An Empirical Analysis of Fiscal Policy Hypothesis: Finding the Most Suitable for Pakistan?

Umar Hayat,[*] Kausar Takrim[**] & Iftikhar Hussain[♣]

Abstract

The paper examines the correlation between government revenue and expenditure in Pakistan. Fiscal policy plays a vital role in the economic development of an economy. Moreover, fiscal regulation on other actions is important to provide and nourish fiscal discipline for a true policy action. In order to plan fiscal regulations for a country, reduction in public expenditure would be coupled with other important variables. The present study is designed to test the appropriate fiscal policy hypothesis for Pakistan among the following mentioned hypothesis: Tax-and-expenditure by both Buchanan & Wagner (1978) and Friedman (1978); the expenditure-and-tax proposition (Lincoln, 1979); the fiscal harmonization (Islam, 2001); and hypothesis of many factors by Baghestani and Mc-Nown (1994). For data treatment, the co-integration VAR (Vector Auto-regression) model along with Granger causality test was used. The results suggest that uni-directional causality from expenditure to tax proceeds. It also confirms the spend-and-tax hypothesis for fiscal regulation in Pakistan during 1980-2013. Consequently, uni-directional causality running from expenditure to tax proceeds. Government expenditure restraints should be established to control deficit and dipping expenditure. It is an attractive clarification as compared to enhancing tax to attain optimum financial regulation in the country. The study will help policy makers to attain fiscal discipline in the country.

Keywords: Public Expenditure, Public Revenue, Fiscal Policy.

Background of the Study

The concept of fiscal regulation refers to the total public expenditure, total public revenue and fiscal equilibrium that make the financial performance of an economy efficient. Restrictions on spending of the government are desirable but not an adequate measure for fiscal discipline. To provide and nourish fiscal discipline for a true policy action, fiscal regulation may also focus on other important actions. In order to plan fiscal regulation of a country, reduction in public expenditure would be coupled with other important variables— public revenue, public debt, exchange rate, interest rate, etc so that the government may easily manage the deficit budget. In Pakistan like other economies of

[*] Assistant Professor, Department of Economics & Development Studies, University of Swat, Pakistan.
[**] Assistant Professor, College of Home Economics, University of Peshawar, Pakistan.
[♣] MS Scholar, Bacha Khan University, Charsadda, Pakistan.

the world, fiscal discipline is an important concept for macroeconomic stability. Similarly, the main stake of the current successful macroeconomic performance of Pakistan coupled with monetary policy is a desirable tool for economic stability in the country (Barro, 1974).

The economy of Pakistan shows a growth of about 4.1 percent during 2013 as compared to 3.7 percent during 2012. Fiscal openness is high in both low income and emerging economies of the world (Economic Survey of Pakistan, 2014). Conversely, a few countries like Morocco, Jordan and India underwire their fiscal arrangements through controlling of expenditure. Contrary, China and India documented a modest growth in the cyclically adjusted deficit prop up by expenditure cuts and higher revenue. It is expected that fiscal deficit will remain about 3.2 percent in 2016 in low income countries. Keeping the scenario of Pakistan, fiscal difficulty emerged as one of the major concerns to improve an efficient system of taxation by raising the revenue up to the desirable level. The consequences were left on fiscal side as fiscal stability was troubled due to unplanned expenditure of the economy. Furthermore, the economy also faced numerous challenges such as, low tax to GDP ratio, mounting public debt, extraordinary floods, fiscal deficit and an enhance interest payments, which resulted the economy to overrun. Moreover, the government also failed to exploit new avenues of tax reforms which in turn confine the development expenditure. Additionally, the expected external inflows further deteriorate the situation. The fiscal deficit rose from 5.2 percent in 2008-9 to 8.2 percent in 2012-13 due to energy sector subsidy coupled with increased provincial government expenditure. The expenditure rose from 19.2 percent of GDP to 21.4 percent during the same period. Whereas, total revenue declined from 14 percent of GDP to 13.3 percent in 2012-13. The performance of the economy was satisfactory during 2013, due to modification program of the then government. Pakistan has implemented an improved economic reform backed by an effective monetary policy and improved banking regulations (Economic Survey of Pakistan, 2014).

The volume of deficit budget is considered a serious problem in Pakistan. An effective control of the public expenditure and public revenue would help the financial experts and economists to identify the main cause of fiscal illusion. This would expedite the government efforts to develop an appropriate mechanism for long term public financial management. The present study has examined the connection between public expenditure and public revenue to make unique policy recommendations to economies experiencing a prolonged fiscal deficit like Pakistan.

The policy makers and economists believed that the persistent deficit in Pakistan may be a major problem for the country (Economic Survey of Pakistan, 2014). However, with the determination of appropriate research between expenditure and tax revenue, the problem of deficit can be resolved. It would provide a strategic direction to overcome the problem of sustainable fiscal deficit in the country. Similarly, it will also help the economy to discover the factors responsible for budget deficit for accurate and appropriate fiscal discipline.

The theoretical and empirical contribution of the study is outlined as follows:

i. Understanding of government expenditure and/ or tax impact on the performance of fiscal discipline in Pakistan
ii. Assessing the medium-term fiscal strategy in Pakistan
iii. Analyzing the cost of public revenue which is caused by variations in public expenditure in Pakistan
iv. Collecting the research on expenditure and tax nexus

The paper is structured around five sections: section 1 provides the background of the study; section 2 highlights the theoretical/empirical methodology of fiscal discipline; section 3 explains empirical analysis of the paper; section 4 analyzes the empirical findings; and the last section provides conclusion and some policy recommendations.

Theoretical/ Empirical Methodologies on Fiscal Discipline

In Public Finance literature, the correlation between government expenditure and tax revenue has remained a debatable issue. In the past several years', researchers studied the connection between expenditure and revenue of the government like: Barro (1974), Friedman (1978), Aziz et al (2000), Baghestani (2004). This specific trend has provided an important implication for the deficit budget.

The practice of developed as well as developing economies in the past several decades has shown that deficit budget had a substantial impact on the economies. It can minimize economic growth and national savings. Thus, it can be concluded that the fall in budget deficit may cause the government revenue to rise or the government expenditure to decline, and this would support economic growth in the country. This axiom of government revenue and expenditure has made the topic very attractive in public finance. Thus, the determination of inter-reliant connection between public expenditure and public revenue may help the researchers to explore the reason of fiscal disequilibria. Subsequently, it would also provide a strategic guidance for fiscal reforms. Briefly then we can say that this nexus of government revenue and expenditure has remained a debatable issue, especially in under developed economies (Petanlar and Sadeghi 2012).

Aregbeyen and Ibrahim (2012), exploring and identifying the connection between public expenditure and public revenue may help the researchers to analyze the cause of fiscal disparities. The spending and revenue correlation will also assist the policy makers who wish to take some appropriate steps in order to minimize the fiscal deficit (Keho, 2010). If bi-directional causality is running from the revenue on expenditure, its repercussion is to control the constant growing deficit (Keho, 2010). The government needs to be more careful as simply cutting expenditure or raising revenue may be vague in their impact on fiscal deficit. Conversely, if uni-directional causality is operating from public revenue to expenditure, enhancing public revenue, this will escort to further exaggerate the fiscal deficit, which in turn is not a feasible option. It means that lowering

taxes may not be a feasible option for controlling the fiscal deficit. However, it is appropriate to raise taxes and decrease expenditure in order to minimize fiscal deficit. According to Wolde-Rufael (2008) if uni-directional causality is running from public expenditure on tax than expenditure cut is desirable towards decrease in budget deficit.
Thus, the below mentioned hypothesis are selected for the study:

1. The first hypothesis in the tax-and-expenditure by both Buchanan & Wagner (1978) and Friedman (1978) states that enhancing taxes will lead to rise in government expenditure. Using this logic, government revenue will change with government expenditure. Friedman (1978) suggests that with the increase in taxes, expenditure will also increase which will show budget deficit unaffected. It means that government will increase its expenditures with increase in revenue. Buchanan and Wagner (1978) examined that rising revenue will lead to change expenditure negatively. The public will notice a reduction in taxes and the cost of government programs will decline. Consequently, they will demand more programs from the government. It will result in higher budget deficit, since tax falls and government expenditure rises. Then the deficit may be decreased through increase in government expenditure. It confirms that the tax-and-expenditure implementation might be difficult because changes in taxes are backed by strong political pressure and debate over its burden on income distribution. Deficit financing instead of tax financing may become the main source of government expenditure (Abdul-Foul and Baghestani, 2004). It illustrates that expenditure may be minimized to the extent of taxes; using this logic, the country persistent deficit of budget will hardly depend solely on taxes.
2. Second hypothesis is the expenditure-and-tax proposition by Narayan and Narayan, (2006) which believes that expenditure of the government causes change in revenue. This hypothesis focuses on the inverse relation between taxes prior to changes and spending. It believes that in the absence of financial crises expenditure cuts is a reasonable solution to decrease the budget deficit.
3. The third hypothesis is the fiscal harmonization by (Islam, 2001), declaring that the decision of the government revenue should be based on spending. Therefore, there is a bilateral causality between taxes and expenditures.
4. The fourth hypothesis presented by Baghestani and Mc-Nown (1994) illustrate that one hypothesis does not explain the full context of revenue and expenditure. The lack of causality is attributed to many factors with conflicting programs and this will lead the parties or groups debt pattern. The higher the conflict the more will be budget deficit.

Subsequently, if fiscal debate is taken from political perspective, the connection between government expenditure and revenue is important for three reasons. Firstly, if revenue of the government is based on spending, then deficit budget can be minimized at rising strategy of tax revenue. Secondly, if the fiscal harmonization nexus is not applicable, then expenditures and revenue decisions are not made coherently. It will lead to extreme budget deficit. Lastly, if expenditure of the government causes revenue, then government is acting like first spend, and then increasing revenue to meet the expenditure

requirements. This situation will result in the induction of capital outflow which means higher taxes in the future (Narayan and Naraan 2006).

Mehrara, Elyasiand and Pahlavani (2011) examined the cluster of 40 Asian economies during 1995-2008. They concluded that there exists a bi-directional causality between government taxes and spending. It supports the harmonization assumption for the Asian countries. In the same way, Hye and Jalil (2010) studied causality between expenditure and revenue of the government in Romania during 1998-2013. Their findings reveal that long term bi-directional causality between expenditure and revenue exist in Romania. A study on tax-and-spending hypothesis is also confined for Germany, UK, Austria, Belgium and Finland, while the converse hypothesis is confined in Spain, Greece, Italy, France and Portugal (Afonso, 2009).

Research Methodology

For the current study, the annual data was collected from Ministry of Finance, Pakistan. The data has been analyzed from 1980-2012. In this study GR and GE denotes Government Revenue and Government expenditure correspondingly. In this paper, logarithmic series has been used which shows variance stationary for regression purposes.

For the empirical measurement of the variables three steps were adopted in the study.1. Inquiry of unit root test of the data which is important to determine the uni-variation in data because it will go ahead to the vague answer. The Augmented Dickey Fuller test is applied for this purpose (Masenyetse and Motelle, 2012). 2. To examine the long-term relation between government expenditure and revenue, Johansen co-integration test is used for this purpose which is a better procedure to analyze co-integration for more than two series. 3. To recognize the number of co-integration vectors, two test statistics are used for this purpose, likelihood ratio test and the trace test (Qudair, 2005).

(**λ** trace) test is:

$$\text{Trace} = -T \sum i=k+1 \log (1\lambda i)$$

Null Hypothesis: k≤o and
Alternative Hypothesis: k=0, 1, 2. where K denotes the Co-integration Vectors

The maximum eigen values test (λ max) is expressed as:

$$\lambda \max = -T \log (1- \lambda)$$

Null Hypothesis: K=o (No co-integration) and the Alternative Hypothesis: K ≤ 1 & 2

Similarly, to identify the causality between government expenditure and revenue, the Granger causality test is applied.

Charemza and Deadman (1997) "Ceteris paribus, X is Granger cause of Y, if using the past value of X, the Y can be easily predicted"

To estimate the auto regression for Y and X, the following tests are being applied:

$Yt = \sum j=1 \infty jYt\text{-}J + \sum j=1\ BjXt\text{-}j + \varepsilon_t$…….... (I)

$Xt = \sum j=1\ \theta jXt\text{-}j + \sum j=1\ \gamma jYt\text{-}j + \varepsilon_{t2}$…….....…. (II)

We can expect the following results, while using the Granger causality test:

i) There will be uni-directional causality from X to Y; if in equation 1, the coefficients on the lagged X are statistically significant and in equation 2, the coefficients on the lagged Y are statistically non-significant.

ii) There will be uni-directional causality from Y to X when taking converse of above statement.

iii) There will be bi-directionality causality, when in equation1, the estimated coefficients on lagged X and similarly in equation 2, the estimated coefficients on lagged Y are both statistically significant (Masenyetse, 2012).

Empirical Results

Figure 1 shows TR and GE during 1980-2010 in Pakistan. The figure shows an equivalent trend between spending and revenue of the government. They improved bit by bit during the mentioned period.

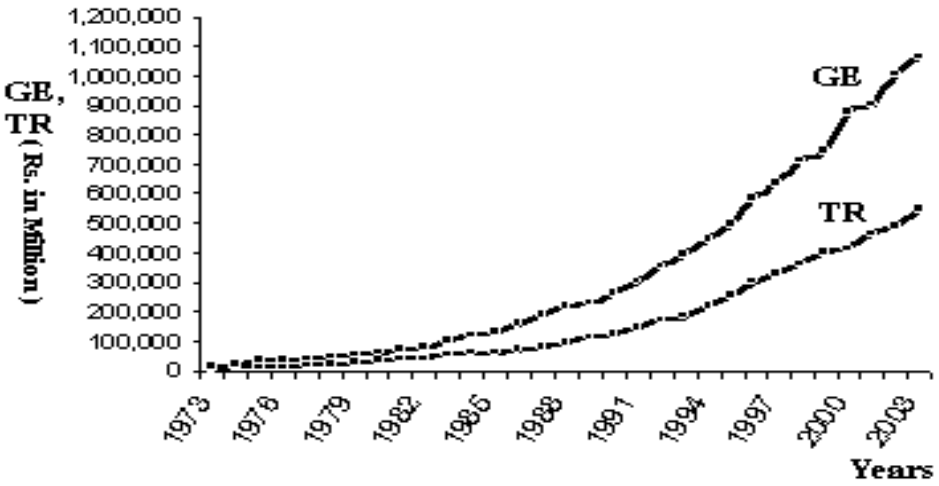

Fig. 1: Logarithmic Trends of Variables, 1980-2013.

To examine the univariate properties of both government expenditure and revenue the unit root test is being applied.

Table 1: Results of ADF Unit Root Test, 1980-2013

Series	Level, Constant & Trend	Critical Value %5	%1	First Difference Constant	Critical Value %5	%1
GS	-1.4881 (3)	-2.7723	-3.9910	-7.23433 (3)*	-3.8811	-4.7732
GE	-0.4913 (3)	-2.5542	-3.5523	-5.56726 (3)*	-3.1227	-3.9271

The results of Table 1 accept the null hypothesis of the unit roots because both variables are in the level forms. With the application of ADF test to the first difference of each variable, the null hypothesis was rejected. The ADF results suggest that the variables are not level stationary because they are less than the critical values. Speaking technically, these variables are integrated of order one because the ln GE and ln GR are stationary.

To analyze the long-run relationship between government expenditure and revenue the Johansen multivariate co-integration test (1988) was applied. Before performing the Johansen co-integration test, the relevant order of lags (p) of the vector autoregressive model was specified. To determine the optimal log length, the AIC (Akaike Information Criteria) was applied. It shows the VAR (3). The results are summarized in Table 2.

To test the no co-integration for these time series, trace statistics and the maximum eigenvalue were applied. The following table is used to decide the number of co-integration vectors.

Table 2: Results of Johansen Co-integration Test, 1980-2013

Trace Test						Maximum Eigenvalue Test				
Series	Null	Alternative	Statistic	%5 Critica Value	Prob**	Null	Alternative	Statistic	%5 Critical Value	Prb**
Ln GE	K=0	K $\geq$ 1	25.6878	10.9923	0.00**	K=0	K=1	18.1234	9.0055	0.00
Ln GR	K$\leq$1	K $\geq$ 2	2.3365	4.2145	0.00	K$\leq$1	K=2	2.311	3.0099	0.03

The trace test for the ln GE rejects the null hypothesis, since 25.6878 is greater at 95 percent confidence. Similarly, the same result was drawn for ln GR also. The eigen value test suggests that the k=o (the no co-integration null hypothesis) is rejected at 95 percent confidence level. The existence of con integration, verifying the long-run

relationship between variables during the said period. In conclusion, ln GR and ln GR are co-integrated within sample period. The results of Granger causality test suggest that uni-directional causality is running from spending to revenue of the government. Hence, it supports that the expenditure-to-tax hypothesis is valid in case of Pakistan over the period of 1980-2013.

Table 3: Results of Granger Causality Test Results, 1980-2013

Null Hypothesis	Lags	F-Statistics	Probability
GR Does not Granger cause GS	3	14.4501*	(0.0012)
GE does not Granger cause GR	3	17.9044*	(0.0545)

The null hypothesis in table 3 shows that expenditure does not cause Granger causality on revenue in case of Pakistan, hence it is accepted. Thus, any rise in government expenditure will lead to increase in government revenue. To ensure fiscal discipline in the country, the implementation of structural reforms should be implemented.

Conclusion and Recommendations

The present study explores the connection between government expenditure and revenue in Pakistan during 1980-2013. To find out the reasons for the fiscal deficit, the Co-integration and Granger Causality tests were applied. The empirical verdicts advocate that in case of Pakistan restriction on government expenditures is essential. Furthermore, to attain optimum fiscal discipline, deficit budget is better option than rising government tax revenue. The results of the present work accept the spending-and-tax assumption for Pakistan, which supports the Peacock and Wiseman (1979) hypothesis. In other findings, the result suggests that uni-directional causality of government expenditure on government revenue is expressively positive, which is unlike the hypothesis of Buchanan and Wagner (1978). Consequently, to find an optimal solution to the existing budget dilemma, focus on the rising government expenditure will be a better option. For an effective fiscal management, the policy makers in the country should focus more on government expenditure and less on revenue side of the budget. It will lead to control the fiscal policy shocks generated by tax revenue.

Based on the findings of the study, it can be recommended that the components of expenditure are equally important as of government revenue for fiscal management. To attain fiscal discipline, the expenditure of the government will be classified in to various components in order to see their distinct effects on fiscal discipline. Furthermore, the focus of government should not be solely on government expenditure but should also cover other aggregates like public debt and taxation.

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