IMPACT OF FISCAL AND MONETARY POLICY ON NOMINAL GDP:

A CASE OF PAKISTAN

By

INAM, Zeeshan

THESIS

Submitted to

KDI School of Public Policy and Management

in partial fulfillment of the requirements

for the degree of

MASTER OF DEVELOPMENT POLICY

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1 ABSTRACT

Impact of Fiscal and Monetary Policy on Nominal GDP: A Case of Pakistan

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The sluggish growth and rising unemployment is an alarming situation for policy makers to come up with some crucial policy measures to get rid of the problem. The present study was conducted to investigate the relative effect of both fiscal and monetary policy on nominal GDP. The famous St. Louis equation was used with Newey and West test to examine the policy response for the period of 1972-2013. The empirical evidences suggested that the relative effect of fiscal policy as compared to monetary policy is higher. Further, the study also used an interaction term with dummy variable to estimate the relative impact of both policies in recession. Our findings confirmed that fiscal policy has larger relative effect over monetary policy whether there is recession or not. We assumed that the dictatorship regime is the key determinant for higher relative effect of fiscal policy over monetary policy on nominal GDP. Therefore, on the basis of our findings, we may not only recommend to use fiscal instrument as a policy tool to surmount the recession and generate job opportunities for people adding into labor force annually but also the country needs to conduct independent monetary policy.

Keywords: Nominal GDP. Fiscal Policy, Monetary Policy, Government Spending (G) and Money Supply (M2)

Dedicated to

My beloved Wife and Son

2 ACKNOWLEDGEMENTS

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CHAPTER 1:

INTRODUCTION

The consistent downward growth trends of GDP is a serious concerned for the policy makers. Despite several policy measures have been taken to bring the economy on the development track, the country grew less than 4% for last seven years. The business cycle reveals a volatile nature of short run GDP showing sharp increase over potential GDP and immediately stumbles down to below potential line. The sustainability of GDP is a critical issue for the development of the country because sustain growth is imperative to increase consumption, enhance saving, accumulate capital and generating employment opportunities resulting high standard of living. It is estimated that a rapid growing population adding 1.2 million people in the labor market every year causing sharp rising unemployment rate in the country. Therefore, the country needs to grow 7-8% for the longer period to provide job opportunities.

The government has two different policy tools i.e. fiscal policy and monetary policy to attain objectives of improving living standards of the people & external balance, price stability, accelerating economic growth and generating employment for new addition in the labor market. However, the policy formulation is a critical issue because Monetarist stressed that fiscal dominancy distorted the market. Anderson and Jordon (1968) confirmed the effectiveness of monetary policy to stimulate economic activities. While, Keynesian followers argued that effective fiscal intervention has significant impact on output. Blinder and Solow (1974) found that fiscal policy is imperative to stabilize the economy.

In case of Pakistan, there are two different perspectives developed regarding the monetary and fiscal policies. First group claimed that monetary policy plays vital role in accelerating

economic activities while fiscal dominancy distorted the market. They argued that fiscal dominancy not only limited the monetary policy role in accelerating economic activities but also was resulted a reduction in private investment since 2008.

Further, they stressed that the fiscal policy indicates that government expenditure are 22% in the economy however, the actual share of government calculated by Planning Commission of Pakistan was 44.17% directly in the economy because of a large number of State Oriented Enterprises (SRO), subsidies, SROs[1] etc. Therefore, the large government footprint in the economy has to be financed either increasing taxes or public debt. The recent trend shows that the share of indirect taxes is 62% in total taxes. Out of which 70% indirect taxes collected through GST. However, fiscal deficit still stood 8% higher than target of 4%. Therefore, to fulfill this bridge, government seeks for both domestic debt and external debt. In both scenarios, economic activities shrinks, former may raise prices causing inflation in the economy and later, was witnessed primary budget deficit due to huge debt servicing.

On the other hand, the other group asserted that fiscal policy is crucial to bring the structural change in the economy and achieve sustain and high economic growth. They illustrated that public investment in the development projects is witnessed structural changed & high growth of GDP, alleviating poverty and improving living standard of the common people during the period of 2002-2007. The public investment observed rising trend from 2.5% in 2001 to 5.5% during the period of 2002 to 2007 recording an average 6.6% GDP growth with 3.7% fiscal deficit for the same period. Pasha et. al. (2011) concluded that a 1% of GDP reduction in public investment resulted in slow down the GDP growth by 2%.

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[1] Government footprint calculated on the basis of government share in each sector directly or indirectly. The basis methodology was to estimate government footprint by calculating market share of government in each sector such as, government spending, earning of public institutions, price support or subsidies etc.

Finally, on theoretical background, discount rate has a counter cyclical behavior with inflation and usually, monetary policy is used to curtail the inflation. However, the data explained the different position for the country, it is clearly indicated that discount rate had mixed behavior with inflation in different spell since 2001. There was a counter cyclical trend during 2001-2002, suddenly, convert in procyclical for the period of 2003-2008, especially, in 2008 when SBP raised the discount rate to 12% from 9.50% in 2007, going up by 250 basis point in one year to curtail inflation by reducing M2 supply but inflation reached to 21.53% from 7.00% in 2007, showing ineffectiveness of monetary policy. There are two prime reasons for infectiveness of monetary policy, first the focus of government shifted to indirect taxes especially, sales tax. Indirect taxes contribute more than 60% in total taxes and 70% of indirect taxes came from sales tax. Increasing sales tax exerts pressure to market prices to rise, causing inflationary impact on the economy. Secondly, government borrowing from SBP and banking sector was enhanced significantly since 2008. Government budgetary borrowing contained an average of 40% share in M2 for last six years, while credit to private sector declined to 40.57% of M2 in 2013 from 56.58% in 2009.

There is limited research in this area. Most of the studies in the past were design to investigate the long run relationship among fiscal and monetary policy instruments and GDP using multivariate cointegration method. Mohammad et al. (2009) and Jawaid, Qadri, and Ali (2011) confirmed the long run relationship among M2, government expenditure and output. The study was conducted to developed long run relationship between government expenditure, M2 and openness with GDP. Co integration and Error Correction method were used for the period of 1981 to 2007. Hussian (1992) argued that monetary policy is more effective than fiscal policy for determining the output. While the proposed study is design to use St. Louis equation to examine the fiscal and monetary policies effect on nominal GDP.

Therefore; the study is designed to investigate the relative impact of fiscal and monetary policies on nominal GDP using S.T Louis model taking time series data for 1972-2013. Chapter two states research question and hypothesis, chapter three provides literature review, chapter four briefly review the economy, chapter five builds up theoretical model, deals with methodology, and interprets empirical evidences and finally chapter six concludes the paper with policy implication.

Chapter 2:

Objective of Research

2.1 Research Question(s)

Keeping in view the importance of fiscal and monetary policies in stimulating growth process and limited research in this area in Pakistan, the study is designed to investigate the impact of fiscal and monetary policies on nominal GDP, especially, the study focused to estimate relative magnitude of fiscal and monetary policies for future policy implications.

- To investigate the impact of fiscal and monetary policies on nominal GDP.

- To estimate relative magnitude of fiscal and monetary policies on nominal GDP and

- To seek relative impact of these policies in recession including an Interaction term.

2.2 Hypothesis (or Claim)

Ho: **Fiscal and Monetary policies being ineffective (γ and $\beta = 0$)**

Ha: **Fiscal and Monetary policies being effective (γ and $\beta > 0$).**

Chapter 3:

Review of Literature

3.1 Literature Review

The debate of policy choice started when the great depression hit the US economy in 1929 and monetary policy was failed to bring out the US economy from depression. The great depression started from collapse of stock exchange in the US economy and in second phase, banks were default. At that time, the economic system permitted the legitimate capital movement across the World under Gold standard. The deep analysis reflected that outflow of capital crashed the stock market and default the banks. The financial sector crises caused animal spirit in US economy and monetary policy failed to revive the economic activities because the financial crises suddenly reduced private consumption therefore, whether Fed. used loose monetary policy it could not generate private consumption rather than raised investment causing excess supply.

The failure of classical economy system provided the window to Keynes to develop its theories. Keynes (1936) criticized the most of the classical theories, especially theory of full employment. He argued that there was a fluctuation in the short run because of low private investment and excessive saving. He asserted that it is a government responsibility to intervene in the market and use fiscal (deficit) policy to inject public investment to eliminate the disturbance so that markets could reach at full employment level in the long run. On the other hand, Friedman (1968) argued that Federal Reserve Bank was the responsible of great depression because it reduced money supply. He asserted that monetary policy is still the key factor to determine economic activities rather than fiscal policy.

Further, David Ricardo (1820) earlier claimed that a rising government spending offset by falling private consumption. The hypothesis in literature is known as Ricardian Equivalence[2]. Barro (1974) illustrated the theoretical framework of Ricardian Equivalence in detailed and told that a current cut in taxes or rising government spending would be compensated by increasing savings for future expected rising taxes and reducing current private consumption. So, an increasing government spending offset by equal amount on reduction in private consumption and there is no effect of fiscal policy on nominal GDP. On the other hand, Summers et. al (1987) found counter evidences and concluded that during the period of government spending, savings were fell down rather than increased as proposed by Barro (1974) and consumption rose. Therefore, fiscal policy stimulated the growth process rather than offsetting the private consumption.

The issue of policy effectiveness observed the most important issue in the Era of 60s to 80s. Anderson and Jordon (1968) developed St. Louis equation to examine the impact of monetary and fiscal policy in accelerating output. They urged that monetary policy tools had significant effect on output while fiscal policy was ineffective to stimulate economic activities. Ajayi (1974) and Elliot (1975) also confirmed that monetary policy had dominant over fiscal policy in explaining the larger effect on level of output. Kertzmer (1992) concluded that monetary policy has significant impact on output and confirmed the monetarist version. On the other hand, Blinder and Solow (1974) revealed that fiscal policy tools were most effective in stimulating the output. Chowdhury et al (1986) observed significant impact of fiscal policy over monetary policy on output.

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[2] Ricardo (1820) studied "consumers are forward looking and so internalize the government's budget constraint when making their consumption decisions. This leads to the result that, for a given pattern of government spending, the method of financing that spending does not affect agents' consumption decisions, and thus, it does not change aggregate demand. Thus, this theorem is used as an argument against tax cuts and spending increases aimed to boost aggregate demand."

The recent empirical evidences dispatched a mixed picture. Belliveau (2008) found that both fiscal and monetary policy were significant and played a key role in stabilizing the economy. Further, the magnitude of monetary policy had larger effect than fiscal policy. However, it was concluded that revenue did not have any impact on economic activities. Kertzmer (1992) confirmed the monetarist version and concluded that monetary policy has significant impact on output for both sample periods. He further stated that although the effect of monetary policy was gradually fell over the period. It has larger effect in period one. On the other hand, no significant effect of fiscal variables was observed on output neither in causality method nor in Varaince Decomposition model.

Rossi and Zubairy (2011) depict a different picture that fiscal shocks not only stimulated the output in medium run but also has significant effect in short run. Further, monetary shocks had only business cycle fluctuations. However, Plessis and Sturzenegger (2007) stated that fiscal policy witnessed a pro cyclical behavior since 1994 but if deeply analysis the behavior it was found that pro-cyclical trend basically started since 2002. One cannot forecast the pro cyclical trend of fiscal policy. Similarly, monetary policy also observed the same behavior since 1994. Moayedi (2013) concluded that fiscal policy has highly significant positive impact on output while monetary policy was ineffective in this regards. The Iranian economy indicated the fiscal dominant. The results may be changes if central bank could be independent in policy making. Hussain et.al (2008) used multivariate cointegration technique to examine the effectiveness of monetary and fiscal policies on output. They confirmed a long run relationship among output and government expenditure, money supply, foreign interest rate and real exchange rate. They further stated that the monetary policy has positive effect in all ASEAN countries while some countries revealed a negative effect of fiscal policy on output. (See also Angelo, Melissa and Leon, 2004, Musa, Asare and Gulumbe, 2013, Kamaan, 2014)

It is stated that both fiscal and monetary policies may be effective in short run. In the long run, none of these policies have any significant effect in accelerating economic activities. However, there are some empirical evidences that monetary policy is effective to generate economic activities. Friedman (1977) fist time claimed that the Philips curve was apparent a positive relationship rather than vertical due to the distortionary effects of the inflation tax taking US data and concluded that monetary policy is effective in long run. Khosravi and Karimi (2010) suggested that fiscal policy, inflation and exchange rate confirmed the long run relationship with GDP while monetary policy seemed to be ineffective in this regards. Further, they examined short run relationship and confirmed the existence of short relationship among the variables but adjustment process is quite dawdling.

In contrast, developing countries witnessed dominant role of fiscal policy over monetary policy. It seems that the government influence is high when central bank announces monetary policy which minimizes the scope of monetary policy. Moayedi (2013) found strong fiscal impact on output and stated that the Iranian economy indicated the fiscal dominant. The results may be changes if central bank could be independent in policy making. Kamaan (2014) divulged that monetary shocks had negative and insignificant relationship with output in Kenya. Younus (2012) found that the monetary policy has dominants positive impact on real output as compared to fiscal policy Using St. Louis Model. He also concluded that the dominancy of monetary policy confirmed the earlier findings of Anderson and Jordon for US economy.

Further, David and Leeper (2012) argued that the fiscal stimulus has dominant effect in accelerating per capital output under passive monetary and active fiscal policy while the effect of fiscal policy was less when monetary policy is active and fiscal policy is passive. The estimated that an increase of $1 would raise per capita output by $1.80 in present value under passive monetary policy as compared to $0.80 per capita output in present value under

active monetary policy. Chingarande (2012) concluded that the role of fiscal and monetary policies are vital in stimulating economic activities and found that the relative effect of monetary policy is larger than fiscal policy to accelerate output in Zimbabwe using quarterly data for the period of 1984.4 to 1998.3. Jayaraman et.al (2012) seeks the impact of monetary and fiscal policies on output. The key findings of the study suggested that the fiscal policy has larger significant effect on output for small economy and under developed financial sector in short run. They further concluded that the in the long run, the monetary policy has dominant effect on output owing to innovations in financial sector. Javed and Sahinoz (2005) concluded that fiscal policy is effective if monetary policy variable incorporated in the model and confirmed a significant effect.

Chapter 4:

State of the Economy

4.1 Economic Outlook

Pakistan growth has volatile nature and is unable to achieve persistent and sustained growth of GDP. The historical evidences indicate that the country grew an average growth of 3.75% during the period of 1992-2001, whereas, this process was accelerated in 2002 and the country maintained a healthy growth of over 6% during the period 2002-07. The momentum of growth suddenly slump and average growth for last seven years is only 3.2% showing volatility nature of growth for the country. The trajectory of growth revealed that the country has high growth during 2002-07 mainly due to huge inflows of foreign direct investment in two sectors, i.e. communication and banking. Foreign direct investment witnessed an increase of 1.2% of GDP for every year for the period of 2002-07 while FDI was -0.28% of GDP for each year during 2008-14.

Unfortunately, Pakistan is the only country in the region which has downward trend of Potential GDP growth because of continuous adjustment programs. While all regional countries have improved its potential growth trend. The stabilization mode and delaying key reforms badly impacted productivity growth in the country. GDP should grow @ 7 to 8% per annum to absorb 230 million youth that is expected to enter into labour market within next 35 years. It is estimated that the labour force is currently growing at the rate of 3.2% per annum but jobs provision is at less than 1.4% showing a gap of 1.8% between jobs provision and job seekers. The fluctuation of actual GDP growth against potential growth is presented in Figure 1 below;

Figure 1: Trend of GDP Growth Rate since 1992
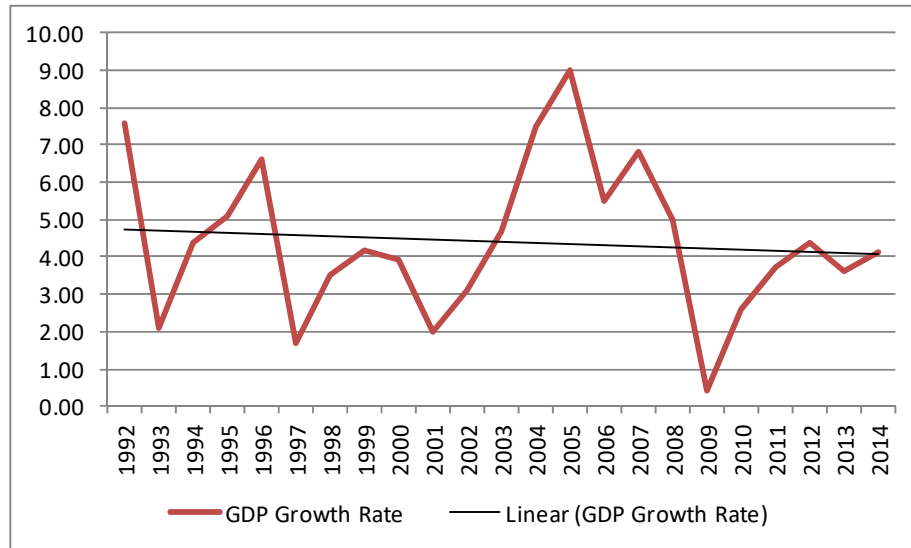
The above figure shows the volatile nature such as, GDP grew at 7.60% in 1992, suddenly fell to 2.6% in 1993 and pick the momentum immediately and obtained over 6% growth in 1996 but unfortunately, this acceleration of growth could not be sustained and once again sharply fell down to lower than potential growth till 2001. The path of growth revealed that growth of GDP boosted up during 2002-07 and touched 9% in 2005 due to huge inflows of FDI and Worker's Remittances. In fact, FDI and worker's remittances recorded average growth of 61.91% and 37.70 % during this period. Although, the country did not enhance / improve revenue collection and revenue collection is around 14% but fiscal deficit reduce to 3.7% of GDP because of impressive growth performance. Narrowed fiscal deficit made the country sovereign and reduced debt burden both domestic and external. Public debt reduced to 55.2% of GDP in 2007 from 79.8% of GDP in 2002. Unfortunately, this momentum of growth once again could not be sustained and economic growth decelerated with deterioration in security environment and political instability during the last five years. Other

factors include problems related to energy and governance which led to excessive idle capacity in the economy, deterioration of capital stock, vulnerable fiscal environment, structural issues pertaining to administrative burden of regulations, and distortionary incentive regime to diffuse competition. Especially, GDP had only 0.40 growth because of negative growth registered in manufacturing sector in 2009.

4.2 Fiscal Policy

Fiscal Policy statement indicated that the country has adopted fiscal discipline through reducing its current expenditure and enhancing its revenue under IMF agreement September, 2013. The fiscal deficit for 2013-14 stood at 5.5% of GDP mainly due to reduction in subsidies & increase in development expenditure and primary deficit cut down to 0.2% of GDP as compared to 3.6% of GDP last year. Besides that, sharp increase in revenue collection by 22% compared to last year another factor to decrease fiscal deficit for 2013-14.

Figure 2 described the trend of fiscal policy over the last two decades. It clearly indicated that the country had fiscal imbalances because of its expenditure are more than its revenue collection. Average fiscal deficit since 1992 stood at 6.0 % of GDP making country to finance its fiscal deficit through internal and external sources. Total expenditure was 26.7% of GDP in 1992 showing declining trend but still over 19.8% in 2014 while revenue collection also showing downward trend and stood at 14.3% of GDP in 2014, resulting in 5.5% of fiscal deficit. The main source of financing fiscal deficit is domestic source including banking and non-banking sectors. Domestic debt was rising in 1990s on account of gap between revenue & expenditure and low growth of GDP. On the other hand, domestic debt started declined in early 2000s mainly due to fiscal space provided after rescheduling of external debt and impressive GDP growth while revenue collection was still stagnant and showed sluggish growth. Government needs to introduce fiscal discipline by reducing its

expenditure but avoid curtailing development expenditure because International Growth Centre (IGC) concluded that although a cut of PSDP equivalent to 1% of GDP reduced fiscal deficit by 0.8% of GDP and Inflation by 1.5% point but it also declined economic growth by 2% in the same year. Enhance tax revenue by seeking new sector to be taxed but avoid further rising indirect taxes especially, sales tax.

Figure 2 : Trends of Fiscal Indicators
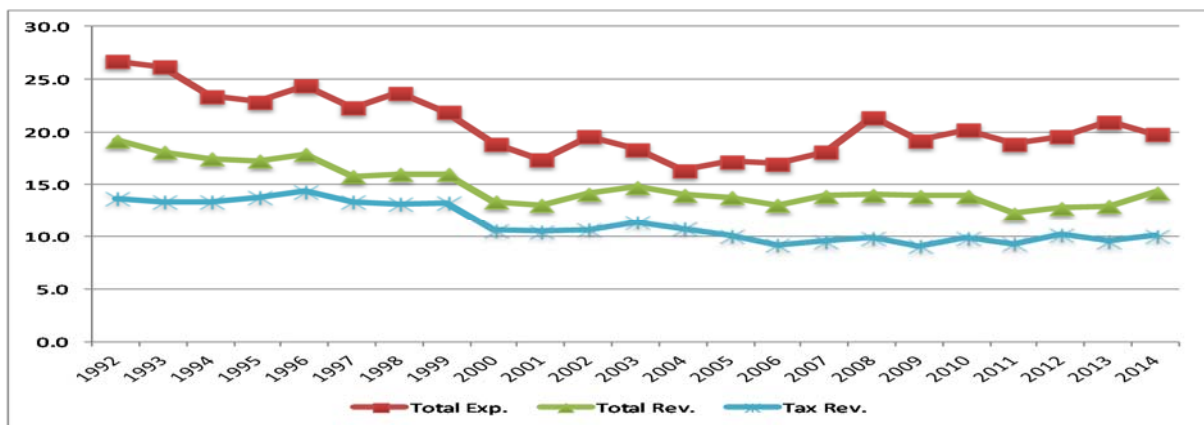
Source: Fiscal Policy Statement 2014-15

4.2.1   Tax Revenue

The prime instrument of fiscal policy is revenue especially tax revenue. Tax revenue includes direct tax and indirect tax. Composition of taxes revealed that the direct taxes 38% of total taxes while 62% of total taxes came from indirect taxes. Further, indirect taxes witnessed that sales tax is the main source of indirect taxes and share in total indirect taxes in 2013 as compared 18.41% of total indirect taxes in 1992 showing significant changes in structure of indirect taxes while custom duties indirect taxes had been slumped to 19.96% of total indirect taxes as compared to 54.73% in 1992.

Figure 3 depicted the composition of tax revenue for last five years as under:

Figure 3: Composition of Tax Revenue
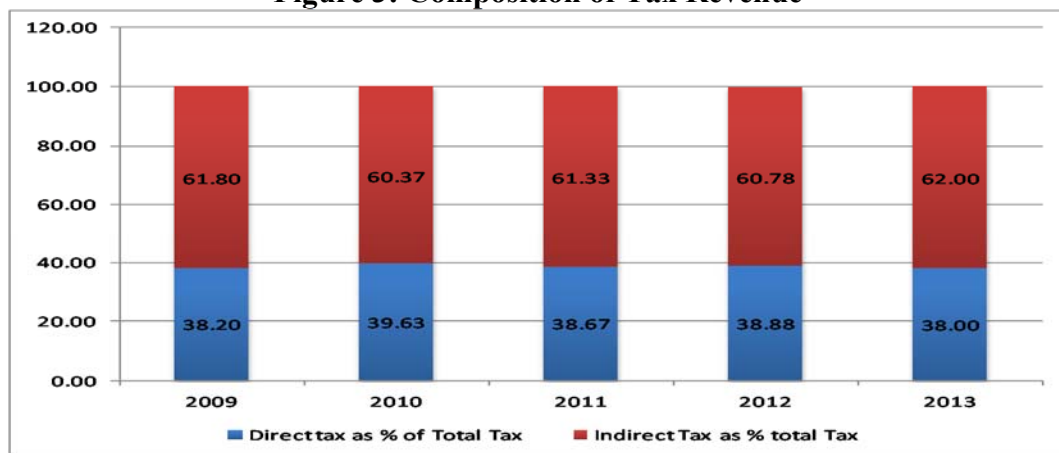
Source: Handbook of Statistics on Pakistan Economy 2010 and Annual Report of State Bank

The composition of tax collection was stagnant implies that government has to change structure of tax system and also seek new sector to be taxed. Direct taxes contributed 38.20% of total taxes in 2009 and had the almost same contribution after five years and stood at 38.00% of total taxes. Similarly, there is no change in contribution of indirect taxes in total tax revenue.

4.2.2 Total Expenditure

Total expenditure consists of current and development expenditure. Total expenditure shows the behavior of government expenditure through its fiscal policy. Total expenditure was 21% of GDP in 2013 on account of 16% current expenditure (almost 76% of total expenditure) and 5% development expenditure resulting fiscal deficit 8.0% of GDP. Current expenditure mainly includes interest payment, pension & annuities, subsidies and defense expenditure. Trend of current expenditure revealed that interest payment and defense expenditure are the two major sources of current expenditure. Both combined with held 41.9% share in current expenditure in 2013. The trend of total expenditure is furnished in Figure 4 as under;

Figure 4: Composition of Total Expenditure
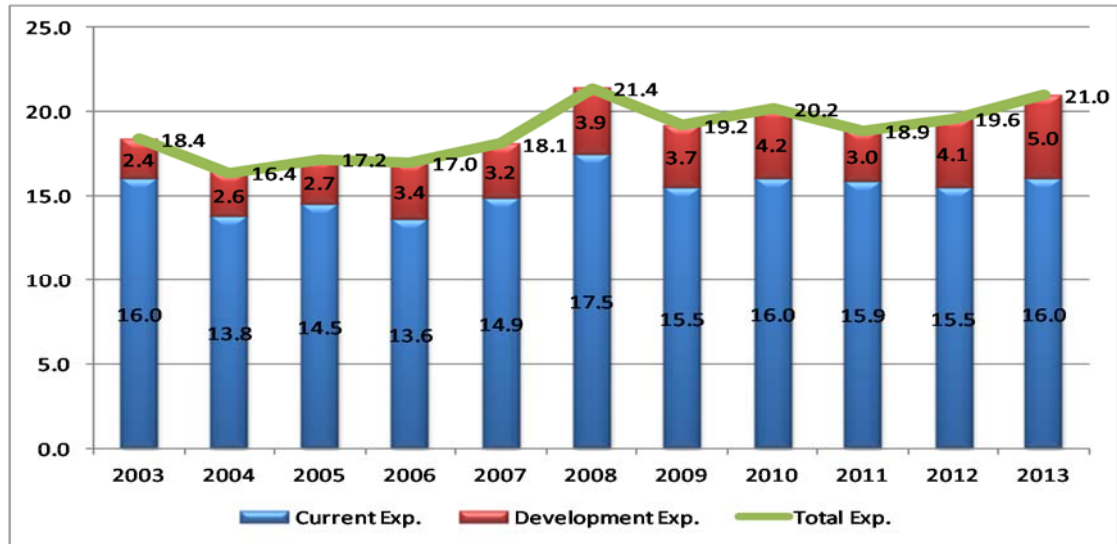
Source: Fiscal Policy Statement 2013-14

The behavior of government spending indicated that current expenditure captured 86.95% share in total expenditure in 2003 while development expenditure held only 13.05% share in total expenditure in same year. The share of current expenditure stumbled in 2013 and had 76% share in total expenditure. There are two major source of current expenditure, first, interest payment on domestic & External debt because government faced resource constraint situation and it has to seek domestic and external sources to finance its budget deficit, second, defense expenditure. Apart from current expenditure development expenditure had 24% share in total expenditure in 2013 as compared to 13% in 2003, showing 1% increase in share in each year.

4.3 Monetary Policy

The improvement in the economy situation in the country owning to reduction in fiscal improvement in external account, low inflation and political stability encouraged the Bank of Pakistan (SBP) to slash the discount rate by 300 points. The history of policy catering fluctuation of discount rate and CPI is presented in

Figure 5:

Figure 5: Trend of Monetary Policy
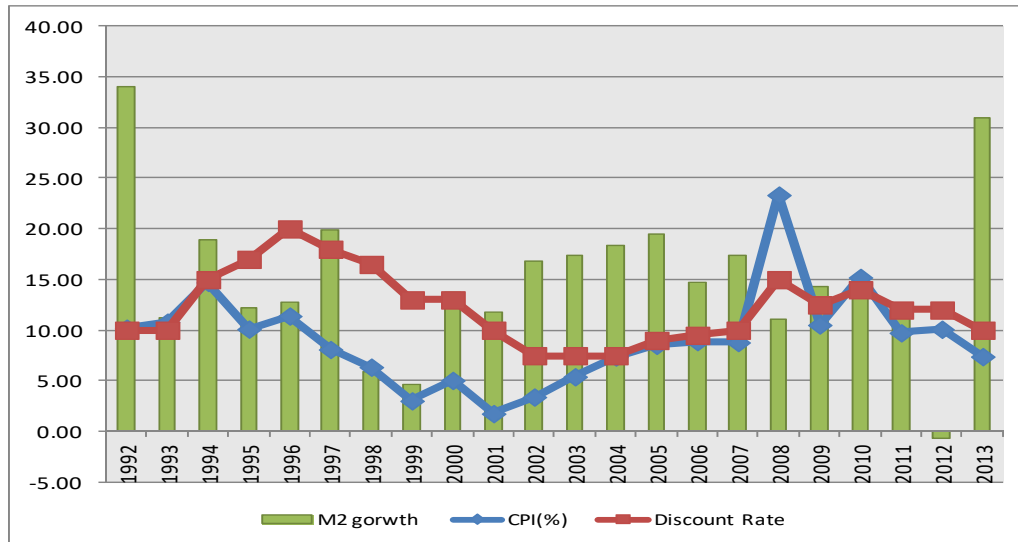
Source Economic Survey of Pakistan, various issues

On the theoretical background, discount rate has a counter cyclical behavior with inflation and usually, monetary policy is used to curtail the inflation. However, the data explained the different position for the country, it is clearly indicated that discount rate had mixed behavior with inflation in different spell since 2001. There was a counter cyclical trend during 2001-2002, suddenly, convert in procyclical for the period of 2003-2008, especially, in 2008 when SBP raised the discount rate to 12% from 9.50% in 2007, going up by 250 basis point in one year to curtail inflation, reduced M2 supply but inflation reached to 21.53% from 7.00% in 2007, showing ineffectiveness of monetary policy. There are two prime reasons for infectiveness of monetary policy, first the focus of government shifted to indirect taxes especially, sales tax. Indirect taxes contribute more than 60% in total taxes and 70% of indirect taxes came from sales tax. Increasing sales tax exerts pressure to market prices to rise, causing inflationary impact on the economy. Secondly, government borrowing from SBP and banking sector was enhanced significantly since 2008. Government budgetary borrowing

contained an average of 40% share in M2 for last six years, while credit to private sector declined to 40.57% of M2 in 2013 from 56.58% in 2009.

4.3.1 Components of Broad Money (M2):

Components of broad money (M2) have significant implication to understand why monetary policy failed to control inflation whenever discount rates policy was used. The facts indicated that more than 50% of M2 captured by government budgetary borrowings showing less impact of monetary policy controlling economics activities. Figure 6 below presented trend of government budgetary borrowing (GBB) and Credit to Private sector (CPS) as % M2.

Figure 6: Component of Broad Money (M2)
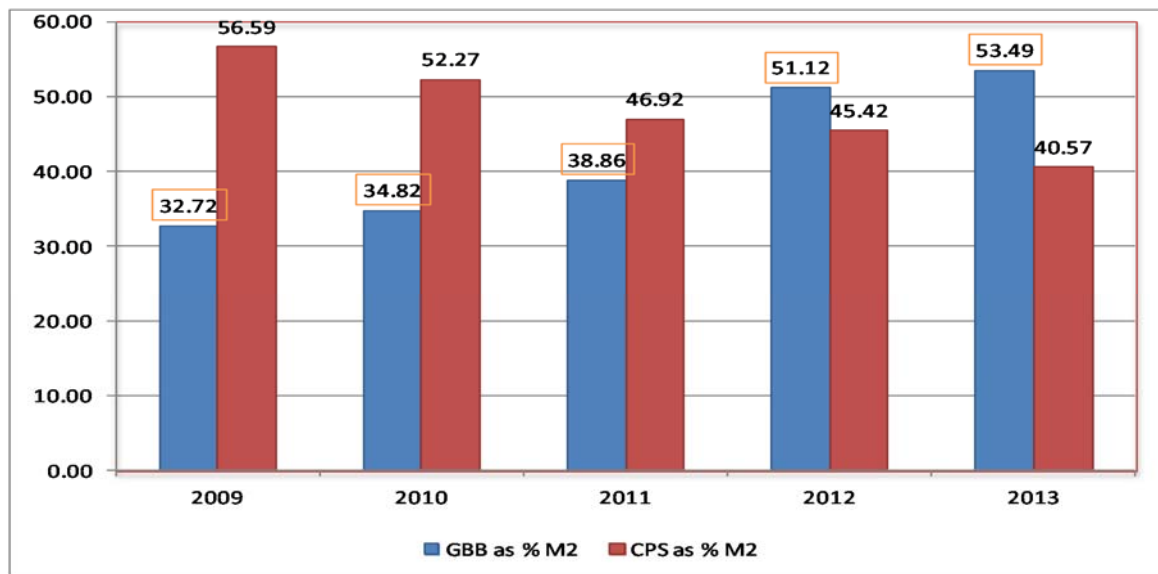
Source: State Bank of Pakistan (SBP)

Figure 6 described factual position of government budgetary borrowing and credit to private sector. It indicated that the focus of government borrowing for budgetary support shifted to domestic sources though treasury bills and printing money because of less external assistance and went up to 53.49% of M2 in 2013 from 32.72% of M2 in 2009, increased by 20.77% in five years. Ultimately, credit to private sector decreased by 16.02% from 56.59% of M2 in 2009 to 40.57% of M2 in 2013. In such circumstances, central bank monetary policy to

curtail inflation seems to be ineffective and encouraging commercial banks to earn higher interest on short run T-bills.

Chapter 5:

Empirical Analysis

5.1 Theoretical Framework

Both monetary policy and fiscal policy are used to stimulate economic activities. Keynes (1936) argued that at the time of recession, government may use expansionary fiscal policy by either increase its expenditure or curtail taxes, both these two factors directly affect the aggregate demand such as consumption & saving, investment and income distribution. The basic Keynes components of aggregate demands are as under

$$AD = C + I + G + NX \text{ -------------------------- } (1)$$

The aggregate demand is equal to aggregate supply at equilibrium, so

$$AD = Y = C + I + G + NX \text{ -------------------------}(2)$$

Where C = Consumption, I = Investment, G = Government spending and NX is net export.

The simple Keynes model assumes that investment, government spending and net export are autonomous while consumption function is given below;

$$C = a + bY \text{ -------------------------}(3)$$

Where a is autonomous consumption and b is marginal propensity to consume (MPC)[3].
Therefore, the final demand function by putting consumption values in equation in 2, we get
the following simplified equation.

$$Y = \bar{A} + b(1\text{-}t)Y \text{--------------------}(4)$$

Where $\bar{A} = a + \bar{I} + \bar{G} + NX$

$$Y = \frac{\bar{A}}{1 - b\,(1-t)} = k\bar{A} \text{----------------} \quad (5)$$

K is multiplier. Thus, the equation 5 implies that any change in autonomous spending has
multiplies effect on nominal GDP. If government spending rises it will increase nominal GDP
by k multiplied by change in government spending.

On the other hand, the objective of generating growth activities could be achieved if
expansionary monetary policy is used rather than fiscal policy. Friedman (1968) stressed that
at the time of recession, central bank may reduce interest rate to increase money supply; it
will expand the credit limit of the commercial banks to lend the money to private sector. The
private sector is encouraged because of low interest rate and they borrow more money to
invest resulting capital accumulation, creating additional demand and bring the economy on
the developing track. Similarly, at the time of peak, tight monetary policy would be used
either reduced money supply or increase interest rate to control expected inflation rather than
raise taxes. Because if taxes are raised to stabilize the economy; they would raise further
inflation rather than curtail it. Although, government expenditure and money supply have
positive effect on nominal GDP but monetary variables effect is larger in magnitude than
fiscal variables while taxes are inversely related to nominal GDP.

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[3] Keynes stated that MPC + MPC = 1 or MPC = 1 – MPS. People either consume or save out of total income.

The classical economists stated that money is neutral in nature and explained the mechanism how nominal money supply effects nominal GDP by equation of exchange[4]. Fisher (1911) developed quantity theory of money to stress that an increase in money supply changes only price level. The basic equation is given as under;

$$MV = PY \text{------------------------}(6)$$

Where M is nominal money, V is velocity of money, assumed constant over time, P is price level and Y is real output. Prominent economists including Marshal and Pigou developed Cambridge version of quantity theory of money[5] but Keynes (1936) criticized quantity theory of money on three basic grounds. First, at full employment level in long run prices would not be flexible. Second, in short run, prices are rigid and would not change in short run and third velocity of money is not constant. Friedman (1956) overcame this criticism and presented new version of quantity theory of money. The argued that a stable relationship between money supply and nominal income existed, second, the prime caused of changes in nominal income is money supply. They further explained that money is an exogenous variable under the assumption of stable private sector and velocity of money (V) is not constant and changes over time implies that demand is stable so velocity of money (V) is small. Thus, nominal money (M) stock is the key determinants of increasing nominal income (PY).

Money Supply (M) ↑ ---------------------- Nominal Income (PY) ↑

In addition, effectiveness of policy depends on its lagged time period to response. Besides that, there are some other controlling variables which may have significant effect on nominal

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[4] The original equation of exchange is MV = PQ where "Q is index of real expenditure (on newly produced goods and services)." Mills expanded the equation of exchange based on idea of David Hume and finally, Irving Fisher described it in algebraic form.

[5] They replaced money supply with money demand. They claimed that people kept some portion of money for speculation or uncertain future. So, they used k as real cash balances rather than V. Thus, M = k P Y

GDP such as export and inflation. Finally, the function of GDP including controlling and lagged variables could be written as;

$$Y = F(G_t, M_t, X_t, INF_t, G_{t-n}, M_{t-n}) \text{ ----------------------------------- (7)}$$

Where X_t = Export, INF_t = Inflation, G_{t-n} and M_{t-n} are time lagged.

5.2 Methodology

5.2.1 Data and Measurement of Variables:

The Study is conducted to estimate impact of fiscal and monetary policies on nominal GDP for the period of 1972-2013 using modified St. Louis model including lagged variables. The time series data will be used for estimation process.

5.2.1.1 Data Sources:

- State Bank of Pakistan

- Economic Survey of Pakistan

- Pakistan Bureau of Statistics

- World Development Indicators (WDI)

5.2.1.2 Measurement of Variables:

Nominal GDP is a dependant variable while Government expenditure and money supply will be used as policy variables and export and inflation are for controlling variables.

- There are several ways by which output (GDP) can be measured such as real GDP and Nominal GDP. The nominal GDP is used for estimation purpose.

- There are two policy instruments for fiscal policy. Government expenditure and tax revenue. The present study will use government spending to investigate policy impact on output level.

- Real interest rate and money supply variable are used as policy variable of monetary policy. Money supply (Broad money M2) is taken as a policy instrument variable of monetary policy.

- Total export is incorporated to capture the influence of external sector on nominal GDP.

- There are different measures of inflation such as GDP deflator, Producer Price index and consumer price index. The present study will take change in consumer price index (CPI) as measure of inflation.

5.3 Econometric Model

There are number of explanatory variables that can significantly affect the GDP. The study used St. Louis model to investigate the impact of government expenditure, money supply and taxes on nominal GDP. Anderson and Jordon (1968) developed St. Louis model to investigate effectiveness of the fiscal and monetary policies to determine level of nominal GDP. The St. Louis equation is given as follows;

$$\Delta Y_t = \alpha + \beta \Sigma \Delta M_{t-i} + \gamma \Sigma \Delta G_{t-i} + \varepsilon_t \text{ ------------------------------- (8)}$$

Where Yt is Nominal GDP, Gt is government spending, Mt is money Supply (M2) and ε_t is error term and expected sign of parameters are $\beta > 0, \gamma > 0$

The St. Louis model was extensively used in empirical research to estimate causal relationship among government expenditure, money supply and nominal GDP (Vafa Moayedi, 2013, King and Wolmen, 1996). However, the St. Louis was criticized by many economists based on two main criticisms. First, it neglected many important exogenous variables resulting omitted variable bias. Second, it has simultaneity among the variables. So, OLS estimators could not be reliable. DeLeeuw and Kalchbrenner (1969) pointed out that the

St. Louis equation has endogeneity problem. The variable of fiscal policy is not exogenous but endogenously determined; therefore, the estimated model provided biased and inconsistent estimators. Blinder and Solow (1974) and Modigliani and Ando(1976) criticized St. Louis equation that the basic St. Louis equation has misspecified model and lacking some crucial variables. Therefore, it has specification bias problem. Ahmed and Johannnes (1984) tested the endogeneity and lag restriction imposed in St. Louis equation and concluded that the St. Louis equation has not only endogeneity problem but also other restriction could not be rejected at high level of confidence. Stein (1984) critically analyzed the St. Louis equation to examine whether the model has any upward or downward biases. He found both upward and downward biases for monetary and fiscal instruments whether interest rate was fixed or changed over time and concluded that the estimators obtained by St. Louis equation are biased and inconsistent. Thus, the estimated results of St. Louis equation are not reliable.

The observations rose on St. Louis equation taking into account and rectified by different prominent economists. Carlson (1978) pointed out that the problem of heterogeneity could be solved by using rate of change of variables in St. Louis equation rather than first difference approach. Batten and Thornton(1986) reviewed the critics on Anderson-Jordan St. Louis model and with empirical concluded that St. Louis model is one of the robust equation in research for estimating Fiscal and monetary impact on output using Ramsey Reset test for omitted variable case and Granger causality test for simultaneity. Layson and Seaks (1984) designed study to investigate whether the first difference or rate of change approach was the correct functional form for estimating relative impact of fiscal and monetary policies on output using maximum likelihood techniques. They concluded that the first difference approach proposed by Anderson and Jordon (1968) was correct functional form for estimating St. Louis equation. Further, Batten and Hafer (1983) overcome the criticism and

modified the St. Louis model by incorporating important variables such as net export as controlling variables. The modified St. Louis equation is as under;

$$\Delta Y_t = \alpha + \beta \Sigma \Delta M_{t-1} + \gamma \Sigma \Delta G_{t-1} + \delta_1 \Sigma \Delta INF_{t-1} + \delta_2 \Sigma \Delta X_{t-1} + \varepsilon t \text{ ----------------------- (9)}$$

-Where X_t is export and INF is inflation (rate of change in CPI). We expect that $\delta_1 > 0$, $\delta_2 > 0$

It is a contradicting argument regarding effectiveness of both policies that first, fiscal policy is more effective than monetary during the period of recession while other one is monetary policy is more effective than fiscal policy during recession. The evidences suggested that the policy response depends on the nature of crises whether its origin is real sector or financial sector. It is witnessed that the financial sector crises frequently occurred and government intervention played key role to overcome these crises either by generating consumption demand or injection of money in capital market. While, when origin of crises is real sector then monetary authority used tight monetary policy to eliminate the crises. Therefore, the Keynesian or Monetarism policy response depends on the nature of crises. Thus, an interaction term of both policies with a dummy variable included to seek effectiveness of these policies in recession.

$$Y_t = \alpha + \beta \Sigma \Delta Mt - 1 + \gamma \Sigma \Delta Gt - 1 + \delta1 \Sigma \Delta INFt - 1 + \delta2 \Sigma \Delta Xt - 1 + \beta1 \Sigma \Delta Mt - 1$$
$$* D1 + \varepsilon t - - - - - (10)$$

Where, D1 is a dummy variable.

$$Y_t = \alpha + \beta \Sigma \Delta Mt - 1 + \gamma \Sigma \Delta Gt - 1 + \delta1 \Sigma \Delta INFt - 1 + \delta2 \Sigma \Delta Xt - 1 + \beta1 \Sigma \Delta Gt - 1$$
$$* D1 + \varepsilon t - - - - - (11)$$

The $\beta1$ estimates the interaction effect of both monetary and fiscal policy in equation 10 & 11. The equations 9, 10 and 11 will be used to investigate the impact of money supply, government expenditure and some controlling variables using Newey and West model on

nominal GDP for time series data for the period of 1972-2013 for Pakistan.

The proposed study conducted to explore the relationship among nominal GDP, monetary and fiscal policy taking time series data. The key issue with time series data is the present of serial correlation;

$$Cov\ (u_t, u_{t-i}) \neq 0\text{------------------}\ (12)$$

The Newey and West (1987) developed multivariate linear regression model to overcome the problem of serial correlation and hetroskedasticity for time series analysis. Therefore, the Newey and West techniques would be used for estimation of equation 9, 10 & 11. Another advantage of estimating equation 9, 10 & 11 using Newey and West techniques is that the standard errors obtained by the Newey-West test are robust. It implies that the Newey and West test not only minimize the serial correlation but also is a good remedy to overcome the problem of hetroskedasticity.

5.4 Empirical Evidences:

The country has dismal growth performance for last eight years causing unemployment, poverty and income distribution crises. The debate on fiscal and monetary debate for accelerating economic development process is a long history; however, in case of the developing countries, there were limited research to investigate the policy impact on expanding economic activities, generating employment opportunities and alleviating poverty. Therefore, the present study conducted to analysis the likely impact of both fiscal and monetary policy on nominal GDP. Newey and West test is used for the time series data covering period of 1972-2013.

There are two different way to analysis the results, first, impact of fiscal and monetary policy will be examined for upto two lagged without incorporating interaction term capturing policy

effect in recession then an interaction term would be included to seek the effectiveness of these policies on nominal GDP in recession. A dummy variable taking value 1 if there is recession and zero otherwise is created for proposed study. The average growth of the country for last 40 years is 5.1% with boom and trough, therefore, if growth rate is less than 5.1% the dummy variable would take value of 1 and 0 otherwise.

The empirical evidences are provided in Table 1. The equation 1 estimated using one lag government expenditure, money supply controlling variables, whereas, equation has two lagged period for these variable, while, detail STATA output is at annex 1 & 2 respectively.

Table 1: Effect of Fiscal and Monetary Policies on Nominal GDP

Variables	Equation 1	Equation 2
ΔG_{t-1}	2.985	0.56
	(2.85)*	-0.71
ΔM_{t-1}	1.508	1.106
	(2.07)**	(1.76)***
ΔX_{t-1}	-0.661	-2.084
	(-0.40)	(-1.46)
ΔINF_{t-1}	-4.887	-3.65
	(-0.57)	(-0.30)
Constant	17.763	-37.38
	(-0.4)	(-0.89)
ΔG_{t-2}	---	0.445
		-0.82
ΔM_{t-2}	---	3.33
		(4.91)*
ΔX_{t-2}	---	-0.299
		(-0.45)
ΔINF_{t-2}	---	-15.914
		(-1.12)

t values are in parentheses,
* Significant at 1%, level
** Significant at 5% level
*** Significant at 10%

The estimation process is as under; first difference lag (1) is estimated and results are summarized in Table 1. The St. Louis model was used to investigate the impact of fiscal and monetary policies on nominal GDP incorporating controlling variable. The results reflected

that fiscal variable not only has significant effect on nominal GDP but also larger relative effect on nominal GDP. It may be likely under assumption of dictatorship regime. The political scenario witnessed that democratic regime could not sustain and most of the time there is dictatorship during these period. Under dictatorship regime, monetary policy role was limited and we observed a tight monetary policy resulting high interest rate. Further, there are some other reasons of dominant fiscal effect on nominal GDP. The country has been suffering severe recession for last decade resulting high unemployment, extreme poverty & inequality and collapse of socioeconomic system. It is estimated that violence has been increased due to significant rising in unemployment level. The dependency ratio for household is six (6) people per house indicated that a sharp rising in unemployment causes to reduce private consumption with a huge amount. Therefore, rising government expenditure may have to fulfill the demand-supply gap and accelerate economic activities. Second, government started some welfare program and directly transfers cash to extreme poor to eradicate poverty. An argument regarding government consumption was overheated in 80s, called Ricardian Equivalence. The results also confirmed non- existence of Ricardian Equivalence.

The Money supply confirmed that an increase in nominal money would lead higher level of money GDP based on quantity theory of money. However, it is observed that the relative effect of money supply is less than government expenditure. The justification of less impact of monetary policy is that the country had dictatorship for almost 20 years in two different periods late 70s and late 90s. it is observed that dictatorship controlled power so there is no independent monetary policy as well as the data revealed that government budgetary borrowing consists of 50 to 55% of M2 limiting the monetary policy role. In addition, most of the developing countries' money market is not fully liberalized. Further, the study does not find any significant impact of inflation and export at one period lagged. The behavior of

inflation indicated that the sources of inflation is supply driven, the country is oil imported country any change in World oil prices may cause fluctuation in commodity prices. Besides that, the export of the country for last few years are stagnant and does not show any improvement regardless whether economy is expanding or contracting.

The estimated results of equation 2 depicted that government expenditure has no effect on nominal GDP for two period lagged while money supply has dominant relative effect. It implies that fiscal policy has quick and immediate response to stimulate the economic activities while monetary policy needs longer time framework to stimulate the economy. It is worth mentioning that both inflation and export variables are insignificant. The composition of export of Pakistan indicated that textile sector has 55% share in total export and leather sector contributes 20% share in total export. It is witnessed that manufacturing and engineering contribution in total export is less than 15% suggesting that the country needs to break the vicious circle of export thorough diversify the export.

There past evidences suggested that at the time of recession, the policy response depends on the nature of crises whether there is animal spirit or real sector shocks. Therefore, the present study would use an interaction term to estimate relative effectiveness of both policies in recession. The dummy variable taking value 1 if GDP growth is more than 5% and zero otherwise. The benchmark of 5% is taken based on 40 years average growth of nominal GDP. The results are summarized in table 2 as under;

Table 2: Effect of Fiscal and Monetary Policies on Nominal GDP in Recession

Variables	Equation 1	Equation 2
ΔG_t	0.909	1.095
	(4.12)*	(4.47)*
ΔM_t	-0.162	-0.208
	(-1.12)	(-1.12)
ΔX_t	4.645	4.758
	(16.94)*	(19.21)*
ΔINF_t	2.227	1.606
	-0.61	-0.51
Constant	-32.593	-24.763
	(-1.53)	(-1.15)
ΔG_{t-1}	1.035	1.269
	(2.43)*	(2.64)*
ΔM_{t-1}	-0.845	-0.982
	(-4.5)*	(-4.75)*
ΔX_{t-1}	1.572	1.738
	(2.34)*	(2.58)*
ΔINF_{t-1}	-3.286	-4.357
	(-0.70)	(-0.90)
ΔG_{t-2}	0.63	0.739
	(4.70)*	(4.29)*
ΔM_{t-2}	1.205	0.999
	(1.95)**	-1.55
ΔX_{t-2}	-2.284	-2.429
	(-5.53)	(-5.20)*
ΔINF_{t-2}	-8.017	-8.256
	(-0.11)	(-1.08)
$\Delta G_{t-1} * D$	0.273	---
	(2.91)*	
$\Delta M_{t-1} * D$	---	0.126
		(3.41)*

t values are in parentheses,
* Significant at 1%, level
** Significant at 5% level
*** Significant at 10%

The results reflected in equation 3 that the interaction term is significant and confirmed the Keynesian theory of effective demand. The basic idea of effective demand is that in the recession, government may create effective demand through increasing its expenditure. This expenditure would generate employment opportunities, rising income of people so that they may demand for more goods and services resulting multiplier effect in the economy. Similarly, the interaction term of money supply in equation 4 is statistically significant, however, the coefficient of money supply reveals a negative sign, there is a possibility of

multicolinearity or it may be likely that expansionary monetary policy may hinder economic growth.

There are two important conclusions, first, the relative impact of monetary policy (0.126) in recession is less than fiscal policy (0.273), once again confirmed that fiscal policy is more effective. Second, there is a gap between aggregate demand and aggregate supply. The aggregate supply is greater than aggregate demand; it implies that fiscal policy could be used to bridge this gap. The basic Keynesian identity states that government spending is a part of aggregate demand and currently, the country has low private consumption and stagnant aggregate demand, in such circumstances, government has to intervene in the market to generate effective demand to stimulate the economy.

The estimated results suggested that the source of recession is low level of aggregate demand, it is justified on the ground that the country has high unemployment, poverty and low investment for last few years. Therefore, fiscal policy is relatively more effective than monetary policy whether there is recession or no recession.

Chapter 6:

Conclusion and Policy Implications

6.1 Conclusion/Recommendations:

The Country shows dismal performance for last one decade, although the post 2000s era witnessed revival of the economy and recorded tremendous growth performances. The trajectory of growth revealed that the average growth rate during 2000 to 2007 was 6.6% suddenly slump to less than 4% since 2008. The stagnant growth during 2008 to 2013 observed due to massive depreciation of rupees against dollar, high interest rate, austerities measure to curtail fiscal deficit and less demand in global economy because of global financial crises. Further, the comparison of regional growth performances indicated that the country has sluggish growth in the region and downward potential line trend. The consistent downward growth trends of GDP is a serious concerned for the policy makers. Despite several policy measures have been taken to bring the economy on development track, the country grew less than 4% for last seven years. On the other hand, it is estimated that the country needs to grow more than 7% on a sustainable basis for the long period to accommodate the massive population adding in labor force. Therefore, the choice of policy is burning issue not only in developed World but also in developing World.

The debate on whether monetary or fiscal policy is imperative is one of the overheated issues in literature. In 1929, the World economy especially, US economy hit by a severe crises started from crashing the stock market followed by a wave of banking failure resulted a prolong and deep recession for almost 3 years. The GDP fell down by 30% and unemployment rose by 25% in the US economy. The Keynes argued that during the period of recession, it is the role of government to create effective demand to stimulate the economic

activities. The global economy revived and performed outstanding after post World War-ll. On the other hand, the stagflation in 70s witnessed failure of fiscal policy to restore the World economy from recession. In response to stagflation, Friedman earlier (1968) argued that Federal Reserve Bank was the responsible of great depression because it reduced money supply during the period of recession. He further stated that inflation is the monetary phenomenon and asserted that monetary policy is still the key factor to determine economic activities rather than fiscal policy.

The present study is design to investigate relative effectiveness of both policies on nominal GDP for the period of 1972-2013 for Pakistan. The empirical findings suggested that although both policies have significant effect on nominal GDP but in relative terms, the fiscal has dominants effect over monetary policy in one period lagged. It may be likely because there was dictatorship regime for almost 20 years. The dictatorship centralized the economy and central bank cannot use independent monetary policy. Further, there are some other reasons of fiscal dominancy over monetary, first, private consumption have been fell down owning to lack of job opportunities and high unemployment, therefore, aggregate demand was shrink, thus, government consumption may fulfill this demand supply gap. Second, the huge governments spending on poverty reduction programs may have generate economic activities. Third, 50 to 55% of M2 was borrowed by government for their budgetary support and the money market structure in the country is not well function and liberalized. Therefore, mechanism of monetary policy to influence in nominal GDP is weak.

We also analyzed the response of both policies in recession using dummy variable. The interaction term was included in the St. Louis equation to capture policy response of both policies during the period of recession on nominal GDP. The evidences confirmed effective demand theory because relative effect of fiscal policy during the time of recession is higher than monetary policy. We observed that there is lack of aggregate demand causing downward

pressure on nominal GDP. Therefore, government has to rise their spending to accelerate economy through multiplier effect.

Although, our findings indicated that relative effect of fiscal policy is greater as compared to monetary policy, however, there are some limitations. First, we take the data of government spending as a whole; the results may likely to be more accurate if development expenditure is used for an instrument of fiscal policy. Second, the data on Money Supply (M2) divulged that 50 to 55% share of M2 consisted of budgetary support which limited the monetary policy effect. Third, external sector had insignificant effect due to sluggish export for last few years. It is therefore suggested to seek the impact of both fiscal and monetary policy on export.

Despite, some limitations, we used Newey and West method to estimate the St. Louis equation for nominal GDP, government spending, monetary policy inflation and export. The privilege of this econometric model is that it minimizes the likely chances of serial correlation and provides consistent standard errors. Therefore, the methodology used in proposed study is sound and results are unbiased and consistent for future policy recommendations.

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Annexures

Table 1:

```
Regression with Newey-West standard errors        Number of obs  =        4
> 0
maximum lag: 1                                    F(  4,   35) =     32.2
> 8
                                                  Prob > F       =   0.000
> 0
```

y1	Newey-West Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
g2	2.984541	1.048192	2.85	0.007	.8565969	5.11248
m2	1.507747	.7296643	2.07	0.046	.0264499	2.98904
x2	-.6607748	1.65658	-0.40	0.692	-4.02381	2.70226
Inf2	-4.886912	8.52549	-0.57	0.570	-22.19458	12.4207
_cons	17.76278	44.94679	0.40	0.695	-73.48406	109.009

Table 2:

```
Regression with Newey-West standard errors        Number of obs  =        3
> 9
maximum lag: 2                                    F(  8,   30) =     91.7
> 3
                                                  Prob > F       =   0.000
> 0
```

y1	Newey-West Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
g2	.5998734	.8502965	0.71	0.486	-1.136664	2.33641
m2	1.106414	.627191	1.76	0.088	-.1744809	2.38730
x2	-2.048724	1.405717	-1.46	0.155	-4.919582	.822133
Inf2	-3.650387	12.04346	-0.30	0.764	-28.24642	20.9456
g3	.4447064	.5424975	0.82	0.419	-.6632213	1.55263
m3	2.3296	.4741908	4.91	0.000	1.361173	3.29802
x3	-.298869	.6680675	-0.45	0.658	-1.663245	1.06550
Inf3	-15.91475	14.19524	-1.12	0.271	-44.9053	13.0757
_cons	-37.38833	41.87517	-0.89	0.379	-122.9088	48.1321

Table 3:

```
Regression with Newey-West standard errors        Number of obs  =        39
maximum lag: 2                                     F( 13,   25)  =   2016.99
                                                   Prob > F      =    0.0000

                           Newey-West
         y1      Coef.     Std. Err.      t     P>|t|     [95% Conf. Interval]

         g1    .9486764    .2305276     4.12   0.000     .473896    1.423457
         m1   -.1621113    .2113045    -0.77   0.450    -.5973011    .2730785
         x1    4.645843    .2741853    16.94   0.000    4.081148    5.210539
       Inf1    2.226559    3.662226     0.61   0.549   -5.315937    9.769054
         g2    1.035459    .4256241     2.43   0.022     .1588699   1.912048
         m2   -.8450666     .19444     -4.35   0.000   -1.245523   -.4446098
         x2    1.572984    .6707928     2.34   0.027     .1914601   2.954507
       Inf2   -3.285873    4.660937    -0.70   0.487   -12.88525    6.313507
         g3    .6295722    .1545508     4.07   0.000     .3112688    .9478755
         m3    1.204878    .6169523     1.95   0.062    -.065759    2.475515
         x3   -2.283522     .413059    -5.53   0.000   -3.134233   -1.432811
       Inf3   -8.017173    7.662613    -1.05   0.305   -23.79862    7.764275
         GD    .2725861     .093567     2.91   0.007     .0798813    .4652909
      _cons   -32.59329    21.35252    -1.53   0.139   -76.56963   11.38305
```

Table 4:

```
Regression with Newey-West standard errors        Number of obs  =        39
maximum lag: 2                                     F( 13,   25)  =   1754.05
                                                   Prob > F      =    0.0000

                           Newey-West
         y1      Coef.     Std. Err.      t     P>|t|     [95% Conf. Interval]

         g1    1.094902    .2452147     4.47   0.000     .589873    1.599931
         m1   -.2078556    .1858716    -1.12   0.274    -.5906653    .174954
         x1    4.758405    .2476643    19.21   0.000    4.248331    5.268479
       Inf1    1.606256    3.175331     0.51   0.617   -4.933461    8.145972
         g2    1.269357    .4804521     2.64   0.014     .2798477   2.258867
         m2   -.9822916     .206932    -4.75   0.000   -1.408476   -.5561072
         x2    1.731008    .6716488     2.58   0.016     .3477216   3.114295
       Inf2   -4.357705    4.833885    -0.90   0.376   -14.31328    5.597867
         g3    .7388535    .1722362     4.29   0.000     .3841264   1.093581
         m3    .9999095    .6449021     1.55   0.134    -.3282913    2.32811
         x3   -2.429163    .4671564    -5.20   0.000    -3.39129   -1.467036
       Inf3   -8.256311    7.644135    -1.08   0.290    -23.9997    7.487079
         MD    .1256656    .0368033     3.41   0.002     .0498678    .2014633
      _cons   -24.76284    21.47164    -1.15   0.260    -68.9845   19.45883
```

List of Variables

Variable	Define
Y1	**Difference of Nominal GDP (Yt – Yt-1)**
G1	Difference of Government Spending (Gt-Gt-1)
M1	Difference of Money Supply (Mt-Mt-1)
X1	Difference of Export (Xt-Xt-1)
Inf1	Difference of Inflation(Inft-Inft-1)
G2	Lag(1) of G1
M2	Lag(1) of M1
X2	Lag (1) of X1
Inf2	Lag (1) of Inf
G3	Lag(2) of G1
M3	Lag (2) of M1
X3	Lag (2) of X1
Inf3	Lag (2) of Inf
GD	Interaction term (Δ Gt-1 *D)
MD	Interaction term (ΔMt-1 *D)