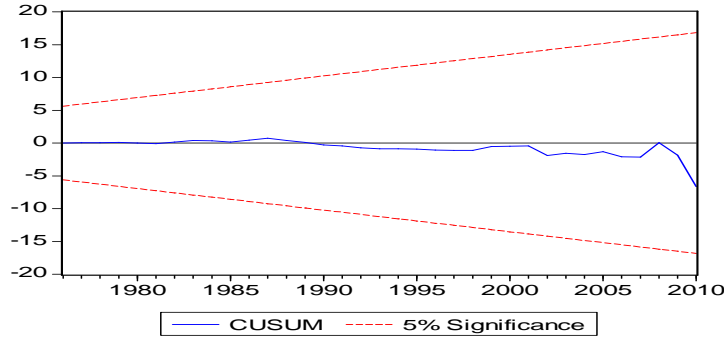
5.3. Model of Fiscal Aggregates and Expenditure Composition

In this model, the effect of grant revenues and domestic revenues on the composition of fiscal expenditures between the development and non-development expenditures categories is analysed. Here Schwarz Bayesian criteria suggested estimating the model with one lag length. The result shows that F-statistic 6.74 is greater than the critical values 2.08 and 3.00, which supports that cointegration exists between budget deficits, grant revenue, domestic revenue, development and non-development expenditures.

Table 5.3.1

F-statistics for Cointegration Relationship

	Critical Value Bounds of F-Statistics with Intercept and no Trend (k=4) at 1%	
F-Value	I(1)	I(0)
6.74	2.08	3.00

Note: Critical value bounds are from Table F in Pesaran and Pesaran (1997).

The results reported in Table 5.3.2 show the short run dynamics and error adjustment in case of disequilibrium. The coefficient of error correction is negative and highly significant, which indicates that cointegration exists. It means that domestic borrowing, grant revenue, domestic revenue, general expenditures and development expenditures are cointegrated. The results of diagnostic test report that there is no serial autocorrelation, no misspecification, no heteroskedasticity and that error distribution is normal.

Table 5.3.2

Short Run Relationship for Model 2

Lag Order	ΔB	ΔG	ΔR	ΔNE	ΔDE
0		0.03***	0.06*	0.37*	–1.07*
		(1.79)	(2.88)	(3.04)	(–4.48)
1	0.46*	0.02	0.27**	0.21	0.26***
	(4.42)	(0.37)	(1.80)	(1.29)	(1.76)
$ETC2_{t-1}$	–0.59*				
	(–4.33)				

Goodness of Fit Diagnostic Test

R^2	0.98	
χ^2 LM Autocorrelation	0.66 (0.53) No autocorrelation	
χ^2 JB	0.75 (0.68) normal	
χ^2 Ramsay Reset	0.003 (0.95) No mis-specification	
White Heteroskedasticity	1.23 (0.30) No Heteroskedasticity	

Note: The * indicates significance at 1 percent, ** at 5 percent and *** at 10 percent respectively.

The above short run model can be written as follow

$$\Delta B_t = 0.003\Delta G_t + 1.06\Delta R_t + 0.37\Delta NE_t - 1.07\Delta DE_t + 0.46\Delta B_{t-1} + 0.002$$
$$\Delta G_{t-1} + 0.27\Delta R_{t-1} + 0.21\Delta NE_{t-1} + 0.26\Delta DE_{t-1} - 0.59ECT_{t-1}$$

Table 5.3.2 shows the short run results. The coefficient of error correction term is negative and highly significant, which indicates that cointegration exists. It means that budget deficit, grant revenue, domestic revenue, general expenditures and development expenditures are cointegrated. The LM serial correlation test results reports that there is no serial autocorrelation. Ramsey Reset justified that there is no mis-specification in the model. The Jarque-Bera method is used to test for normality assumptions and its results revealed that data is from normal distribution.

The normalised results of cointegration relationship among different fiscal variables of the model are presented below. These results show that as grant revenue and domestic revenue have highly significant and positive coefficients, it implies that both are negatively associated with the long-run levels of domestic borrowing. It also shows that development expenditures and non-development expenditures have highly positive association with long-run levels of budget deficit. Overall, these results show that over the long term, budget deficit is lower due to larger size of fiscal resources i.e. both domestic revenue and grant revenue whereas budget deficit has been increasing with the increase in government expenditures' level.

$$B_t = 1.57DE_t - 0.17G_t - 1.90R_t + 0.69NE_t + \varepsilon_t$$

The Figure 5.3.1 presents the test statistics of CUSUM for model II. It shows that the model does not exceed the bounds of 5 percent level of significance so the model is stable as well as correctly specified.

Fig. 5.3.1. CUSUM Graph for Testing Structural Stability of Model II
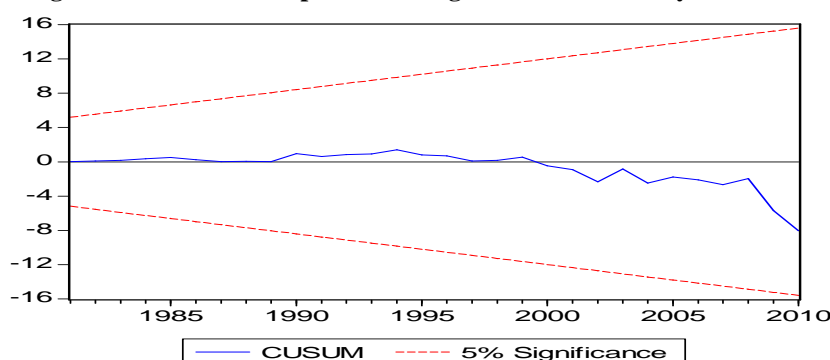
5.4. Model of Fiscal Aggregates, Expenditure Composition and Aid Modalities

In this model, the grant aid variable is divided into two components: one is grant revenue specified for budget support and the other is grant revenue specified for programme support. The intention behind this division is to analyse

whether these components have had differential impact on the contribution of grant aid to each of respective fiscal relationships. In Equation 7, S is grant revenue for budget support, and P is grant revenue for program support.

Table 5.4.1 shows the results of cointegration relationship among fiscal aggregates. As the F-statistic 7.08 is greater than the critical values 2.66 and 3.35, it confirms that there is cointegration between budget deficits, grant revenue specified for supporting budget deficit, budget support, grant revenue for programme support, domestic revenue and government development expenditure.

Table 5.4.1

F-statistics for Cointegration Relationship

	Critical Value Bounds of F-Statistics with Intercept and no Trend (k=4) at 1%	
F-Value	I(1)	I(0)
7.08	2.26	3.35

Note: Critical value bounds are from Table F in Pesaran and Pesaran (1997).

Table 5.4.2 shows the results of VECM coefficients to analyse the short run dynamics of the model. The short-run coefficients namely domestic borrowing, budget support aid, programme support aid, domestic revenue, development expenditure and general expenditures show dynamic adjustments. The negative and significant value of error adjustment term confirms long-run relationship. The results of diagnostic test report that there is no serial autocorrelation, no misspecification, no heteroskedasticity and error distribution is normal.

The long run cointegration relationship is given as:

$$B_t = 0.31P_t - 0.89S_t - 1.34R_t + 1.27DE_t + 0.79NE_t + \varepsilon_t$$

The results presented show normalised long-run budget deficit supported by domestic borrowing relationship. This time grant revenue has been disaggregated between budget support and programme support. The results show that the budget support component of grant revenue variable contributed to decrease the level of domestic borrowings. Again, government's development and non-development expenditures levels have positive coefficients which support the outcome of earlier models that domestic borrowing is increasing aligned with the increase in expenditure level. Also the results of this model support the results of the last models that increased the level of domestic revenues and debt level has negative relationship between them. This clarifies that the higher level of domestic resources not only contributed to increase in government expenditure level, but also reduced government's domestic borrowing levels.

Table 5.4.2

Short Run Relationship

Lag Order	ΔDB	ΔBS	ΔPR	ΔDR	ΔDE	ΔGE
0		0.46**	0.50	–0.19*	–0.57*	0.61*
		(1.94)	(1.54)	(–0.55)	(–2.23)	(5.78)
1	0.08*	0.67*	0.80*	2.51*	–1.45	0.19*
	(0.72)	(3.00)	(1.85)	(6.20)	(–3.91)	(1.41)
ETC_{t-1}	–0.37*					
	(–3.05)					
Goodness of Fit Diagnostic Tests						
R^2		0.98				
χ^2 LM Autocorrelation		3.62 (0.03) No Autocorrelation				
χ^2 JB		4.31 (0.68) normal				
χ^2 Ramsay Reset		0.003 (0.95) No mis-specification				
White Heteroskedasticity		1.23 (0.30) No Heteroskedasticity				

The above short-run model can be written as follow:

$$\Delta B_t = 0.46\Delta S_t + 0.50\Delta P_t - 0.19\Delta R_t - 0.57\Delta DE_t + 0.61\Delta NE_t + 0.08$$
$$\Delta B_{t-1} + 0.67\ \Delta S_{t-1} + 0.80\Delta P_{t-1} + 2.51\Delta R_{t-1} - 1.45\Delta DE_{t-1} + 0.19$$
$$\Delta NE_{t-1} - 0.37\ ECT_{t-1}$$

The Figure 5.4.1 presents the test statistics of CUSUM for model. It also illustrates that as the model does not exceed the bounds of 5 percent level of significance so the model is stable as well as correctly specified.

Fig. 5.4.1. CUSUM Graph for Testing Structural Stability of Model III
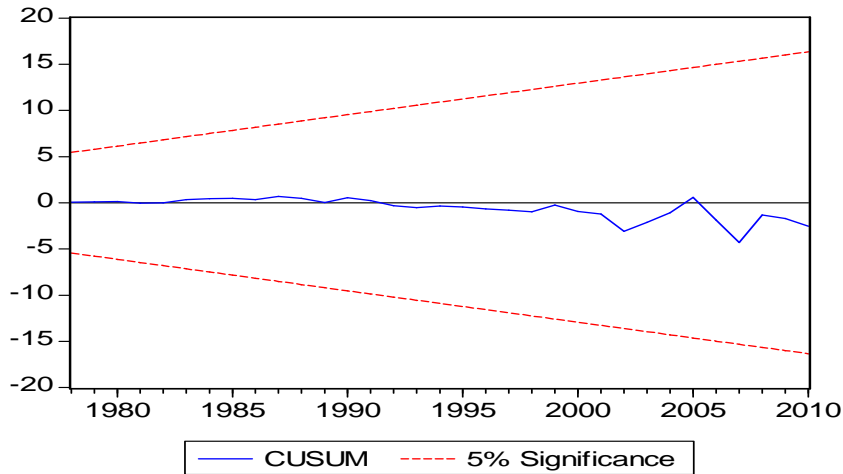
6. CONCLUSION

The effect of foreign aid on the fiscal behaviour of Government of Pakistan is analysed by employing the VECM approach from 1960-2010. Evidence shows that public debt and government expenditure levels serve as a key shock absorber in the government's fiscal system. On the other hand, domestic revenue collection and grant aid turn out to be independent irrespective of the fiscal situation prevailing in the country. To tackle fiscal imbalance the Government is willing to regulate development expenditure. In time of aid constraint, government has accorded priority to general expenditure and squeezed development expenditures. Subsequently, the relationship between aid and domestic debt has been unambiguously negative. If a positive shock is administered to grant aid, it decreases the level of public debt both in short and long run. It means that government has preferred to substitute grant aid for domestic revenue and domestic borrowing.

On the other hand, these aid inflows have major role in reducing the domestic revenue mobilisation on a long term basis. Based on this government has preferred to replace domestic collection of revenues and public debt with grant aid. That's why the overall effect on total expenditure levels has been nearly zero. These effects were found to be different when the aggregate level of grant aid was disaggregated between programme support and budget support. The results illustrate that a significant positive relationship exists between projected aid and non project aid (general expenditures). Also this type of aid has a positive effect on the level of revenue collection and on domestic debt. But both of these effects are found to be small. Alternatively, development expenditures have been financed by programme support category of foreign grants. The negative relation between programme support grants and domestic revenue collection proves that the Government of Pakistan has preferred to depend on foreign resources instead of expanding their own tax base. This is the reason due to which the domestic revenue mobilisation has shown a decreasing trend. This result is supported by the findings of FRM literature and also by the findings of Feeny and McGillivray (2009) that also found that usually aid inflows are used as an alternative of domestic tax collection. It is also observed that due to grant aid, the government increases non development expenditure in the country. In addition to it, these grants are used to decrease domestic borrowings. All this increases the debt burden. It is shown by various debt indicators that the debt burden of Pakistan has been increasing over time and has assumed alarming proportion.. It may increase further if the government does not focus on implementation of favourable macroeconomic management, domestic saving and improvement in foreign trade policies. As these policies are also important from the point of view of foreign aid effectiveness, these foreign resources can be useful in the presence of sound fiscal and monetary policies.

The results suggest that the government of Pakistan and the donors should manage the foreign grants effectively. Government should also focus on

expanding its tax base. Along with it, non-development expenditures should also be minimised. These foreign resources should be used to minimise spending, instead of lowering the domestic resource mobilisation activities. The donors must focus on having a mutual consensus regarding the budgetary preferences of the government. The suggestions by the donors have more importance than the numbers of cheques being drawn by them, so they should exhort the Government of Pakistan on the need to manage public sector expenditures more efficiently. The Government of Pakistan badly needs a debt burden reduction strategy which should have some defined goals such as internal and external debt reduction in the short and long term.

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