

Effect of Aggregate Demand and Supply Shocks on Output and Inflation Rate in Pakistan

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Abstract

This study investigates the Effect of Aggregate Demand and Supply Shocks on Output and Inflation Rate in Pakistan. Data were collected from various secondary sources , ie. Annual reports, magazines and newspapers. Quah approach The place aggravator interest Also aggravator supply shocks would not associated. Those impact. of identified shocks is then estimated on GDP and inflation rate. Data of GDP and general price level for Pakistan economy over the period 1974 to 2012 have been used for the purpose. Results show that positive supply shock has positive effect on GDP while negative on prices. On the other hand aggregate demand shocks positively affect prices but the effect on aggregate demand is negative. The negative response of economic activity to aggregate demand shock may be due to the “Expansionary Fiscal Contraction”.

Keywords: Aggregate Demand, Inflation Rate , Supply Shocks

Introduction

This investigation will be over those planning What's more actualizing those macroeconomic policies; it will be vital When making any financial approach should recognize those Different macroeconomic shocks Also their effects on the economy. It is critical should observe Also reassessment of the traditional convictions over the macroeconomic shocks Furthermore current investment unsteadiness Also these shock assumes the essential part in the economy. This paper investigates the macroeconomic shocks in the Pakistan using the Blanchard and Quah (1989) approach where aggregate demand and aggregate supply shocks are uncorrelated.. In the wake of current global recession, this study has important policy implications because Pakistan is not independent of these shocks. The origin of the recession mostly starts from the adverse Aggregate Demand shocks and more effective, If at initial stage, demand shocks create the supply shocks and influence indirectly on the aggregate supply curve then the economy may go into long lasting recession.

Literature Review

Bashar's (2012) contemplate is on the ID number for aggravator supply and aggravator interest shocks in the asean economies. Inside the bivariate var structural model Gave that aggravator interest Also aggravator supply shocks need aid emphatically corresponded clinched alongside Malaysia, Thailand, philippines and singapore. Study demonstrates done these nations aggravator supply and aggravator request would minor associated. In asean nations aggravator interest shocks influence the yield broadly and supply shocks influence the expansion in same bearing On these nations on both Possibly long run or short-run. The study demonstrates that shocks need aid transmitted starting with interest shocks of the supply shocks.. The findings of paper shows in these countries that shift in the demand curve have induced the long run supply curve to shift. On the side studies shows that by using BQ technique that let aggregate demand and The correlation of AS & AD shows the current recession impacts the when there will be the recession there will be higher unemployment and lower will be the output permanently if no policy is taken. Here paper suggests that expansionary fiscal policy will be useful here beyond the contraction to the convencational belief. Supply side policies are of equal importance to combat the inflation. The most important finding is that the ASEAN countries are not in position to form a common currency.

Hartly at all (2003) in this paper they have used method of movements to estimate the fluctuations in five European economies. They have studied that these fluctuations are predominant in the post war era or which

nature these shocks possess either permanent or temporary they are. The study includes the components of permanent and temporary shocks. The five European economies including the USA shows those aggregate demand fluctuations are dominant to affect the output of these economies. The effect is of permanent demand shocks out of six countries towards the output growth. The aggregate demand shocks affect up to 70 to 80% to output growth in largest European countries including the United States of America. The supply shocks have widely effect on the inflation variance and play an important role in the convergence of output path. The temporary shocks have minor effect on the variance of inflation and output growth in most countries it affects up to 5% only so its impact is eligible.

Dutt and Ros (2007) have studies about the behavior of aggregate demand and its impacts on the economic growth. Traditional view is that aggregate demand has the transitory impacts on normal output. The studies shows here that large aggregate demand shocks may cause the permanent impacts on the economic growth even though economy converges to the normal path. When there are higher aggregate demand shocks then economy may not converge normal and then monetary and fiscal policies are effective in long run on output and economic growth.

Methodology and Data

We are making the analysis of Aggregate Supply and Aggregate Demand shocks in case of Pakistan. Theoretical model is based on the aggregate supply and aggregate demand shocks and their responsiveness to the Pakistan's economy. The variables included in the analysis are real GDP, and inflation rate (CPI). The consideration includes the analysis on correlation between these two shocks and their separate impulse response to the economy. The analysis for separate shocks of the Blanch and Quah approach has been introduced in which VAR has been used to identify these shocks separately.

e for example, the time series Y_t that is the affected by current and past values of x_t and, simultaneously, the time series x_t to be a series that is the affected by current and past values of y_t series.

In this case the simple bivariate model is given by;

$$Y_t = \beta_{10} - \beta_{12}X_t + \gamma_{11}Y_{t-1} + \gamma_{12}X_{t-1} + u_{yt}$$

$$X_t = \beta_{20} - \beta_{21}Y_t + \gamma_{21}Y_{t-1} + \gamma_{22}X_{t-1} + u_{xt}$$

Where we assume that both Y_t and X_t are stationary, u_{yt} and u_{xt} are uncorrelated white-noise error terms. Above both equation are in first order VAR model, because longest lag length is unity. These equations are not reduced form equations, since Y_t has a contemporaneous effect on x_t (β_{21}) and Y_t has contemporaneous impact on the Y_t (β_{12}). The above system of equation can be re-write by using the matrix algebra, we get:

$$\begin{bmatrix} 1 & \beta_{12} \\ \beta_{21} & 1 \end{bmatrix} \begin{bmatrix} Y_t \\ X_t \end{bmatrix} = \begin{bmatrix} \beta_{10} \\ \beta_{20} \end{bmatrix} + \begin{bmatrix} \gamma_{11} & \gamma_{12} \\ \gamma_{21} & \gamma_{22} \end{bmatrix} \begin{bmatrix} Y_{t-1} \\ X_{t-1} \end{bmatrix} + \begin{bmatrix} u_{yt} \\ u_{xt} \end{bmatrix}$$

Or

$$Bz_t = \Gamma_0 + \Gamma_1 z_{t-1} + u_t$$

$$B = \begin{bmatrix} 1 & \beta_{12} \\ \beta_{21} & 1 \end{bmatrix}$$

$$Z_t = \begin{bmatrix} Y_t \\ X_t \end{bmatrix}$$

$$r_0 = \begin{bmatrix} \beta_{10} \\ \beta_{20} \end{bmatrix}$$

$$r_1 = \begin{bmatrix} \gamma_{11} & \gamma_{12} \\ \gamma_{21} & \gamma_{22} \end{bmatrix} \text{ and}$$

$$u_t = \begin{bmatrix} u_{yt} \\ u_{xt} \end{bmatrix}$$

Multiplying the both sides by B^{-1} we obtain:

$$Z_t = A_0 + A_1 z_{t-1} + e_t$$

$$\text{Where } A_0 = B^{-1} r_0, A_1 = B^{-1} r_1 \text{ and } e_t = B^{-1} u_t.$$

For the reason for notational determination we could mean Concerning illustration aio the ith component of the vector A_0 ; a_{ij} those component done column i and section j of the grid A_1 ; What's more e_{it} as the i th component of the vector e_t . Utilizing this we might rework those var model as: $Y_t = a_{10} + a_{11}y_{t-1} + a_{12}x_{t-1} + e_{1t}$. $X_t = a_{20} + a_{21}y_{t-1} + a_{22}x_{t-1} + e_{2t}$. The distinction the middle of those first var model and the framework simply we need obtained, we bring those to start with a structural var system, Also second the var in the standard alternately in the decreased structure. In the new var model it is paramount to note that the new slip terms e_{1t} and e_{2t} , are composite from claiming two shocks u_{xt} Furthermore u_{yt} . Since $e_t = B^{-1}u_t$ we could get e_{1t} Furthermore e_{2t} as: $E_{1t} = (u_{yt} + \beta_{12}u_{xt}) / (1 - \beta_{12}\beta_{21})$. $E_{2t} = (u_{xt} + \beta_{21}u_{yt}) / (1 - \beta_{12}\beta_{21})$. Since u_{yt} Furthermore u_{xt} are white-noise courses it takes after that both e_{1t} Furthermore e_{2t} are Additionally white-noise methods. Favorable circumstances & Hindrances. The var model methodology need A percentage thick, as useful aspects.

It may be verwoerd straightforward the econometrician doesn't must stress regarding which variable would endogenous or exogenous.

Estimation will be Additionally extremely simple, in the sense that each mathematical statement might make assessed independently for those ordinary ols technique.

Var model forecasts need aid By and large superior to the individuals acquired starting with those a wide margin All the more complex concurrent mathematical statement.

Disadvantages: With respect to person side var model bring points of interest around different side it need confronted extreme feedback again Different focuses. 4.3 Data Description

The research paper is based on the analysis of macroeconomic policies and their behavior in case of Pakistan. We have analyzed the case study in the SVAR model for Pakistan which is the most important country in the south Asia region. The variables are given in the model are given below;

dly = shows the growth rate of real GDP ,the data has taken annually . This variable in the model has defined as $dly = 100[\ln(y_t) - \ln(y_{t-1})]$, where y represents the real GDP which has the base volume (2000 = 100).

The data is the annually and sample has been taken from the 1974 to 2012. The main source of data is the International Financial Statistics (IFS). Augmented Dickey-Fuller (ADF) (table is given below) unit root test has been applied on the variables, growth rate of GDP and on inflation to check the stationarity of data; here result shows that null hypothesis cannot be rejected for these both variables. The data found stationary on the first difference of the relevant variables. It was necessary to induce the stationarity, due to that we have used the

first difference forms of growth rate of GDP and the inflation rate in the VAR lag orders which has been used in the estimating model, on these lag orders have to decide by analyzing the estimated model information. The criteria results are as usual suggesting lag orders. The results of these tests show that Akaike information criterion (AIC) included the largest lag orders whereas Shwarz criterion (SC) has shortest lag orders in it. We have selected the lowest lags on the basis of suggested specification by different criteria that ensure the property of “serially uncorrelated errors”.

Empirical Findings

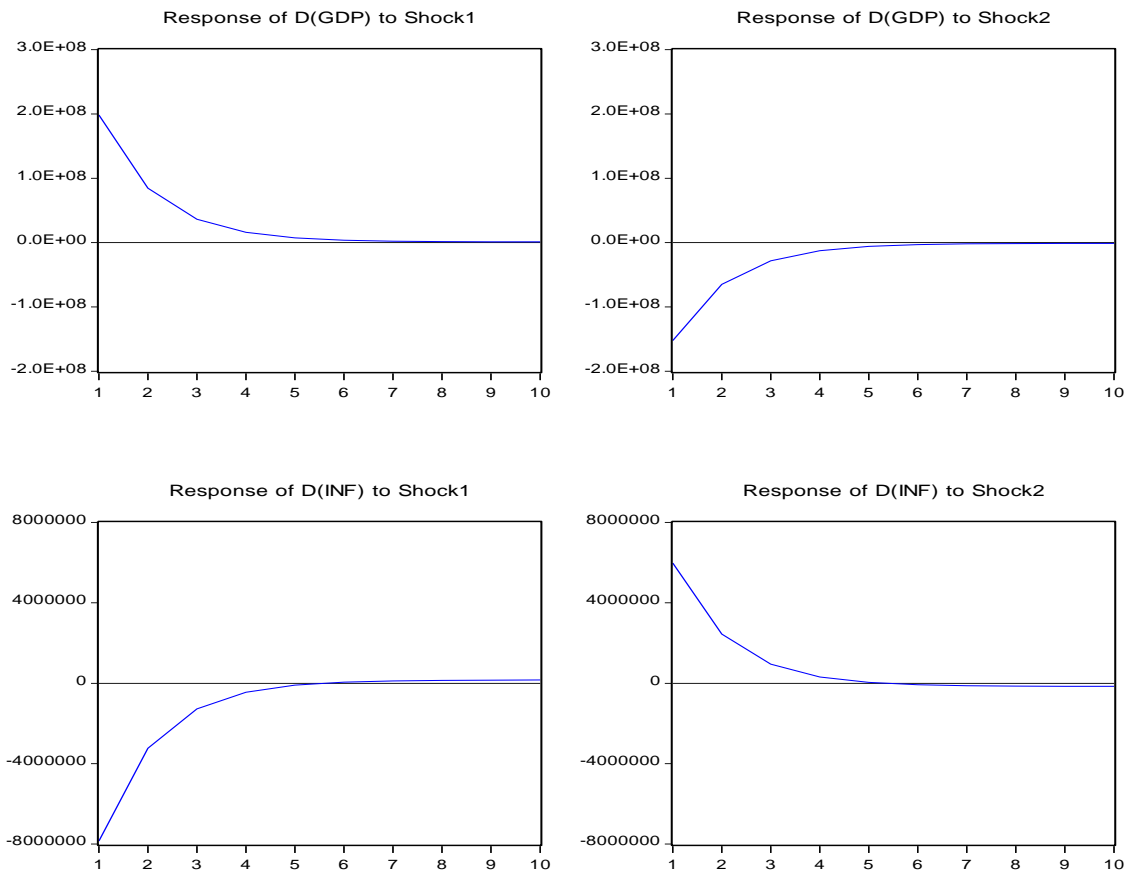
For the analysis we have used SVAR approach proposed by Blanchard and Quah. The first requirement of the VAR model is that variables must be stationary and the requirement for BQ methodology is that one of the variables in the VAR should include permanent component in it. So first of all we have used ADF test to check the stationarity of the variables.

5.1 Unit Root test Results:

Variable	Level		First difference	
	ADF stats	Critical values	ADF stats	Critical values
Ln Inf	-2.891068	-2.938987	-6.726223	-2.941145
Ln GDP	-2.827011	-2.936942	-4.238657	-2.938987

We have tested the unit root test. Results obtained with 5% critical value are shown in the above table. If we see results on the level it seems that critical values are greater than the ADF which means that data is not stationary at the level of both variables real GDP and the inflation rate. To make the data stationary we have checked the values at the 1st difference which shows that calculated values are greater than the tabulated values which means that the data has become stationary at the 1st difference.

Response to Structural One S.D. Innovations



The results in this figure show the dynamic responses of the accumulated changes in output levels and inflation rates to the one time shocks in aggregate demand and aggregate supply. The impulse responses are estimated from the Structural VAR model based on the Blanchard- Quah decomposition. For each plot, the horizontal axis shows the time horizon, whereas the vertical axis shows the response of relevant variable. We consider the responses up to 10 years.

Conclusion

This study is related with the aggregate demand and supply shocks in the case of Pakistan. We have used the Blanchard and Quah (1989) technique for the analysis of these shocks; under this model aggregate demand shocks have temporary impact on the output level and that Aggregate demand and Aggregate Supply shocks are uncorrelated with each other. The negative response of economic activity to aggregate demand shock may be due to the “Expansionary Fiscal Contraction”. The policy suggests that government needs to be conscious about the economic affairs in the real terms and decrease the non-developing expenditures which in long run will increase the national savings which will increase investment and in result there will be reduction in the fiscal deficit , which leads to no “Fiscal Expansionary Contraction” and in result economic growth will increase.

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