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INVESTIGATING PUBLIC FISCAL BEHAVIOR AND FOREIGN AID: AN EMPIRICAL STUDY OF PAKISTAN

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Abstract

The economic activity in Pakistan, like many other developing countries, is largely dependent on foreign aid. However, the benefits of foreign aid incurred by these countries depend on the way they use the aid. A major aspect of this is the fiscal policy of the government. This research studies the impact of foreign aid on the fiscal policy behavior of Pakistan and the resulting implications of that behavior. Secondary data has been taken from the years 1985-2014 for the purpose of this research. The methodology applied to this data is Autoregressive Distributed Lag Model (ARDL). From the research it was concluded that foreign aid has a negative impact on public borrowing and thus has a negative impact on the fiscal behavior of the government.

1. Introduction

The investigation about the effectiveness of foreign aid is especially important for Pakistan because Pakistan, since its formation, has relied heavily on foreign financial assistance to cover budget deficits and to finance development projects. Foreign aid is a very important source of inflow of capital into developing and under developed countries. The two main components that foreign aid can be categorized into are grants and loans (usually those with low interest rates) (Khan & Ahmad, 2007). Up till 1977 the foreign aid inflow to Pakistan was mostly in the form of grants soon after that it changed to loans and credit (Butt & Javid, 2013). Despite voluminous research on the topic, foreign aid is still considered to be a controversial subject. The research on this topic has been going on for more than four decades and studies various aspects of the effectiveness of aid for the economy of the recipient country (Mavrotas, 2002).

It is seen that when the government receives aid from external sources, it feels no need to borrow from domestic sources and tends to decrease the domestic revenue collection. Thus, for the government, foreign aid acts as a substitute for domestic revenue collection. This, however, leads to debt accumulation in the long run. Also, the government usually spends aid money on non-development projects, forgoing the opportunity to generate revenue. (Butt & Javid, 2013).

Normally foreign aid is considered to be a source of supplementing domestic savings and as an investment for various development and social projects. Those who favor foreign aid say that it increases investment in various sectors of the economy, it provides money for importing important machinery or capital goods, it does not affect the level of saving or the level of investment in the economy, and it leads to transfer of technology. On the other hand, the opponents of foreign aid say that it has decreasing returns and its effectiveness is largely dependent on the quality of institutions of a country, on the political environment and on other external conditions (Ekanayake & Chatrna, 2010).

1.1 Brief History of Foreign Aid to Pakistan

Dependency on foreign aid started in Pakistan in the fifties. Aid at that time, however, was negligible and did not increase much until the early 1960s. The rapid increase in foreign aid in the sixties can be attributed to the mutual defense agreements between Pakistan and the US during the time of the Cold War. It continued this way till the 1980s, which was the time of the Afghan War. At this time Pakistan received a large amount of aid, almost, 4.6 percent of GNP. It reached up to US$ 2.0 billion during mid-eighties. Later, in the nineties, foreign aid considerably decreased as the Afghan War ended and Pakistan stopped receiving aid from America and other international donors (Khan & Ahmad, 2007).

By 1990 US declared that it would wrap up its aid based projects in Pakistan by 1993 and would not enter into any further aid agreements with the country. A big reason behind this announcement was the passing of the Pressler Amendment (1985) and the Brown Amendment (1995). These were concerned with the aid authorization bills and were passed by the US Senate. A result of the Pressler Amendment was that US aid to Pakistan, which has been US$ 452 million in 1989 fell to US$ 5.4 million in 1998. This was a rock bottom for Pakistan. After Pakistan carried out nuclear tests in 1998, the inflow of foreign aid went down even more (Khan & Ahmad, 2007). After this foreign aid picked up its pace right after the 9/11 attacks in the US and the partnership of Pakistan with the international community on the war against terrorism. During the financial year 2012, Pakistan received around $1.9 billion from America. However, more recently, after the US decided to withdraw its troops from Afghanistan, its government also asked for a decrease in aid to Pakistan (Express Tribune, 2014).
Just between years 1960-2002, Pakistan received almost US$73.14 billion as foreign aid. However, it can be seen that Pakistan's economy has not benefited much from this aid. The literacy rate remains low, while other sectors such as education, health and employment do not show a lot of improvement either. The saving rates in the economy remain low and the widening trade gap is still a problem. Furthermore debt accumulation has now become a persistent source of worry for the country. Instead of being used for economic development, much of the foreign aid in Pakistan is used to serve the personal interests on those in charge. All of these factors raise questions about the effectiveness of aid for economic growth in Pakistan (Khan & Ahmad, 2007).

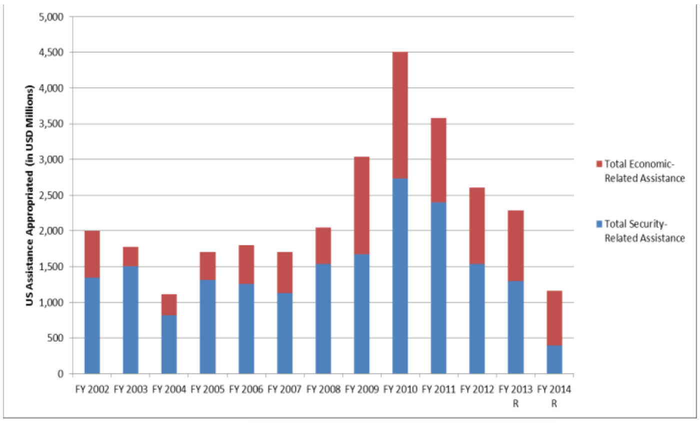


Figure 1: Annual Appropriations, US Assistance to Pakistan FY 2002-2014 (Millions Current US $)
Source: Centre for Global Development, 2013

Even though the general belief was that foreign aid would be very beneficial for bridging the gap between the savings and investment in Pakistan, much of the research has shown us results to the contrary. It shows that the government allocated a huge portion of the foreign aid to consumption. It was also seen to have a negative impact on the domestic level of savings which in turn lead to increased dependency on foreign financial assistance. An important determinant in the effectiveness of foreign aid for the recipient country is the policies formulated by the domestic government. Governments that formulate poor policies fail to benefit from foreign aid. A study carried out by Uganda Debt Relief Network in 2002 showed that only 35 percent of the foreign aid received by countries is used for its intended purpose (Butt & Javid, 2013).
If we look at Pakistan, we can see that its economic performance does not reflect positive

effects of the large amounts of foreign financial assistance that it has been receiving for a long time. While there have been a lot of studies regarding the impact of foreign aid on Pakistan's GDP and on the government expenditure, not much work has been done to study the impact of foreign aid on the fiscal policy variables of Pakistan's government.

2. Literature Review

2.1 Factors Contributing to Debt Burden in Pakistan

The lack of expenditure on development projects only leads to more deficits and ultimately to an increase in debt burden for the country. Pakistan's debt burden rises when it is not able to repay the money that it borrows from other countries. The major reason behind the piling debt of Pakistan and the problems that it leads to is the fact that the country has been unable to become self-sufficient on its domestic revenue channels and the level of national savings has remained persistently low. (Butt & Javid, 2013)

Mehmood, (1997) gives a historical analysis of the effectiveness of foreign financial assistance on the economic development of Pakistan. The time period of the study is form 1960-1961 and from 1994-1995. The study concludes that aid has both positive and negative impacts on the economic growth of Pakistan. On one hand it covers the budget deficit of the country, leads to social development and lays foundations for infrastructural, technologic and institutional foundations for various sectors of the economy. While on the other hand it acts as a substitute for domestic savings, debt accumulation decline in economic efficiency.

Qayyum, Din & Haider, (2013) use the Ramsey-Cass-Koopman's growth model to study how economic growth is affected by foreign aid, government policies and external debt in an open economy framework. The study shows that foreign aid and government policies have the power to increase economic growth but external debt accumulation leads to burdens on the economy. Foreign aid was not found to affect investment directly but since it has an impact on the domestic savings it can be an indirect determinant.

2.2 Foreign Aid & Fiscal Behavior

Butt & Javid, (2013) have used an autoregressive lag model to study how the fiscal behavior of Pakistan's government is affected by foreign aid. The time period of this study is from 1960 to 2010. The results of the study show that a negative relationship prevails between foreign aid and the fiscal responsibility of the government. It is observed to not only reduce domestic revenue collections but also increase the amount of foreign debt for the country. Bwire, Morrissey & Lloyd, (2013) analyze how foreign aid can impact Uganda's domestic fiscal variables. The relationship is studied through co-integrated vector autoregressive model for the time period 1972-2008. The study concludes that there is indeed a relationship between foreign aid and the fiscal equilibrium of the country. Foreign aid increases public spending and decreases domestic borrowing.

Batten, (2009) has studied the impact of foreign aid on fiscal behavior of the government of Papua New Guinea (PNG). The government of PNG has been greatly criticized on for taking foreign aid because it is believed to negatively affect domestic revenue collection and lead to increased debt and unnecessary expenditures. The author uses a dynamic Vector Error Correlation method and data from the years 1974 to 2008. The study concludes that foreign grants do indeed play a part in lowering domestic revenue collection but at the same time they acted as an effective debt reduction tool. It, however, does not have a very significant effect on an increase in overall levels of expenditure.

The government uses fiscal policy to control the economy through tax collection, public borrowing and public spending. Through these fiscal policy tools the government can manage the optimal allocation of resources in the economy, carry out effective mobilization of savings and can carry out development projects. All of this ultimately leads to the stabilization of the economy. Fiscal policy is very important for both, developed and developing countries. Without a sound fiscal policy the government won't be able to control the economic environment of the country and achieve its development goals (Ministry of Finance). Bhattari, (2009) studies the effectiveness of aid for Nepal for the years 1982-2002. He uses a co-integration and error correlation method. He studies both, the impact of foreign aid on the growth of GDP and the role of policy variables in determination of the effectiveness of aid. He concludes that foreign aid positively impacts the growth of GDP in the long run and that good policy measures play an important role in making the aid effective for the country.

Ezemenari, Kebede & Lahiri, (2008) have researched the effect that foreign aid has on the fiscal policy of Rwanda through an econometric analysis of historical trends. They used both theoretical and empirical analyses to draw conclusions. The theoretical analysis predicts that as aid increases it is more likely to reduce the optimal tax rate and the proportion of government expenditure allocated to public investment. The empirical analysis also shows a negative relationship between foreign aid and tax revenue and public investment. This magnitude of this relationship however is very small. The negative relationship disappears after 1995 due to a change in the government policies.

For foreign aid to be effective for any country it needs to be accompanied by sound fiscal policy. However, it can be seen that the inflow of foreign aid has had a somewhat negative impact on the fiscal policy of Pakistan. This not only decreases the productivity of the aid but also leads to an increasing debt burden for the economy. This research can help us in studying the impact of foreign aid on the fiscal policy behavior of Pakistan up till now and to find out ways to improve the fiscal policy formulation so as to make the aid more productive and reduce the debt burden on the economy. In other words, this research test the hypothesis that there is a significant relationship between foreign aid and fiscal behavior of Pakistan.

3. Objective and significance of the study

Although many research works on foreign aid has been done before, but most of them explored the impact of foreign aid on economic growth or governance of Pakistan. The relationship between foreign aid and fiscal policy behavior remained unexplored in comprehensive terms especially after 2010. Therefore, the main objective of this study is to analyze the impact of foreign aid on the fiscal policy behavior of Pakistan that is represented by public borrowing. Therefore, it tests the following hypothesis:

H_o: There is no significant relationship between foreign aid, tax revenue, total expenditure and public borrowing.

4. Methodology

This is an empirical study that employs well-known time series econometric technique, i.e., Autoregressive distributive lag (ARDL) model as it is appropriate technique for the given data set. The given data set is time series data and first and most important step would be to test the stationarity of the variable (as done in the following section). Theoretical framework suggests that the impact of foreign aid on the fiscal policy behavior of Pakistan is being studied.

4.1 Selection of Variables

Public borrowing has been taken as the proxy variable for fiscal policy behavior. This is because public borrowing is an important source of domestic revenue signifies the strength of the domestic financial institutions. Foreign aid has been taken as the independent variable and the other aspects of fiscal policy, i.e. tax revenue and public expenditure have also been taken as independent (control) variables. Data for foreign aid has been taken from the Foreign Affairs Division while the data for Development Expenditure, Public Borrowing and Tax Revenue has been extracted from the Economic Survey of Pakistan (Issues 1988-2014). Data for foreign aid has been taken from the Foreign Affairs Division while the data for Development Expenditure, Public Borrowing and Tax Revenue has been extracted from the Economic Survey of Pakistan (Issues 1988-2014).

4.2 Model Specification

The following ARDL model to study the long run relationship between foreign aid on public borrowing has been used.

$$\Delta Y_t=\alpha+\sum\rho_i\Delta y_{t-1}+\sum\beta_i\Delta X_{1t-1}+\sum Xi\Delta X_{2t-1}+\sum\varphi\Delta X_{t-1}+\lambda_1 y_{t-1}+\lambda_2 X_{1t-1}+\lambda_3 X_{2t-1}+\lambda_4 X_{3t-1}+\mu_{t.} \quad (1)$$

Where Y_t is Public Borrowing, X_{1t} is Foreign Aid, X_{2t} is Tax Revenue and X_{3t} Government Expenditure. β_o is the coefficient that represents the intercept of constant term and β1, β2 and β3 are respective slope coefficients. However, the equation for error correction model is:

$$\Delta y_t=\alpha_o+b_1\Delta X_t+\Pi\mu_{t-1}+R_t \quad (2)$$

The model has been carried out in the following steps:

I. First, Augmented Dickey-Fuller (ADF) was used to test the assumption of stationarity.

II. Second, Long run relationship using equation (1).
III. Third and final step is to estimate error correction model to capture short run effects.
IV. For additional testation heteroscedasticity, autocorrelation and stability tests are applied to check the validity and stability of model.

5. Results

5.1 ADF Test

ADF test reveal that all variables are stationary at level, except for public borrowing that is integrated of first difference. Therefore, ARDL is the appropriate technique here. A variable is stationary only if calculated value of ADF is less than its critical value and it follows the following equation for each variable:

$$\Delta y_{t-1} = \alpha_o + \alpha_{1t} + \gamma y_{t-1} + \sum \beta_i \Delta y_{t-1} + \mu_t \quad (3)$$

Where y_t represents a specific variable in time period t and y_{t-1} is that variable's lag variable or value in previous year.

5.2 *ARDL Bound Test*

Next step is to test for the Bound test or long run relationship test and itis based on following hypothesis:
H_0: There is no cointegration in the model.
H_1: There is cointegration in the model.

Calculated Value	Lower bound	Upper bound
10.41	2.97	3.74

Table 1: Results of Bounds Test

Since the F-Stat value (10.41083) is greater than all the upper bound values (3.74, 4.23, 2.68, 5.23) we reject H_0 and conclude that there is cointegration in the model. In other words, there is long run relationship between dependent and explanatory variables.

Variable Name	Coefficient	Probability
Forgien Aid	-103.8722	0.0064
Tax revenue	-3.7547	0.0063
Total expenditure	1.848694	0.0018

Table 2: The estimated long run coefficients of the model

According to the results, if foreign aid increases by 1 unit, public borrowing will decrease by 103.8722 units, keeping all other factors constant. Since the p value (0.0064) is less than 0.05 we conclude that the coefficient for foreign aid is significant. If tax revenue increases by 1 unit, public borrowing will decrease by 3.754714 units keeping all other factors constant. Since the p value (0.0063) is less than 0.05 we conclude that the coefficient for tax revenue is significant. If total expenditure increases by 1 unit, public borrowing will increase by 1.848694 units keeping all other factors constant. Since the p value (0.0018) is less than 0.05 we conclude that the coefficient for foreign aid is significant.

5.3 *Error Correction Model*

Variable name	Calculated value
Coint Eq(-1)	-0.896261

Table 3: Result of ECM

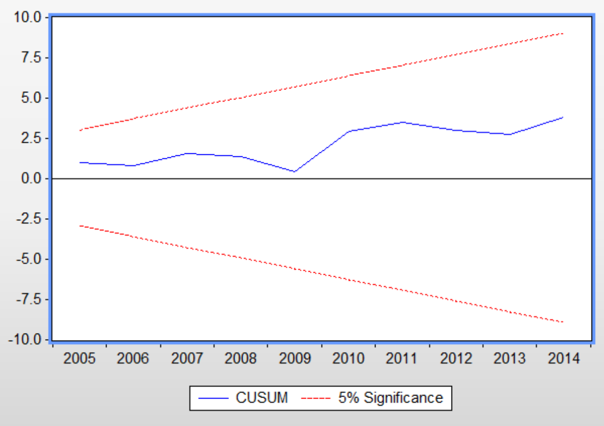
The ECM adjustment factor is -0.896261. This shows that if model diverts from long run equilibrium, it reverts to it by 89% during next year.

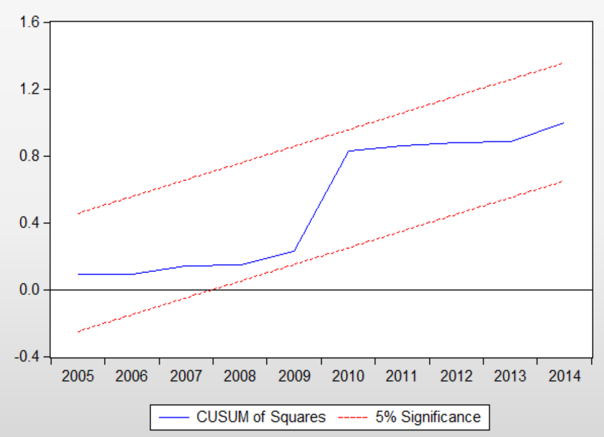
5.4 *Testing Assumptions*

Test	**F-statistic**	**Probability**
Breusch–Pagan Test	0.685775	0.7534
LM test	0.685775	0.7534

Table 4: Results of Breusch–Pagan Test and LM Test

Breusch–Pagan Test and LM Test are used to check Hetroskedasticty and Serial Correlation respectively. The result suggests that there is no Hetroskedasticity and Serial correlations since the p value is greater than 0.05. Therefore, we can conclude that our model fulfills these assumptions.
The next assumption is to check for stability





CUSUM and CUSUM Square tests reveal that blue line (CUSUM lines) lies between the red lines we can conclude that the model is stable in terms of external shocks.

6. Discussion

This research shows the importance of studying the relationship between foreign aid and fiscal policy behavior of Pakistan. When viewed from the surface it may seem that foreign aid the economic growth have a positive relationship but deeper studies show that foreign aid is not beneficial for all parts of the economy. Fiscal policy has three main elements; public borrowing, tax revenue and government expenditure. Public Borrowing has been taken as the main proxy for the fiscal policy behavior of the government while tax revenue and government expenditure have been taken as the independent variables. The ARDL model has been used in this research to study the impact of foreign aid on the fiscal policy behavior of the government.

Fiscal policy is the main tool for managing the foreign aid and it can be seen from the research and supporting literature that foreign aid usually has a negative impact on the fiscal policy behavior of Pakistan. There have been no conclusive studies on the topic but most of the research up till now is pointing in this direction. When the government changes its fiscal policy negatively in response to inflow of foreign aid it makes the aid unproductive and causes it to impede economic growth rather than contributing positively to it. The government cannot earn returns from unproductive aid and ends up accumulating debt.

After the econometric analysis, it can be seen that foreign aid has a negative relationship with public borrowing. If foreign aid increases by 1 unit, public borrowing will decrease by 103.8722 units keeping all other factors constant. It was also seen that if tax revenue increases by 1 unit, public borrowing will decrease by 3.754714 units keeping all other factors constant, and if total expenditure increases by 1 unit, public borrowing will increase by 1.848694 units keeping all other factors constant. All the variables taken in the model are significant since they all have p-values less than 0.05. Considering these results we can reject the null hypothesis of the research and conclude that foreign aid has a significant impact on the fiscal policy behavior of the government.

Over the years, as the foreign aid increased the public borrowing decreased. This was because the government was borrowing from international sources rather than the domestic financial institutions. This is one of the reasons why international debt accumulation has become such a large problem for Pakistan's economy during the past few years. It puts a burden on the economy and leads to decreased productivity of the aid inflow.

The results of the independent variables also make theoretical sense. As tax revenue is increases the government would need to borrow less from domestic financial institutions so public borrowing and tax revenue have a negative relationship. On the other hand, if government increases expenditure it would need to borrow more from domestic financial institutions so public borrowing would increase. This is why government expenditure and public borrowing have a positive relationship.

As for the relationship of tax revenue and government expenditure with foreign aid we can study it through the data collected from the economic survey of Pakistan.

One of the main reasons behind the negative impact of foreign aid on the fiscal behavior of the government of Pakistan is the mismanagement of the aid received by the government. The aid received by the government is usually spent on non-development projects, as mentioned in the introduction. Since less money is spent on non-development projects the returns from aid are very less and the government cannot generate enough revenue to return the loans. This leads to an increased debt burden.

As money comes into the country through foreign aid the government also reduces its tax revenue collection efforts, and borrowing from domestic financial institutions. This leads to an increase in reliance on foreign inflows of money. Thus as foreign aid increases, the fiscal policy behavior of the government of Pakistan is altered in a way that can be harmful for the economy. These results can also be seen in other studies. Butt and Javid (2013) concluded in their research that a negative relationship exists between foreign aid and the fiscal responsibility of the government. According to their findings, foreign aid decreases domestic revenue and increases the accumulation of foreign debt.

Khan and Ahmad (2007) also carried out a research to study the impact of foreign aid on Pakistan's economy. They found out that foreign aid has a negative impact on the economic growth of Pakistan. Iqbal (1997) found some mixed results in his research. He concluded that foreign aid has a positive impact in government expenditure but a negative impact on development expenditure, i.e. the government spends most of the foreign aid on non-developmental projects that fail to provide returns to the investment. This trend can also be seen in this research. Mehmood (1997) found through his research that while foreign aid is good in terms of fixing budget deficit it has a negative impact on the fiscal behavior of the government. It tends to acts as a substitute for domestic savings, debt accumulation and decline in economic efficiency. Thus we can see that much of the literature on the topic supports the findings of this research.

7. Conclusion

Time series data has been taken from 1985-2014 (29 years) and the ARDL model was applied to the data to study the relationship between foreign aid and fiscal policy behavior of the government. The results obtained were significant and we can conclude that foreign aid has a negative impact on the fiscal policy behavior of Pakistan.

Public borrowing has been used as the main proxy for fiscal behavior in this research. It can be seen from the results that as foreign aid increases, public borrowing decreases. This would, in turn, lead to the weakening of the domestic financial institutions and channels. If the domestic institutions suffer, the government will become even more reliant on the foreign aid and trap the country in a vicious cycle of aid and debt.

Even though public borrowing has been taken as the main indicator of fiscal policy behavior in the study, the relationship between foreign aid and other fiscal policy indicators can also be studied from the research material. Most of the aid received by Pakistan is project aid, however, the government has been spending more on non-developmental projects as compared to developmental ones. This makes the aid unproductive since the government is unable to generate returns.

The decrease in domestic revenue collection coupled with the fact that the aid is not being used productively, leads to debt accumulation and increased dependency on foreign aid since the government is not generating enough returns to pay back the loans on its own. The public debt on the government has been rising steadily over the past few decades. If this trend continues the economy will be badly disrupted. This is why the government needs to revise and reform its fiscal policy approach towards foreign aid. It should restructure the use and receipt of aid, using it more productively to generate returns and also trying to strengthen domestic revenue channels first, instead of depending completely on foreign aid.

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