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Analysis of the transmission Channel of Monetary policy in India

Shivangi Yadav[1]
Centre for Economics Studies and Planning, School of Social Science
Jawaharlal Nehru University
PhD scholar

Satyendra Kumar[2]
Centre for Economics Studies and Planning, School of Social Science
Jawaharlal Nehru University
PhD scholar

Abstract

This paper examines the significance of monetary policy, particularly the repo rate, in influencing bank credit lending to the non-priority sector and analyses the impact of the repo rate on key macroeconomic variables such as Real GDP, Bank lending rate, Inflation, and Exchange rate using a Structural Vector Autoregression (SVAR) model. Our findings indicate that the credit channel, represented by consumer credit, plays a crucial role in elucidating the interactions among these macroeconomic variables. The other variables within the model significantly explain consumer credit and the interest rate. Additionally, the relationship between consumer credit and other macroeconomic variables is robust, as evidenced by the impulse response functions. The objective of a SVAR analysis is to explore the interrelationships among variables rather than estimate specific parameters, which are provided in the appendix of this paper.

Introduction

Bank credit is a vital macroeconomic variable that both drives and depends on economic activity. For bank credit to be effective, the transmission mechanism of monetary policy must be smooth and quick. Recently, monetary policy transmission has become a significant topic in India's financial sector due to the slow and partial transmission of the policy repo rate, set by the RBI, to bank lending rates. Despite the RBI lowering the policy repo rate by 110 basis points this calendar year, banks had only reduced their benchmark lending rate (MCLR) by 10-20 basis points up to the latest policy review in August 2019 (Reserve Bank of India, 2019; International Monetary Fund, 2019).

Furthermore, consumer credit has been understudied in macroeconomics. However, it is very important for financial stability as seen during 2008 global financial crisis. While the relationship between policy rates and corporate credit is well-documented, the interaction between the economy and consumer credit, provided to the domestic sector, is less understood (Bernanke, 2018; Mishkin, 2019). This study aims to empirically investigate the relevance of monetary policy in transmitting non-food credit in India using a Structural Vector Autoregressive Model (SVAR).

Additionally, it seeks to determine whether consumer credit is a reliable transmission channel for assessing the impact of interest rates on the economy by examining key macroeconomic variables such as Real GDP, Inflation, the average repo rate, Consumer Credit, and the Exchange rate (Sims, 1980; Kilian & Lütkepohl, 2017).

Using the SVAR model, the study will analyze whether shocks to these variables affect the economy contemporaneously. The Impulse Response Functions (IRF) will be used to understand how these variables respond to various economic shocks. This research will contribute to a deeper understanding of monetary policy transmission and the role of consumer credit in economic dynamics.

In section 2 of the paper, we describe about dataset, including the specification checks and identification restrictions applied to the structural VAR coefficients. In Section 3, the lag length is determined, and the impulse response functions are analyzed for each economic shock. This section also discusses the results of the Cholesky decomposition matrix. Finally, Section 4 provides the conclusion. The appendix contains detailed information on the nature of the data and the criteria used for selecting the lag length in the model.

Data and Methodology

We will analyse monetary policy of a small open economy like India with five endogenous variables: output (y), inflation (π), repo rates (r), exchange rate, and real consumer credit (η). The primary focus is to understand the short-run economic impacts of various shocks on key macroeconomic aggregates, particularly consumer credit and the repo rate. To achieve this, both unrestricted VAR and SVAR models are utilized. According to Sims (1986), the economist's role is primarily to recommend the appropriate variables for inclusion in the VAR model, after which the process becomes largely mechanical. Due to the limited economic input in a VAR, the resulting economic content is often minimal.

The structural VAR (SVAR) approach, however, aims to utilize economic theory rather than Cholesky decomposition to derive structural innovations from the residuals. This technique reformulates the macroeconomic model in terms of dynamic relationships between different structural disturbances, making it well-suited for studying the transmission mechanisms of shocks. Unlike the simple reduced-form VAR, which struggles with contemporaneous correlation in innovations, the SVAR method provides clearer insights into the true causal relationships between variables.

The economic interpretation of shocks in this study is based on the model by Stock and Watson (2002). Shocks to output (y), inflation (π), and repo rate (r) are designated as expenditure, aggregate supply-demand, and monetary policy shocks, respectively. This model is extended to include shocks to consumer credit and exchange rate. The identification problem, which involves recovering underlying structural parameters from the estimated reduced form, necessitates imposing $N^*(N-1)/2$ identifying restrictions for exact identification, where N is the number of endogenous variables. For this model with five variables, 10 restrictions are required.

To provide valuable context, the selection of consumer credit as a variable is particularly pertinent given its rising significance in economic stability and growth post the 2007-08 financial crisis (Mian & Sufi, 2014). Moreover, the exchange rate is included due to its critical role in open economies, affecting trade balances and capital flows (Obstfeld & Rogoff, 1995). This model is estimated using quarterly data from the RBI's Handbook, covering the period from Q1 2000 to Q4 2017. The robustness of the SVAR model is further enhanced by incorporating impulse response functions (IRF) to analyze the dynamic response of the system to various shocks, offering a comprehensive view of the transmission mechanisms in play.

The variables in this study are specified as follows: The GDP growth rate at constant prices is calculated year-over-year (y-o-y) by applying a natural log transformation and then computing the quarter-by-quarter difference. This same procedure is applied to the Wholesale Price Index (y-o-y, inflation), Non-food bank credit growth, and the Exchange rate. The repo rate is taken as the quarterly average. All variables are seasonally adjusted and found to be stationary at level; the test results are provided in the appendix of this paper.

The model does not take the first difference of non-stationary variables, based on the argument by Sims (1980) and Sims, Stock, and Watson (1990) that differing the data would discard the presence of co-integration. The goal of SVAR and VAR analyses is to determine the interrelationships among the variables rather than to estimate parameters. If a variable is integrated of order one (I (1)), it is advisable to include level variables in the model to preserve the co-integrating relationships.

Structural VAR Model

Economic models are constructed based on variables that influence the economy over specific time periods. In this study, I use a system of simultaneous linear equations to capture the dynamic relationships between endogenous and exogenous variables. The vector representation of this economic framework is as follows:

$B{*}X_t = \partial X_{t-1} + A{*}Y_t$ ……………………………….. (1)

Where X_t represents a vector of all endogenous variables which are in the model, and Yt represents a vector of all unobserved exogenous variables which affect the economy. B is a square matrix of structural parameters of contemporaneous endogenous variables, ∂ and is the nth degree matrix polynomial in the lag operators. B is the matrix of contemporaneous responses of endogenous variables to exogenous shocks.

The reduced form of the above equation is,

$X_t = B^{-1}\partial X_{t-1} + B^{-1}AY_t$ ………………………………………. (2)

Unobserved exogenous variables "$B^{-1}AY_t$" are commonly known as the error term, and $B^{-1}AY_t \sim$ N (0, S). Error term $e_t = B^{-1}AY_t$ contains two terms, unobserved exogenous shock variables and a square matrix of structural parameters of contemporaneous endogenous variables. Since all variables of the models are stationary at the level, the above model can easily be estimated. In standard SVAR model (2), total number of estimated parameters will be 55 (20 contemporaneous coefficients, 5 constant terms, 25 lag coefficients and 5 variance of error terms) whereas in reduced form model (2), total number of estimated parameters will be 45 (5 constant terms, 25 lag coefficients and 15 coefficients of variance-covariance matrix). Hence, system (1) is exactly identified by system (2) if exactly 10 parameters of the B matrix of SVAR are restricted. If more than 10 parameters of the B matrix of SVAR are restricted, the system is over-identified. If fewer than 10 parameters of the B matrix of SVAR are restricted, the system is underidentified. Therefore, this model is exactly identified.

Rationale of Restriction

All economic theory is based on assumptions. As Milton Friedman famously stated, "The art of successful theorising is to make the inevitable simplifying assumptions in such a way that the results are not very sensitive. A crucial assumption is the one on which the conclusions do depend sensitively" (Friedman, 1953). In my model, it is assumed that the price level is predetermined and is only affected by aggregate supply shocks contemporaneously. This assumption aligns with the broader economic literature that emphasises the importance of considering price stickiness and supply shocks in macroeconomic modelling (Blanchard & Fischer, 1989; Mankiw, 2001). So, there are 4 restrictions on (3).

$$e_t^p = \epsilon_t^{as} \dots\dots\dots\dots\dots\dots \quad (3)$$

In an inflation-targeting monetary policy framework, the repo rate is contemporaneously influenced by inflation but does not immediately affect other variables (Clarida, Gali, & Gertler, 1999; Svensson, 1997). This assumption reflects the central bank's immediate response to inflationary pressures while other economic variables adjust more gradually.

$$e_t^{repo} = A1 * e_t^p + \epsilon_t^{ms} \dots\dots\dots\dots\dots\dots \quad (4)$$

The GDP growth rate, while dependent on a broad range of economic activities, is simplified in this model to contemporaneously depend on inflation and the repo rate. This assumption places two restrictions on the GDP growth rate, reflecting the significant impact of monetary policy and price levels on economic output (Taylor, 1993).

$$e_t^{GDP} = A2 * e_t^p + A3 * e_t^{repo} + \epsilon_t^{IS} \dots\dots\dots\dots\dots\dots \quad (5)$$

For bank credit, the model focuses on non-food credit, services credit, and personal loans. It is assumed that the growth of bank credit is influenced by inflation, the repo rate, and GDP growth. This assumption aligns with existing literature that emphasizes the importance of macroeconomic conditions and monetary policy on credit growth (Bernanke & Gertler, 1995; Kashyap & Stein, 2000).

$$e_t^{Bank\ Credit} = A4 * e_t^{p} + A5 * e_t^{repo} + A6 * e_t^{GDP} + \epsilon_t^{LM} \dots\dots\dots\dots\dots\dots.. \quad (6)$$

The exchange rate in this model is assumed to be influenced by all the economic variables included. This reflects the comprehensive impact of domestic macroeconomic conditions on exchange rate fluctuations (Obstfeld & Rogoff, 1995; Dornbusch, 1976).

$$e_t^{Exchange\ rate} = A7 * e_t^{p} + A8 * e_t^{repo} + A9 * e_t^{GDP} + A10 * e_t^{LM} + \epsilon_t^{LM} \dots\dots\dots\dots\dots\dots.. \quad (7)$$

Empirical estimation result

In this paper, my main objective is to find out the statistically significant response of monetary policy on some important real variables of the economy. In the SVAR model, all five variables are stationary at a level. The test results for stationarity (Phillips-Perron for Unit root) are given in the appendix.

Table 1: Estimates for Contemporaneous Matrix

Parameter	Estimate	Standard Error	P value
A1	1.51319***	0.118678	0
A2	1.173834***	0.118688	0
A3	-0.0131211	0.118678	0.912
A4	1.209369***	0.127882	0
A5	-0.0011397	0.127882	0.993
A6	0.4013949**	0.118678	0.001
A7	1.185211***	0.15814	0
A8	-0.0060835	0.158138	0.969
A9	0.4476347**	0.148948	0.003
A10	0.7583942***	0.118678	0
Note: *** Significant at 1%, ** Significant at 5%			

The parameter estimates from the contemporaneous matrix highlight significant relationships between key economic variables within the model. Notably, the positive and significant coefficient for money supply shocks (A1) indicates that increases in inflation prompt the central bank to raise the repo rate, consistent with conventional monetary policy (Taylor, 1993).

The positive and significant A2 coefficient suggests that nominal GDP rises with increasing inflation, reflecting heightened economic activity (Mishkin, 2019). However, the insignificant coefficient for the repo rate (A3) on GDP growth suggests that the repo rate does not significantly drive GDP growth directly, implying the presence of other influential factors (Bernanke & Blinder, 1992).

Furthermore, the significant coefficients in the context of bank credit growth (A6) indicate that higher inflation and GDP growth stimulate non-priority loan growth, while lower repo rates reduce borrowing costs, increasing credit supply (Kashyap & Stein, 2000). These findings underscore the intricate interplay between monetary policy, inflation, GDP, and bank credit, highlighting the nuanced effects of economic policies on different sectors.

Impulse Response Function

According to SIMS (1980) methodology, Impulse Response Function (IRF) is a representation of a vector moving average. In mathematical terms,

$$X_t = X + \sum_{i=0}^{\propto} (B^{-1} * \partial)^i * \epsilon_t \quad , Where\ IRF = \sum_{i=0}^{\propto} (B^{-1} * \partial)^i \ and\ i\ is\ time\ period$$

Where B^{-1} is the inverse matrix of structural parameters of contemporaneous endogenous variables, and ∂ is the nth degree matrix polynomial in the lag operators.

Impulse response functions (IRFs) are employed to track how a system of variables responds to shocks within that system. These functions provide a concise summary of the relationships implied by the numerous estimated coefficients in the SVAR model. IRFs can be generated for shocks to any variable in the model. This section will use IRFs to visualize the responses of model variables, highlighting the immediate and 10-quarter impacts of specific shocks on economic variables. This approach enables us to trace the time path of the effects of pure shocks. The impulse responses to credit and repo rate shocks elucidate the interaction between credit and the broader economy, also showing how each variable deviates from its baseline.

Response to money supply shocks

The impulse response functions (IRFs) in the figure illustrate the effects of a one-unit positive shock to the policy rate on various economic variables over a 10-quarter period. In Graph 1A, the response of inflation to a repo rate shock shows a significant initial drop, aligning with the inflation-targeting goals of monetary policy, as higher interest rates typically reduce spending and investment, thereby lowering inflation. Graph 1B captures the direct response of the repo rate to its own shock, showing an immediate spike followed by a gradual decline, reflecting the central bank's adjustment mechanism post-rate hike.

Graph 1C depicts the response of GDP growth to a positive repo rate shock. Interestingly, it shows a slight initial increase in GDP growth, which could be counterintuitive but is explained by the model's finding that the repo rate's coefficient on GDP growth is insignificant, suggesting other factors have a more substantial impact on GDP growth.

Graph 1D reveals that a positive repo rate shock leads to an immediate and pronounced decline in bank credit growth, persisting for approximately five quarters before dissipating. This behavior indicates that higher repo rates lead banks to raise lending rates, reducing loan demand in the short term. Over time, as economic conditions stabilize, the negative impact on credit growth diminishes, and it resumes its upward trajectory. These IRFs underscore the complex interplay between monetary policy, inflation, GDP growth, and bank credit, highlighting both the immediate and extended effects of policy rate adjustments on the economy.

Figure 1: Response of Variables to Money Supply Shocks

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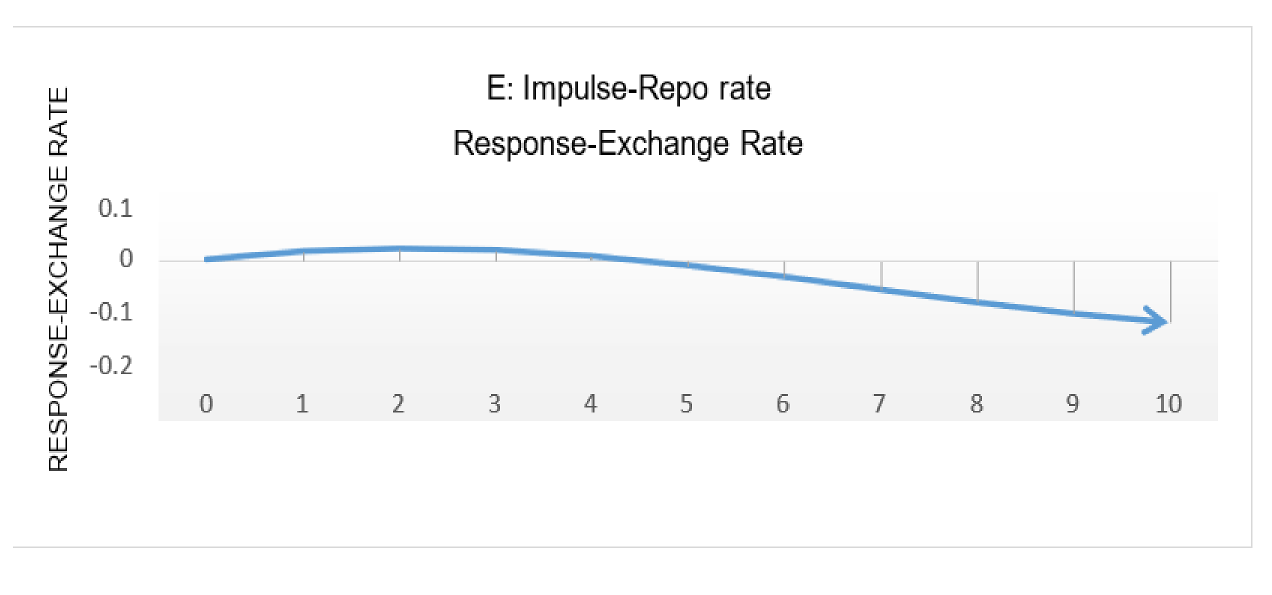


Response to Real GDP Growth Shock

Initially, a positive GDP growth shock leads to a negative response in inflation, as shown in Figure 2A. However, this effect dissipates and turns positive over time, converging to the baseline after about seven quarters, indicating that higher economic activity eventually results in increased inflationary pressures.

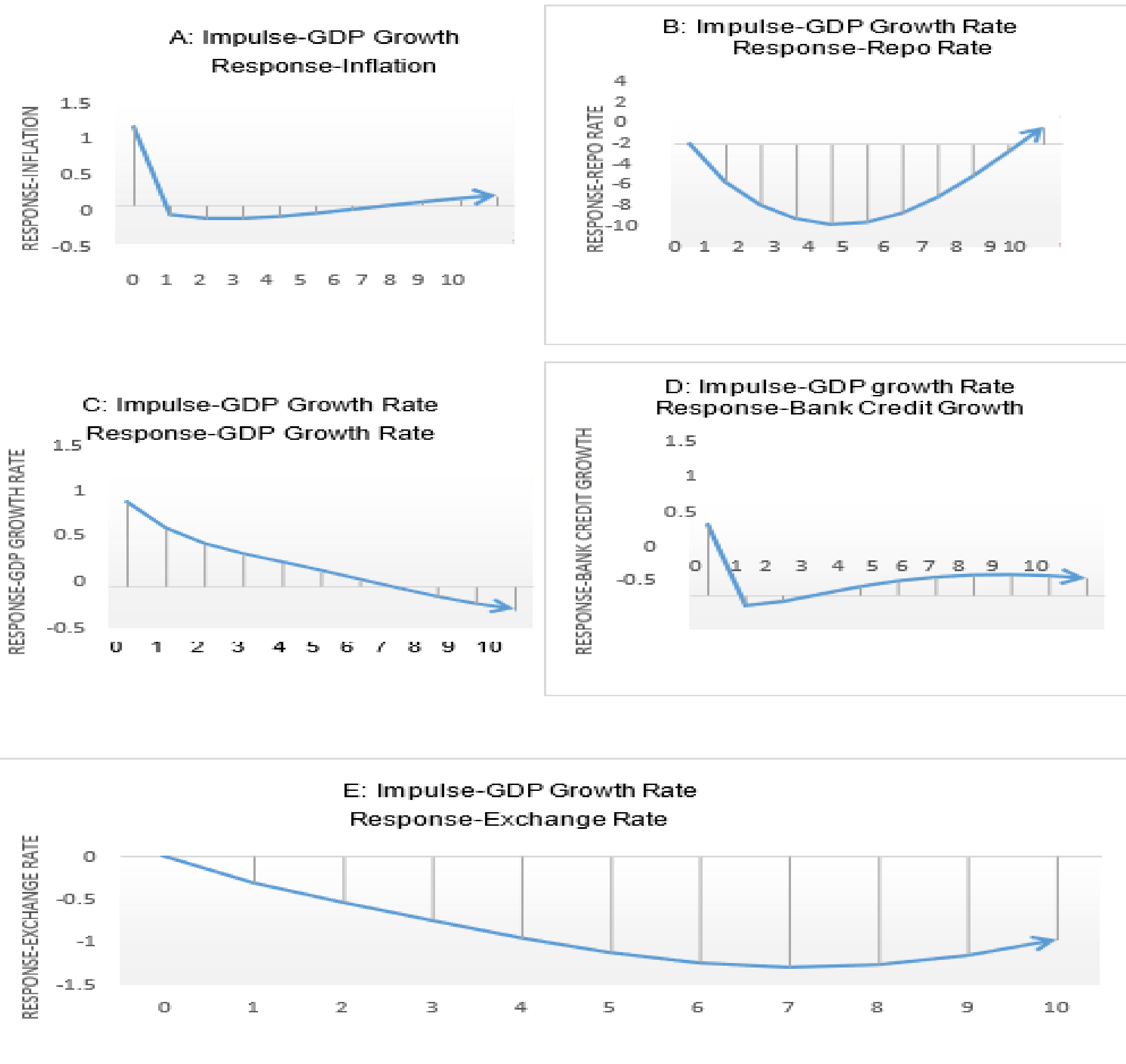
In Figure 2B, the response of the repo rate to a GDP growth shock is initially negative, suggesting that monetary policy may initially lower rates to support growth. Over time, as inflationary pressures build, the central bank raises the repo rate, showing an increasing trend and converging to the baseline after ten quarters. This reflects the central bank's role in managing inflation through interest rate adjustments in response to higher output growth.

Figure 2C depicts the response of GDP growth to its own shock, showing a strong initial positive response that gradually diminishes over time, converging to the baseline. This suggests that the immediate impact of a GDP shock is significant but becomes less pronounced as other economic forces counterbalance the initial boost.

Figure 2D indicates that a positive GDP growth shock initially causes a negative response in bank credit growth, likely due to higher interest rates making borrowing more expensive. Over time, as economic conditions improve, the demand for credit picks up, leading to a recovery in credit growth. This pattern highlights the initial restrictive impact of higher interest rates, which is eventually outweighed by the increasing demand for credit.

Figure 2E shows that a positive GDP growth shock initially leads to a depreciation of the exchange rate. Over time, the exchange rate begins to appreciate, converging to the baseline after ten quarters. This suggests that while initial economic growth may weaken the currency, possibly due to higher imports, the long-term effect stabilizes as economic fundamentals strengthen.

Figure 2: Response of Variables to Real GDP Growth Shocks



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Response to Inflation Shocks

The impulse response functions (IRFs) in Figure 3 illustrate the effects of inflation shocks on various economic variables over an 11-quarter period. Figure 3A shows that an inflation shock initially increases inflation, but this effect gradually diminishes and converges towards the baseline. This indicates that while inflation spikes initially due to a shock, the economy adjusts over time, reducing inflationary pressures. In Figure 3B, the response of the repo rate to an inflation shock is positive, suggesting that the central bank raises interest rates to control the rising inflation, peaking around the sixth quarter before returning to the baseline. This aligns with standard monetary policy actions where central banks increase interest rates to curb inflation (Clarida, Gali, & Gertler, 1999).

Figure 3C reveals that inflation shocks initially suppress GDP growth significantly, causing a sharp decline. However, the negative effect diminishes over time as the economy begins to recover, approaching the baseline. This suggests that inflationary pressures can dampen economic growth initially, likely due to higher costs and reduced purchasing power, but recovery occurs as the economy adjusts (Bernanke & Blinder, 1992). Figure 3D indicates that bank credit growth declines in response to inflation shocks. This negative response can be attributed to higher borrowing costs resulting from increased repo rates, which discourage borrowing and reduce credit growth. Although the negative impact lessens over time, bank credit growth remains lower than the baseline, highlighting the lasting dampening effect of inflation on credit expansion (Kashyap & Stein, 2000).

Finally, figure 3E shows that inflation shocks cause the exchange rate to depreciate, with the effect peaking around the eighth quarter before stabilizing. This depreciation reflects the reduced value of the domestic currency in response to higher inflation, which can erode investor confidence and increase the relative attractiveness of foreign currencies (Obstfeld & Rogoff, 1995). These IRFs underscore the intricate interactions between inflation shocks and various economic variables, emphasizing the critical role of monetary policy in managing inflation and mitigating its broader economic impacts.

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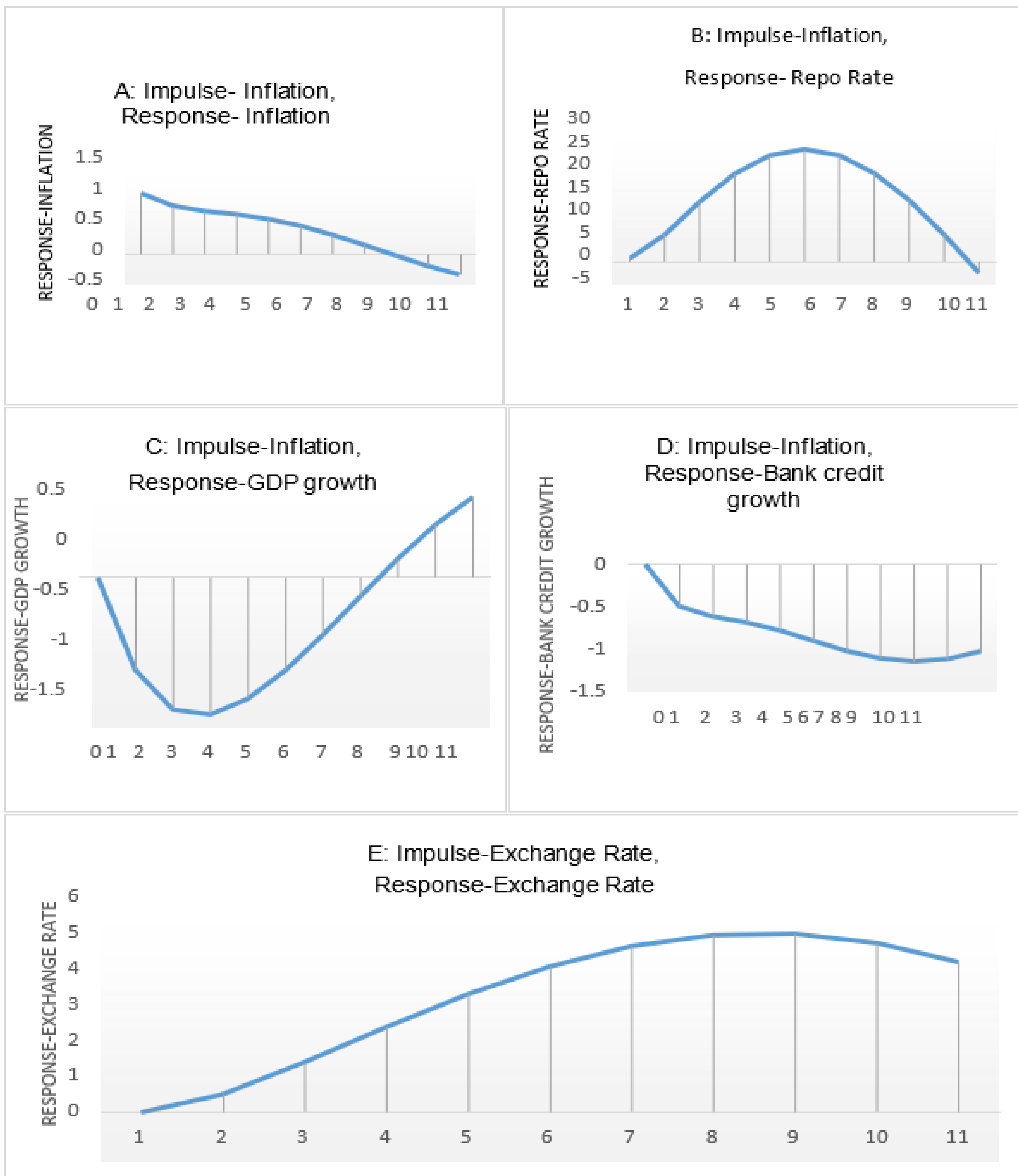
Figure 3: Response of Variables to Inflation Shocks



Conclusion

This paper investigates the impact of monetary policy, particularly the repo rate, on various macroeconomic variables in the context of a small open economy. Using Structural Vector Autoregressive (SVAR) models, we explored the dynamic relationships between key variables such as GDP growth, inflation, bank credit, and the exchange rate. Our findings indicate significant interactions between these variables, highlighting the complex mechanisms through which monetary policy influences the economy.

The impulse response functions (IRFs) demonstrate that inflation shocks initially increase inflation but gradually converge back to baseline levels. The central bank's response to these inflation shocks, by raising the repo rate, aligns with standard monetary policy aimed at controlling price levels. However, this adjustment also has a suppressive effect on GDP growth and bank credit in the short term, illustrating the trade-offs involved in monetary policy decisions. Specifically, higher repo rates lead to increased borrowing costs, which in turn dampen credit growth and economic activity.
Furthermore, the depreciation of the exchange rate following inflation shocks underscores the broader economic adjustments that occur in response to monetary policy changes. The findings underscore the importance of a nuanced approach to monetary policy, considering both immediate and long-term effects on various economic sectors. By highlighting the dynamic interactions between monetary policy and macroeconomic variables, this study contributes to a deeper understanding of the transmission mechanisms at play, offering valuable insights for policymakers in managing economic stability and growth.

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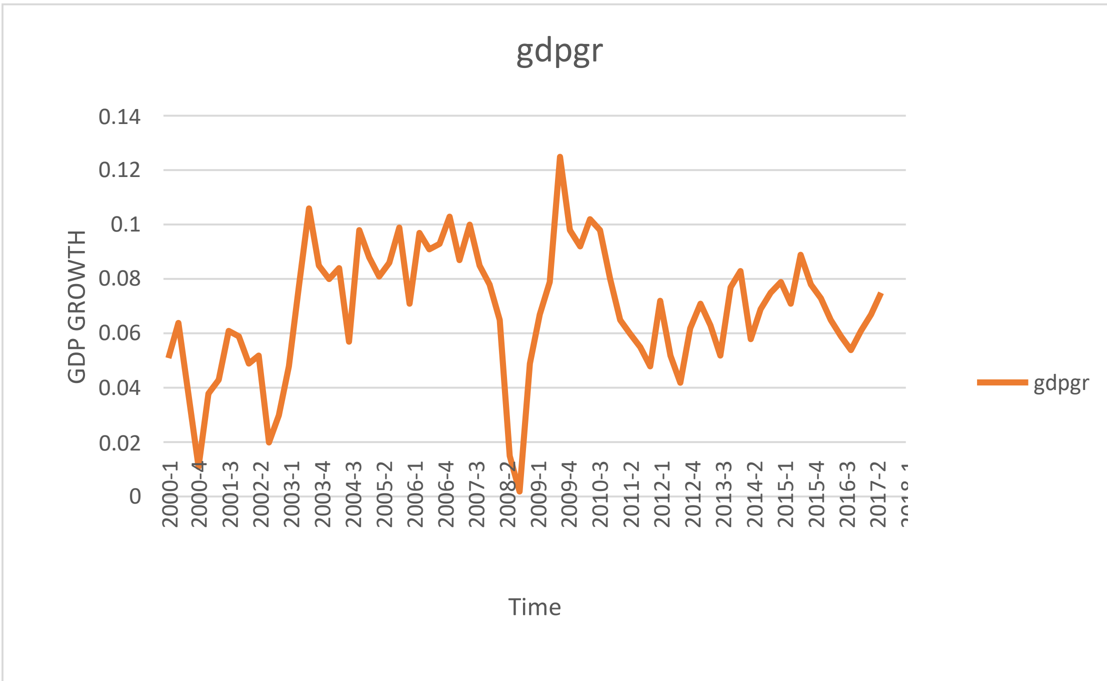
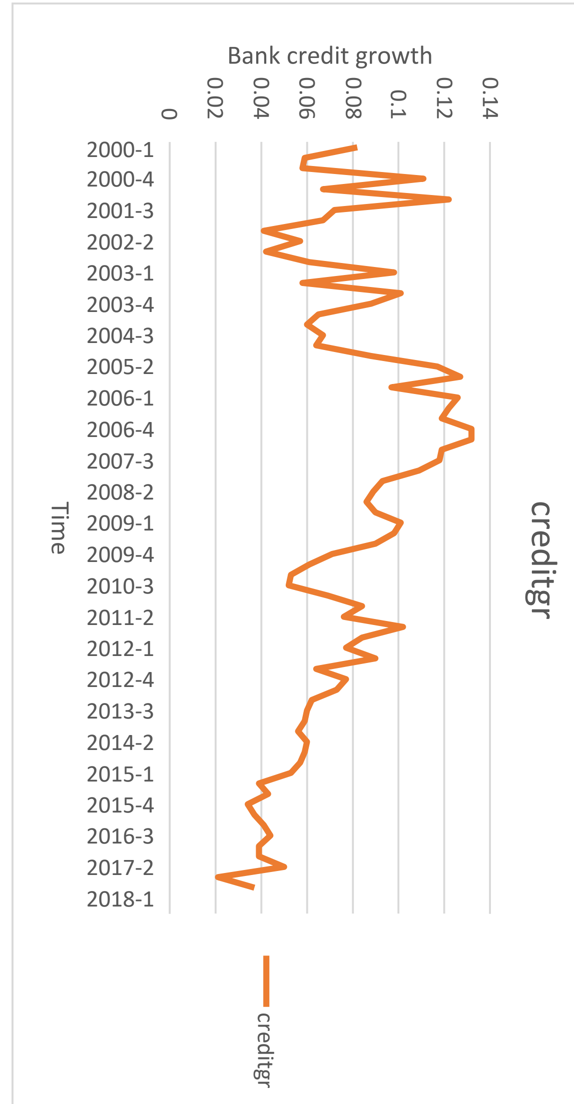
APPENDIX

Description of selected data in the model.

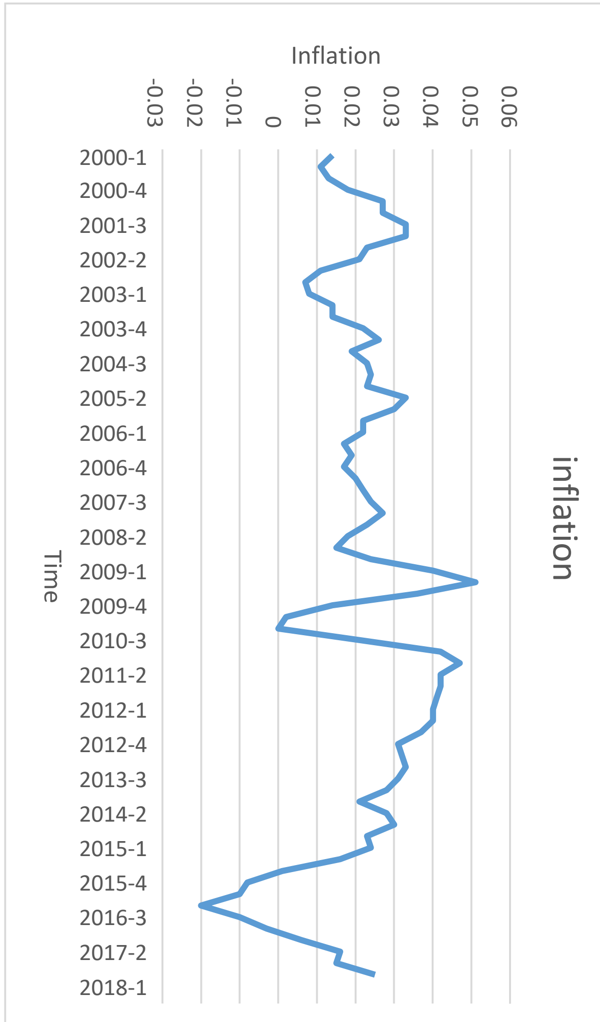
1. Quarterly GDP Growth Rate.



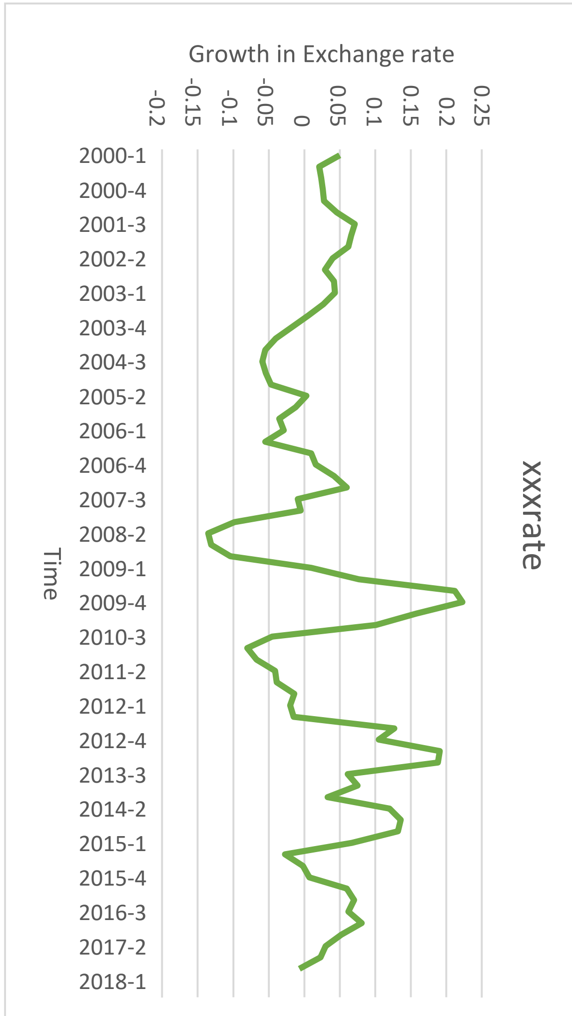
2. Quarterly Non- Priority sector lending growth of Bank



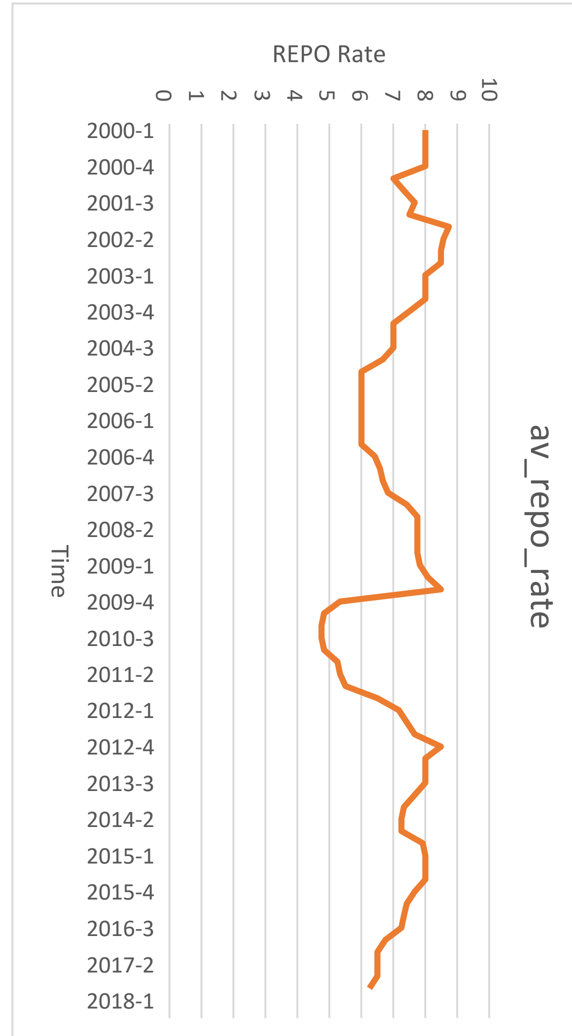
3. Quarterly Inflation Rate (Wholesale Price Index)



4. Quarterly Average Repo rate.



5. Nominal Exchange Rate ($/rupee)



UNIT ROOT TEST.

Phillips Perron Test for Unit Root

		Exchange Rate		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-23.773	-26.414	-20.178	-17.094
Z(t)	-3.525	-4.104	-3.479	-3.167
MacKinnon approximate p-value for Z(t) = 0.0368				
		Real GDP growth Rate		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-24.921	-26.414	-20.178	-17.094
Z(t)	-3.765	-4.104	-3.479	-3.167
MacKinnon approximate p-value for Z(t) = 0.0184				
		Bank Credit Growth		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-20.895	-26.414	-20.178	-17.094
Z(t)	-3.45	-4.104	-3.479	-3.167
MacKinnon approximate p-value for Z(t) = 0.0451				
		Inflation		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-16.538	-19.278	-13.468	-10.826
Z(t)	-2.936	-3.551	-2.913	-2.592
MacKinnon approximate p-value for Z(t) = 0.0413				
		Average Repo Rate		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(rho)	-12.373	-19.278	-13.468	-10.826
Z(t)	-2.527	-3.551	-2.913	-2.592
MacKinnon approximate p-value for Z(t) = 0.10				

VECTOR AUTOREGRESSION OUTCOME

```
Vector autoregression

Sample:  2 - 72                                 No. of obs      =        71
Log likelihood =  717.5292                      AIC             = -19.36702
FPE            =  2.68e-15                      HQIC            = -18.98682
Det(Sigma_ml)  =  1.15e-15                      SBIC            = -18.41096
```

Equation	Parms	RMSE	R-sq	chi2	P>chi2
inflation	6	.006646	0.7890	265.4752	0.0000
av_repo_rate	6	.497863	0.7824	255.3442	0.0000
gdpgr	6	.016747	0.5290	79.75386	0.0000
creditgr	6	.018226	0.6051	108.7839	0.0000
xxxrate	6	.045143	0.6682	142.9953	0.0000

	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
inflation						
inflation L1.	.7923981	.0602718	13.15	0.000	.6742675	.9105287
av_repo_rate L1.	-.0035053	.0009165	-3.82	0.000	-.0053016	-.001709
gdpgr L1.	-.1303112	.0397414	-3.28	0.001	-.208203	-.0524195
creditgr L1.	.0174242	.0317316	0.55	0.583	-.0447685	.0796169
xxxrate L1.	-.0156887	.0108103	-1.45	0.147	-.0368765	.0054991
_cons	.0376201	.0087047	4.32	0.000	.0205592	.054681
av_repo_rate						
inflation L1.	7.413377	4.514896	1.64	0.101	-1.435656	16.26241
av_repo_rate L1.	.8398392	.0686538	12.23	0.000	.7052802	.9743982
gdpgr L1.	-3.890972	2.976985	-1.31	0.191	-9.725756	1.943811
creditgr L1.	-.8900307	2.376976	-0.37	0.708	-5.548819	3.768758
xxxrate L1.	-1.162196	.8097871	-1.44	0.151	-2.74935	.4249573
_cons	1.322345	.6520589	2.03	0.043	.0443334	2.600357

gdpgr						
inflation						
L1.	-.0715205	.1518683	-0.47	0.638	-.3691768	.2261358
av_repo_rate						
L1.	-.0021201	.0023093	-0.92	0.359	-.0066463	.0024061
gdpgr						
L1.	.5839256	.1001373	5.83	0.000	.3876601	.7801911
creditgr						
L1.	.1707714	.0799547	2.14	0.033	.014063	.3274798
xxxrate						
L1.	.0691483	.0272389	2.54	0.011	.0157609	.1225356
_cons	.0308093	.0219334	1.40	0.160	-.0121794	.073798
creditgr						
inflation						
L1.	.08966	.1652847	0.54	0.588	-.2342922	.4136122
av_repo_rate						
L1.	-.0026496	.0025133	-1.05	0.292	-.0075757	.0022764
gdpgr						
L1.	-.0126221	.1089837	-0.12	0.908	-.2262263	.2009821
creditgr						
L1.	.680007	.0870182	7.81	0.000	.5094545	.8505595
xxxrate						
L1.	-.0641006	.0296453	-2.16	0.031	-.1222044	-.0059969
_cons	.0431139	.0238711	1.81	0.071	-.0036726	.0899003

xxxrate						
inflation						
L1.	.6160447	.4093788	1.50	0.132	-.1863229	1.418412
av_repo_rate						
L1.	.0097977	.006225	1.57	0.116	-.0024031	.0219986
gdpgr						
L1.	-.2380556	.2699319	-0.88	0.378	-.7671125	.2910012
creditgr						
L1.	.1328798	.2155274	0.62	0.538	-.2895461	.5553057
xxxrate						
L1.	.7881912	.0734258	10.73	0.000	.6442793	.932103
_cons	-.0718702	.0591241	-1.22	0.224	-.1877513	.0440109

Cholesky Decomposition Matrix

	Inflation	Average Repo Rate	Real GDP Growth	Bank credit growth	Exchange Rate
Inflation	0.0063592	0.0000000	0.0000000	0.0000000	0.000000
Average Repo Rate	0.0269317	0.4756004	0.0000000	0.0000000	0.000000
Real GDP Growth	-0.0000917	-0.0056112	0.0150086	0.0000000	0.000000
Bank Credit growth	0.0019517	0.0000280	-0.0003325	0.0173263	0.000000
Exchange Rate	-0.0006330	-0.0022338	0.0000554	0.0023812	0.043065