



Munich Personal RePEc Archive

## **Comparative analysis of monetary and fiscal Policy: a case study of Pakistan**

Jawaid, Syed Tehseen; Arif, Imtiaz and Naeemullah, Syed Muhammad

December 2010

Online at <http://mpa.ub.uni-muenchen.de/30850/>  
MPRA Paper No. 30850, posted 14. June 2011 / 08:29

# ***Comparative Analysis of Monetary and Fiscal Policy: A Case Study of Pakistan<sup>1</sup>***

*Syed Tehseen Jawaid<sup>2</sup>, Imtiaz Arif<sup>3</sup> and S.M. Naeemullah<sup>4</sup>*

## **ABSTRACT**

*This study investigates the comparative effect of fiscal and monetary policy on economic growth in Pakistan using annual time series data from 1981 to 2009. The cointegration result suggests that both monetary and fiscal policy have significant and positive effect on economic growth. The coefficient of monetary policy is much greater than fiscal policy which implies that monetary policy has more concerned with economic growth than fiscal policy in Pakistan. The implication of the study is that the policy makers should focus more on monetary policy than fiscal to enhance economic growth. The role of fiscal policy can be more effective for enhancing economic growth by eliminating corruption, leakages of resources and inappropriate use of resources. However, the combination and harmonization of both monetary and fiscal policy are highly recommended.*

**Key Words:** Monetary Policy, Fiscal Policy, Economic Growth.

## **1. Introduction**

In Pakistan, the average GDP growth rate in 1980 it was 6.5% and cut down in 1990 to 4.8% and the grew up the in current decade to 8%. On the other hand the fiscal deficit in 80's it was 7.1%, in 90's was 6.9% and in running decade the average rate of fiscal balance was 10% as

---

<sup>1</sup> For Citation: NICE Research Journal Vol. 3, pp. 58-67

<sup>2</sup> Lecturer, IQRA University Gulshan Campus, Karachi, Pakistan. For correspondence: [stjawaid@hotmail.com](mailto:stjawaid@hotmail.com)

<sup>3</sup> Assistant Professor, IQRA University Gulshan Campus, Karachi, Pakistan.

<sup>4</sup> Business Graduate, IQRA University Gulshan Campus, Karachi, Pakistan

percentage of GDP. Conversely the average growth of money supply (M2) in 80's was 13.2%, in 90's it was 16.8% and in next decade it is 15.61% respectively<sup>5</sup>.

In previous studies, the comparative affect of fiscal and monetary policy on economic growth is discussed. But there are few time series studies on the subject in context of Pakistan. Moreover, this study examines the comparative effect of monetary and fiscal policy on economic growth by using long term annual time series data in Pakistan.

This paper is organized as follows. Following Introduction, section 2 discussed literature reviews. Section 3 classifies modeling frame work. Section 4 reports results and section 5 discussed conclusion and recommendation.

## **2. Literature Review**

The literature on the relationship between monetary and fiscal policy with economic growth, there are well establish theories that can clearly identify the channels through which monetary and fiscal policy affects economic growth.

### **2.1 Theoretical Framework**

The monetarists' view is expressed by making reference to the "Quantity Theory of Money" as in equation (1) below:

$$MV=PY \quad (2.1)$$

Where P, an index of the price level and Y, the income; V, velocity of circulation; M stands for money stock. The right-hand side of equation (2.1) is the value of nominal national

---

<sup>5</sup> See Pakistan Economic Survey 2009-2010 (Economic and Social Indicators)

income. If  $V$  is constant then equation (2.1) let know us that there is a positive relationship between changes in the stock of money and changes in the value of national income.

$$M = kPY \quad (2.2)$$

If, in accumulation, as in the current context of our discussion of monetary and fiscal policy, The price level  $P$  were remain fixed , after that the only way that can change  $Y$  if  $M$  changes. According to equation 2.2 the several other changes, such as a fluctuation in government expenditure will not affect the level of real income. Therefore, fiscal policy must be incapable while monetary policy will affect real output

According to Keynesian the government purchases ( $G$ ) are one of the components of the aggregate expenditures. An increase in government purchases which increases the aggregate expenditures which is also give increase in the economic growth. This shows in equation 2.3.

$$Y=C+I+G \quad (2.3)$$

Where  $Y$  as the gross domestic product,  $C$  as the total consumption,  $I$  is the investment and  $G$  is the government expenditures.<sup>6</sup>

## **2.2 Empirical Studies**

Economic theory postulates a very clear role of monetary and fiscal policy to improve economic growth. However, the empirical findings in this regards have been mixed. Some selected studies have been discussed in this section.

---

<sup>6</sup> See Stiglitz and Walsh (2002) pp. 536-537 and pp. 642-643.

The findings that monetary action will leads to an increase in economic growth than fiscal policy are consistent with the findings of Andersen and Jordan (1968), Ajayi (1974) and Elliot (1975).

Darrat (1984) investigates the relative influence of fiscal and monetary actions with in a modified St. Louis single-equation in 5 Latin American countries.<sup>7</sup> The annual time series data was taken during the time period from 1950 to 1981 of. Gross national Product, money stock, government spending and exports are used. The results suggest that fiscal policy significantly lead monetary policy in explaining changes in nominal income.

Olaloye and Ikhide (1995) investigate the role of fiscal and monetary policy to improve economy from recession in case of Nigeria. They acquired monthly data from 1986 to 1991. They used modified form of St. Louis equation. Result suggests that fiscal policy is more effective in Nigeria in depression.

Ajisafe (2002) investigates the relative effectiveness of monetary and fiscal policy on economic growth in context of Nigeria using annual time series data during the year 1970 to 1998. M1 and M2 are used as proxies of money supply and government revenue, government expenditures and budget deficit as the proxies of fiscal policy. Result shows that monetary policy has significant affect on economic growth rather than fiscal policy.

Ali, Irum and Ali (2008) examine that whether fiscal stance or monetary policy is effective for economic growth in case of South Asian countries<sup>8</sup> using annual data series during

---

<sup>7</sup> Brazil, Chile, Mexico, Peru and Venezuela.

<sup>8</sup> Pakistan, India, Srilanka and Bangladesh

1990 to 2007. Gross domestic product, broad money (M2) and fiscal balance were considered. Auto Regressive Distributed Lag (ARDL) and error correction model (ECM) have been used to determine the relative effectiveness of monetary and fiscal policy on economic growth. Results suggest that the monetary policy rather than fiscal policy has greater influence on economic growth in South Asian countries.

Khosravi and Karimi (2010) investigate the relationship between monetary, fiscal policy and economic growth in Iran. The annual time series data was taken from 1960 to 2006. Gross domestic product, narrow money (M1), Government expenditures, exchange rates and consumer price index have been considered. Bound testing (ARDL) approach and co-integration were used. Results confirm that there exists cointegration relation between growth, monetary and fiscal policy. The results identify the effect of inflation and exchange rates on growth are negative, government expenditures have significant and positive effect on economic growth. It is suggested that the policy makers must have to diminish inflation rate and exchange rates to find the stability in the future.

Adefeso (2010) re-examines the relative effectiveness of monetary and fiscal policy on economic growth in Nigeria by annual time series data during the year 1970 to 2007. Gross domestic product, broad money (M2), Government expenditures (G.E) and degree of openness (DOP) have been considered. Error correction and cointegration have been used. Result suggests that the effect of monetary policy is dominant than fiscal policy on economic growth in Nigeria. They analyzed that degree of openness exclusion does not weak the result. It is recommended that they should more focus on monetary policy in Nigeria for economic stabilization.

### 3. Modeling Framework

On the basis of empirical studies, the model to examine the effect of monetary and fiscal policy on economic growth examined through the following equation:

$$GDP_t = \beta_0 + \beta_1 MS_t + \beta_2 FB_t + \varepsilon_t \quad (3.1)$$

The  $\varepsilon_t$  is the error term. In equation 3.1 the coefficient of money supply (*MS*) used as a proxy of monetary policy<sup>9</sup> and fiscal balance (*FB*) used as a proxy of fiscal policy<sup>10</sup> are expected to be positive. The model estimated using annual time series data of Pakistan from the period of 1981 to 2009. All data are required from various issues of Pakistan economic survey, government of Pakistan. The gross domestic product (*GDP*), money supply (*MS*) and fiscal balance (*FB*) are in Logarithm form.

### 4. Estimation and Results

To find out the existence of the long run relationship between variables of equation 3.1. First we performed stationary analysis by using Dickey and Fuller (1979) and Phillips Perron (1988) tests. The results of both the test are given in the table 4.1

**Table 4.1: Stationarity Test Results**

| Variables | ADF test statistics |       |       |       | PP test statistics |       |       |       |
|-----------|---------------------|-------|-------|-------|--------------------|-------|-------|-------|
|           | I(0)                |       | I(1)  |       | I(0)               |       | I(1)  |       |
|           | C                   | C & T | C     | C & T | C                  | C & T | C     | C & T |
| GDP       | -1.78               | -2.22 | -3.43 | -3.55 | -1.62              | -2.23 | -3.42 | -3.56 |
| MS        | -0.30               | -2.59 | -3.28 | -3.22 | -0.91              | -1.97 | -3.37 | -3.31 |
| FB        | -1.07               | -2.64 | -5.87 | -5.75 | -1.06              | -2.66 | -5.87 | -5.75 |

*Note:* The critical values for ADF and PP tests with constant (C) and with constant and trend (C&T) at 1%, 5% and 10% level of significance are -3.68, -2.97, -2.62 and -4.33, -3.58, -3.22 respectively.

Source: Authors' estimation.

<sup>9</sup> See Adefeso and Mobolaji (2010)

<sup>10</sup> See Ali, Irum and Ali (2008)

The results show in the table 4.1 confirm that all series are stationary at first difference this entails that combination of one or more series may reveal a long run relationship.

Therefore, we move for cointegration test.

The test result shows the presence of autocorrelation in the estimated model. This implies that the coefficients are no longer efficient.<sup>11</sup> To remove auto correlation, Cochrane-Orcutt<sup>12</sup> iterative procedure has been used. The result of estimated equation after removing auto correlation are shown in table 4.2

**Table 4.2: Long run Determinants of Economic Growth.**

| <b>Variables</b>    | <b>Coefficient</b> | <b>t-statistics</b> | <b>Prob.</b> |
|---------------------|--------------------|---------------------|--------------|
| Constant            | 4.76               | 105.89              | 0.000        |
| MS                  | 0.30               | 19.08               | 0.000        |
| FB                  | 0.04               | 2.52                | 0.018        |
| Adj. R <sup>2</sup> | 0.98               | F-statistics        | 1235.12      |
| D.W                 | 1.66               | Prob.               | 0.00000      |

Source: Authors' estimations

The estimated results of equation 3.1 are super consistent. The long run coefficient of *MS* and *FB* have expected and highly significant. The coefficient of *FB* is fewer than coefficient of *MS*. This implies that monetary policy has more effect than fiscal on economic growth. This is due to leakages and improper use of resources in fiscal channels.

Johanson and Juselius (1990) co-integration procedure is applied to estimate the long run relation among the variable in the model. They have two tests statistics for cointegration namely Trace statistics and Maximum Eigen value statistics. The calculated Trace and Maximum Eigen value test statistics and their parallel critical value are presented in table 4.3.

---

<sup>11</sup> See Gujrati (2004) p. 454

<sup>12</sup> See Cochrane and Orcutt (1949)



**Table 4.3: Cointegration Test Results.**

| <b>Null Hypothesis<br/>No. of CE(s)</b> | <b>Trace<br/>statistics</b> | <b>5% critical<br/>values</b> | <b>Max. Eigen<br/>value statistics</b> | <b>5% critical<br/>values</b> |
|---|-----------------------------|-------------------------------|--|-------------------------------|
| None                                    | 24.33                       | 24.27                         | 20.51                                  | 17.79                         |
| At Most 1                               | 3.81                        | 12.32                         | 3.79                                   | 11.22                         |
| At Most 2                               | 0.02                        | 4.12                          | 0.02                                   | 4.12                          |

Source: Authors' estimations

Starting with null hypothesis of no cointegration among the variable. Table 4.3 shows that both test statistics reject null hypothesis at 5% level of significance in favor of their alternative that there is one cointegrating vector. Thus, results from Trace and Maximum Eigen test statistics show that there exists only one steady positive equilibrium relationship between the considered variables.

## **5. Conclusion and Implications**

In modern literature, the comparative effect of monetary and fiscal policy on economic growth had been widely discussed. The cointegration tests confirm positive long run relationship between monetary and fiscal policy with economic growth. However, monetary policy has more concerned with economic growth than fiscal policy. The implication of the study is that the policy makers should focus more on monetary policy than fiscal to enhance economic growth. The role of fiscal policy can be more effective for enhancing economic growth by eliminating corruption, leakages of resources and inappropriate use of resources. However, the combination and harmonization of both monetary and fiscal policy are highly recommended.

## **.References**

- Adefeso. H.A and Mobolaji, H.I. (2010), “The Fiscal-Monetary Policy and Economic Growth in Nigeria: Further Empirical Evidence”, *Pakistan Journal of Social Sciences*, 7(2):137-142.
- Ajayi, S.I. (1974). An Econometric Case Study of the Relative Importance of Monetary and Fiscal Policy in Nigeria. *The Bangladesh Economic Review*, 2(2):559-576.
- Ajisafe, R.A., and Folorunso, B.A. (2002), “The Relative Effectiveness of Fiscal and Monetary Policy in Macroeconomic Management in Nigeria”, *The African Economic and Business Review*, 3(1):23-40.
- Ali, S., Irum, S. and Ali, A. (2008) Whether Fiscal Stance or Monetary Policy is Effective for Economic Growth in Case of South Asian Countries?, *The Pakistan Development Review*, 47(4):791 – 799.
- Anderson, L.C. and Jordan, J. L. (1968), “Monetary and Fiscal Actions: A Test of Their Relative Importance in Economic Stabilization”, *Federal Reserve Bank of St. Louis Review*, 80: 29-45.
- Cochrane, D. and G.H. Orcutt, (1949), “Application of Least Square Regression to Relationship Containing Autocorrelated Error Term,” *Journal of the American Statistical Association*, 44: 32-61.
- Darrat, Ali.F. (1984), “The Dominant Influence of Fiscal Actions in Developing Countries”, *Eastern Economic Journal*, 10(3): 271-284.

- Dickey D A, and W. A. Fuller, (1979), "Distribution of the Estimation for Autoregressive Time Series with a Unit Root," *Journal of American Statistical Association* 79:355–367.
- Elliot, J. W. (1975), "The Influence of Monetary and Fiscal Actions on Total Spending: The St. Louis Total Spending Equation Revisited", *Journal of Money Credit and Banking*, 7:181-192.
- Gujrati, D.N. (2004), *Basic Econometrics*, 4th edition, McGraw-Hill
- Johansen, S. and K. Juselius, (1990), "Maximum Likelihood Estimation and Inference on Cointegration with Applications to the Demand for Money," *Oxford Bulletin of Econometrics and Statistics*, 52:169-210.
- Johansen, S., (1988), "Statistical Analysis of Cointegration Vectors," *Journal of Dimension and Control*, 12:231-254.
- Khosravi. A and Karimi, M.S. (2010), "To Investigation the Relationship between Monetary, Fiscal Policy and Economic Growth in Iran: Autoregressive Distributed Lag Approach to Cointegration", *American Journal of Applied Sciences* 7 (3): 420-424.
- Olaloye, A. O. and Ikhide, S. I. (1995), "Economic Sustainability and the Role of Fiscal and Monetary Policies in A Depressed Economy: The Case Study of Nigeria", *Sustainable Development* 3:89–100.
- Pakistan Economic Survey (2010), 'Government of Pakistan, Finance Division, Islamabad.
- Stiglitz, Joseph E and Walsh, Carl E, (2002), "Economics", Third edition, W.W. Norton & company Ltd, New York.