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Fiscal and Monetary and Policy Responses to Global Economic Downturn in Small Island Developing States: An Empirical Study of Mauritius

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Abstract

Mauritius has emerged as a top performer amongst the small island states in mitigating the adverse effects of the weakening external demand due to the 2008 financial and 2009 global economic downturn, the lingering effects of which are now compounded by the Eurozone debt crisis since late 2011. Mauritius has successfully responded to the crisis with appropriate fiscal and monetary policies. This paper seeks to evaluate the relative effectiveness of the policies adopted by Mauritius over a thirty year period with an empirical study. The study concludes that in the short-run, expansionary fiscal policy rather than monetary policy had significant effects on economic growth. In contrast, in the long run, monetary policy is found to be more effective than fiscal policy in the long-run.

JEL classification: E63, N17

Keywords: Monetary policy, Fiscal policy, Exchange rate, Africa

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I. Introduction

Mauritius in the Indian Ocean region has been recognized as a top regional performer (IMF 2010). Implementation of wide-ranging reforms in a sustained manner over two decades in various sectors and favourable regulatory environment and robust institutions (Sacerdoti *et al*. 2005) enabled Mauritius earning the title the best place to do business in Africa in 2009 and 2010 (World Bank 2010).

The global financial and economic crises of 2008 and 2009 and their lingering impacts thereafter were testing times for all small island developing states including Mauritius. As expected, these states responded to the crises with fiscal and monetary policies for mitigating the diverse effects of world recession. These policies were aimed at stepping up domestic demand in the wake of a declining external demand, through fiscal policy measures such as reduction in tax rates and increases in public sector expenditures and through expansionary monetary policy measures including reducing interest rates for facilitating greater flows of credit to domestic enterprises.

This paper seeks to evaluate the effectiveness of these two policies pursued over a period of three decades. The paper is organized as follows. The next section reviews economic performance of Mauritius; the third section outlines the modeling methodology; the fourth section reports the results; and the fifth and final section presents a summary and conclusions with policy implications.

II. Mauritius: A Brief Economic Review

Mauritius with a population of 1.3 million is situated in the Indian Ocean at 20.17 degrees south latitude and 57.33 degrees east longitude and about 2,000 km from the south east coast of Africa. The selected key indicators are given in Table 1. In the first two decades following political independence in 1968, the Mauritian economy experienced twin deficits: budget and current account deficits. As domestic absorption was high relative to domestic savings, Mauritius had to undertake a structural adjustment programmes and the domestic currency, the rupee was twice devalued; in 1970 by 30 percent and in 1981 by 20 percent.

Table 1: Mauritius: Selected Key Indicators

Land Area (Sq. km.'000)	2.04
Population in million (2010)	1.3
Per capita GDP US$ Current prices (2010)	7,484
Aid as percentage of GDP (2010)	0.5
Human Development Ranking (2010)	72
Annual Average Real Growth Rate in percent (2001-2005)	3.9
Annual Average Real Growth Rate in percent (2006-2010)	4.8
Annual Overall Budget Balance as percentage of GDP (2001-2005)	-2.4
Annual Overall Budget Balance as percentage of GDP (2006-2010)	-4.1
Annual Average Inflation in percent (2001-2005)	5.1
Annual Average Inflation in percent (2006-2010)	6.6
Current Balance as percentage of GDP (2001-2005)	0.4
Current Balance as percentage of GDP (2006-2010)	-2.2

Source: Central Statistics Office, Mauritius.

Macroeconomic reforms

Prudent economic policies since the 1980s combined with political stability, structural reforms, robust institutions and favourable regulatory environment and emergence of a developing financial sector contributed to recovery (See Table 2 for growth rates and other relevant macroeconomic data). Structural reforms since the 1980s set the economy on a growth path (Sacerdoti et.al 2003). However, soon the economy was subjected to external shocks in the 2000s. Sharp reductions in European Union sugar protocol prices and the phasing out of the Multi-Fiber Agreement applied a brake to economic growth. The textile and apparel sector suffered a 30 percent fall in output, which led to a 25 percent fall in employment, resulting in the deterioration of balance of payments and fiscal conditions during 2003-2005.

Starting from 2006, the government undertook another round of reforms, which included a simplified tax system of 15 percent flat tax rate, removal of subsidies, adoption of a fiscal consolidation strategy anchored in budgetary reforms and business friendly policies, all of which made Mauritius a top performer with one of the highest per capita incomes in Africa. Foreign direct investment rose to unprecedented levels, complementing a major restructuring of the sugar and textile industries and rapid growth in the offshore financial sector (IMF, 2010; Zafar 2011). Growth rate was 5.6 percent in 2006 and was stable until 2008. As the economy was doing well, Mauritian policy makers decided to set aside funds

for rainy days, which amounted to about 3 percent of GDP, for reducing debt financing needs[1].

Table 2: Mauritius: Growth Rate, Inflation and Macroeconomic Statistics

Years	Growth Rate (%)	Inflation (%)	Government Expenditure (% of GDP)	Budget Deficit (% of GDP)	Broad Money (M2) (% of GDP)
1981-1990(Ave)	7.7	8.3	24.4	3.8	51.9
1991-2000 (Ave)	5.0	6.7	22.4	3.2	74.4
2001-05 (Ave)	4.1	5.1	23.3	5.5	90.2
2006	5.6	8.9	22.9	4.8	97.2
2007	5.7	8.8	21.0	3.8	98.1
2008	5.5	9.7	26.2	2.7	100.0
2009	3.1	2.5	26.8	2.1	105.1
2010	4.2	2.9	21.5	3.2	106.7

Source: Central Statistics Office, Mauritius and IMF.

Response to global recession

With the onset of global recession in 2008, like other export-led growth countries, Mauritian growth slowed down to 4.2 percent in 2008 and then to less than 2 percent in 2009, due to decline in tourism and textile exports. However, with macroeconomic fundamentals being sound in terms of improved fiscal position and reduction in the ratio of public debt to GDP[2], thanks to prudent policies pursued in the years prior to the crisis, the government could afford a proactive policy response (Morisset, Bastos, and Rojid 2010).

The stimulus measures to the tune of about 5 percent of GDP were combined with an easy monetary policy[3]. The stimulus measures focused on advancing the planned infrastructure spending and providing financial relief to firms hit hardest by the global crisis[4] and social and

[1] These dedicated funds were established at the end of the 2007/08 fiscal year as a contingency against an economic slowdown.
[2] The public debt to GDP ratio which was 75 percent in 2003 was brought down to 60 percent in 2009 (IMF 2012).
[3] The central bank discount rate was cut by 250 basis points, and reserve requirements were reduced.
[4] Firms facing liquidity difficulties were given temporary financial relief (conditional on credible restructuring plans), with costs shared by banks, the government, and the firm's shareholders in the wake of the crisis.

job protection measures[5], including workers training programmes[6] (IMF, 2010; Zafar, 2011). Almost simultaneously, the government introduced offsetting measures that are expected to bring the primary budget into surplus by the end of 2011. Further, it was decided to reduce public sector debt from 60 percent of GDP to 50 percent by 2013[7] under the Public Debt Management Act, which was enacted in 2008.

Recovery of the economy

Real GDP grew at 4 percent in 2010 as compared to 3 percent in 2009. This growth was driven by strong performance by fisheries, ICT and financial sectors and the inflation rate was low at 2.9 percent. However, the impact of the euro zone debt crisis in mid 2010 resulting in depreciation of euro led to introduction of a second stimulus package. In August 2011, government announced additional policy measures, which were aimed at shifting export growth towards new markets, restructuring enterprises and training retrenched workers. Fiscal deficit rose to 3.5 percent of GDP and expansionary fiscal stance was accompanied by a loosened monetary policy as well[8].

Conscious of potential inflationary pressures, which were feared to be fanned by excess liquidity, Bank of Mauritius (BoM) resorted to mopping it up through tightening monetary policy measures. In the first half of 2010, the central bank increased the cash reserve requirements[9] and conducted open market sale of securities. Mauritian economy continued to grow at 4.1 percent in 2011, supported by strong performance by textiles, information technology, tourism, financial services and construction sectors. Fiscal policy in 2011 was less expansionary with capital expenditure being less than budgeted due to implementation delays. Consequently, fiscal deficit narrowed to 2.4 percent of GDP. However, inflationary pressures were clear, as consumer price rose in mid 2011 to 4.8 percent, consequent to higher import prices as well as one-time increases in administered prices. Furthermore, private sector credit continued to grow in 2011 at 13.5 percent as in 2010. To reduce the inflationary potential, BoM once again adopted a tightening monetary stance in March 2011.[10]

To sum up, due to proactive policies including stabilizers Mauritius was able to mitigate the adverse impact of the global economic downturn. These stabilizers are social and job protection measures and workers training programmes for protecting the poor and helping firms to restructure. Once the economy recovered and would be on a growth path, these stabilizers would cease to operate.

[5]A few tax reliefs and suspension programmes were introduced for the labour-intensive and vulnerable sectors including tourism, construction, and real estate.

[6] These included a work-cum-training scheme that gave manufacturing and tourism firms an alternative to laying off workers by partially reimbursing wages while workers received training.

[7] This target was extended later to 2018 by an amendment as stipulated in Section 23 of 'The Economic and Financial Measures (Miscellaneous Provisions) (No. 2) Act 2011, Act No. 38 of 2011, 15 December 2011.

[8] The policy rate was rate was cut on date by 100 basis points from 5.75 percent to 4.75 percent from August 2011 to September 2011.

[9] Cash reserve requirement was raised by BoM from 4.5 percent to 6 percent.

[10] The reserve requirement was increased from 6 to 7 percent in February 2011. The policy rate (repo rate) was raised from 4.75 percent in March 2011 by 50 basis points to 5.25 percent and again in June 2011 by 25 points.

III. Modeling, Methodology and Data

The two major policy tools available to the countries which have independent currencies are monetary policy and fiscal policy, besides exchange rate adjustments. Monetary policy dealing with the quantity of money, interest and exchange rates is believed to have a predominant role in influencing aggregate demand, inflation and output. This owes much to the emergence of monetarism as a countervailing force against Keynesians who lay greater stress on fiscal policy.

Fiscal policy, as a tool, deals effecting changes in the levels of revenue and expenditures of the government. Government is responsible for providing major public goods and services, which are not feasible for the private sector to supply. An excess expenditure over revenue creates fiscal deficit while excess revenue over expenditure creates fiscal surplus.

St. Louis Equation

The monetarists (Anderson and Jordan, 1968; Carlson, 1978) were of the view that monetary policy is more powerful than fiscal policy in achieving various economic goals. The Keynesians held the opposite view that fiscal actions were more effective in stabilizing growth. For undertaking a study on the relative effectiveness of two main policy actions, namely monetary and fiscal policy changes, we resort to the time series econometric procedure based on St. Louis equation developed by the Federal Reserve Bank of St. Louis of the USA (Anderson and Jordan 1968).

Critics have pointed out to certain deficiencies of St. Louis equation (Rahman 2005). They were: (i) the St. Louis equation is a reduced form equation and the policy variables (money supply and government expenditure) included in this equation were not statistically exogenous; and (ii) the St. Louis equation suffered from specification error due to omission of relevant variables such as interest rates (Stein, 1980; Ahmed *et al.,* 1984). As Rahman (2005) notes, Sims's (1980) vector autoregression (VAR) approach when applied to St. Louis equation addresses the problem of endogeneity because it assumes all the variables in the system are endogenous.

VAR Model

The VAR approach allows feedback and dynamic interrelationship across all the variables in the system. Since the unrestricted model assumes that each and every variable in the system is endogenous and does not impose any a priori restrictions, it thereby solves the endogeneity problem associated with the St. Louis equation. To address the problem of omitted variables, one can add variables such as interest rate and exchange rate along with the usual three variables in the St. Louis equation, which are real government expenditure as proxy for fiscal policy, real money supply as proxy for monetary policy and real output. The vector of the VAR model, therefore, contains the following variables: (i) real government expenditure (G); (ii) real money (M2); (iii) real GDP (RGDP); and (iv) real

exchange rate index (RER)[11]. For estimating the reduced-form VAR model, we enter all the variables in natural logarithms.

The reduced form VAR is written as:

$$Y_t = A_0 + A_1 Y_{t-1} + \ldots + A_k Y_{t-k} + u_t$$

Where, Y_t is a vector of variables, A_o is a vector of constants, A_{t-i} *is* a matrix of coefficients on variables lagged *j* periods, U_t is a vector of serially uncorrelated error terms that have mean zero and variance-covariance matrix $\sum_u^2$, and *k* is the number of lags. Because this is a reduced-form representation of a structural model in which some variables may affect others contemporaneously, the error terms are composites of underlying shocks to variables in the system according to the following specification:

$$\begin{vmatrix} u_{1t} \\ u_{2t} \\ \ldots \\ u_{jt} \end{vmatrix} = \begin{vmatrix} 1 & \theta_{12} & \theta_{13} \ldots & \theta_{1j} & \varepsilon_{1t} \\ \theta_{21} & 1 & \theta_{23} \ldots & \theta_{2j} & \varepsilon_{2t} \\ & & & & \\ \theta_{j1} & \theta_{j2} & \theta_{j3} \ldots & 1 & \varepsilon_{1t} \end{vmatrix}$$

For evaluating the effectiveness of monetary and fiscal policy actions, variance decompositions (VDC) and impulse response function (IRF) derived from vector autoregressions (VARs) are employed. While VDCs would indicate the proportion of the variance in the forecast error for each variable due to innovations to all variables in the system, the IRF would show the response of each variable in the system to shock from system variables. The relative strength of monetary and fiscal policies could then easily be determined. For example, if the response of real output growth due to monetary innovations is relatively higher and dissipates at a relatively slower rate than that of fiscal innovations, we could conclude that monetary policy is more effective than fiscal policy.

The ordering of variables is important in the Cholesky decomposition procedure. Variables placed higher in the ordering have contemporaneous impact on the variables which are lower in the ordering, but the variables lower in the ordering do not have contemporaneous impact on the variables those are higher in the ordering. The policy variables (G and M2) are placed first followed by target variables. Since our study objective is to determine the relative impact of monetary and fiscal policies on output growth, output (RGDP) variable is placed last. The real exchange rate index (RER) takes the third place in the ordering of four variables.

IV. Results of Empirical Study

The study covers a 31-year period (1980-2010) and the data employed are in real terms: : real GDP in million rupees (RGDP); (ii) real government expenditure (G) in million rupees; (iii)

[11] Exchange rate is defined for the purpose of empirical investigation as units of domestic currency (rupees) per one US dollar.

real money (M2) in million rupees; (iv) real exchange rate index (RER) (1985=100) and the data series are sourced from IMF (2011).

Unit root tests and ARDL approach to cointegration

Before undertaking the econometric analysis, the four variables in their logs were tested for their stationarity properties. The unit tests revealed that the variables were non-stationary in their levels but were found stationary in their first differences[12].

Since the sample size of data series is small, it was decided to apply the auto-regressive distributed lags (ARDL) bound testing procedure popularized by Pesaran *et al*. (2001) and Pesaran and Shin (1998) to detect the existence of any long-run relationship between growth in output and the fiscal and monetary variables and real exchange rate. To implement the bounds-testing approach, we start by estimating Equation 1 as an unrestricted error-correction model, or a conditional ARDL-ECM, as follows

$$RGDP_t = a_0 + a_1 G_t + a_2 M2_t + a_3 RER_t + u_t \tag{1}$$

The first step in the ARDL bounds-testing approach is to estimate Equation 2 by ordinary least squares.

$$\begin{aligned}\Delta RGDP_t = {} & \alpha_0 + \alpha_1 RGDP_{t-1} + \alpha_2 G_{t-1} + \alpha_3 M2_{t-1} + \alpha_4 RER_{t-1} + \sum_{i=1}^{p} \beta_{1i} \Delta RGDP_{t-i} \\ & + \sum_{i=0}^{p} \beta_{2i} \Delta G_{t-i} + \sum_{i=0}^{p} \beta_{3i} \Delta M2_{t-i} + \sum_{i=0}^{p} \beta_{4i} \Delta RER_{t-i} + \mu_t\end{aligned} \tag{2}$$

Next, we test the null hypothesis that there is a long-run relationship among the variables conduct an *F*-test on the lagged levels of the variables, that is, $H_0 : a_1 = a_2 = a_3 = a_4 = 0$. As noted by Pesaran et al. (2001), the F-statistic follows a nonstandard distribution irrespective of whether the variables are I(0) or I(1). Pesaran *et al.* (2001) provide two asymptotic critical values for the bounds -testing procedure. However, Narayan (2005) argues that the critical values generated by Pesaran *et al.* (2001) cannot be used for small samples because they were generated from large sample sizes. In this study we use the critical values generated by Narayan (2005). If the estimated *F*-statistic is higher than the upper bound of the critical values, the null hypothesis of no long-run relationship is rejected. If the estimated *F*-statistic is less than the lower bound of critical values, the null hypothesis of no cointegration cannot be rejected.

[12] For saving space, the results are not reported here. Unit root test results will be made available on request.

Table 3 reports the *F*-statistic associated with the null hypothesis of no cointegration, along with the asymptotic critical values of the bounds testing procedure. The results show that only in regard to the equation with RGDP as the dependent variable do we find the calculated *F*-statistic exceeds the upper critical value at the 5 per cent level of significance. Accordingly, it is concluded that there exists a unique and stable long-run relationship with RGDP as a dependent variable and G, M2, and RER as explanatory variables. Bounds test equations were also estimated for each regressor as a dependent variable against short-run dynamics of economic growth.

Inspection of the *F*-statistics shows the absence of long-run relationships, when G, M2 and RER are the dependent variables (Table 3). Thus, the variables G, M2 and RER can be treated as the long-run explanatory variables for explaining the variations in RGDP. Given the existence of cointegration with RGDP as the dependent variable, the second stage is to estimate the ARDL model to derive the long-run and short-run coefficient estimates. Table 4 presents the short- and long-run coefficients obtained from ARDL model.

Table 3. Mauritius: Results of Bound Tests

Dependent Variable			Computed F-statistic	
RGDP			22.497***	
G			1.844	
M2			0.737	
RER			1.694	
	Pesaran, et al. (2001)[a]		Narayan (2005)[b]	
Critical Value	Lower bound value	Upper bound value	Lower bound value	Upper bound value
1 per cent	3.41	4.68	4.134	5.761
5 per cent	2.62	3.79	2.910	4.193
10 per cent	2.26	3.35	2.407	3.517

[a] Critical values are obtained from Pesaran et al. (2001), Table CI(iii) Case III: Unrestricted intercept and no trend, p. 300.
[b] Critical values are obtained from Narayan (2005), Table case III: unrestricted intercept and no trend, p. 10. *, ** and *** indicate significance at 10%, 5% and 1% levels, respectively.

Table 4. Short-run and Long-run Elasticities of Output Growth

Variable	Mauritius	
	Short-run	**Long-run**
Lg	0.216***	0.288***
Lm2	0.039**	0.518*
LRER	0.275***	0.776*
Intercept	-	-6.444***

Note: *, ** and *** indicate significance at the 0.1, 0.05 and 0.01 marginal levels, respectively.

All the estimated coefficients have emerged with theoretically expected positive signs. They are also statistically significant. Our estimated log-run model reveals that the coefficient of government expenditure (G) is positive and statistically significant, indicating that government expenditure has a strong influence on economic growth. The coefficient of monetary aggregate (M2) is also positive and significant. Similarly the coefficient of real exchange index is positive and significant.

Our estimated long-run elasticity coefficient of G implies that a one per cent rise in government spending would lead to an increase in real output by a close 0.3 per cent. On the other hand, the elasticity coefficient of M2, which represents monetary policy, indicates that an expansionary monetary policy would result in the country's real output increasing by 0.5 percent. On the other hand, in the short run, fiscal policy exercises a greater influence on output as the short run elasticity estimate (0.2) is greater than the elasticity coefficient (0.03) of monetary policy.

The results thus confirm the hypothesis that for a small open economy such as Mauritius without a fully developed financial sector, in the short run fiscal policy (defined here as government expenditure) is a more important determinant of economic growth than monetary policy. We also carried out tests on the stability of the model. Both the CUSUM and CUSUMSQ tests suggest that the model is stable over the sample period (Figures 1 and 2).

Figure 1: Plot of CUSUM Test for the RGDP Equation

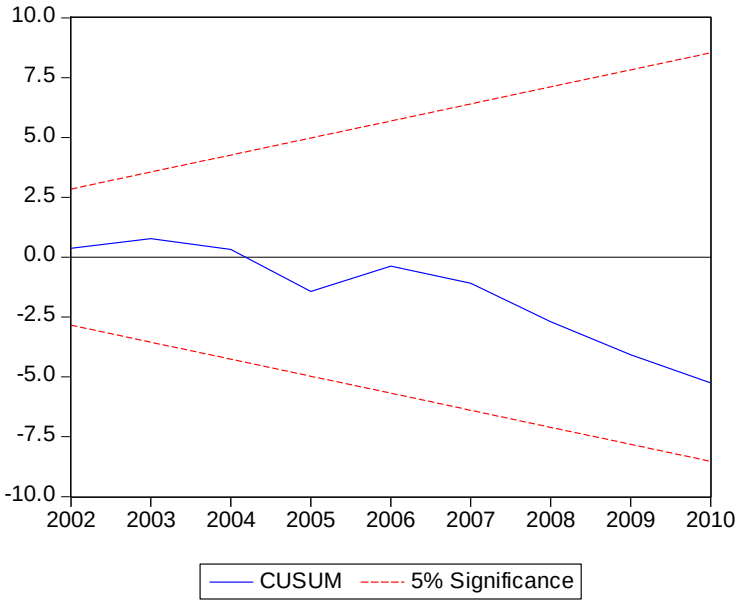
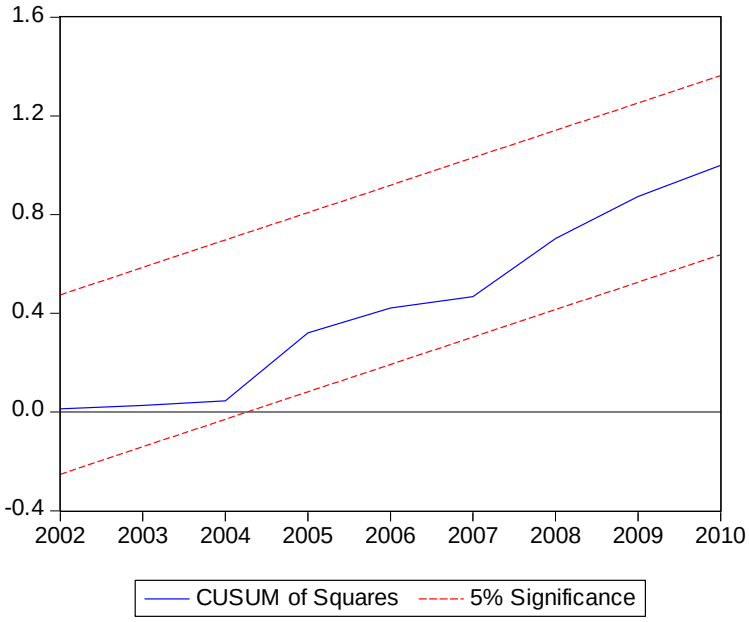


Figure 2: Plot of CUSUM of Squares Test for the RGDP Equation



Variance decomposition analysis

We now proceed to conduct VDC and IRF analyses by entering the variables in their first differences. Table 5 summarizes the forecast error variance decomposition of output growth estimated from the four-variable VAR, including government expenditure, monetary aggregate and exchange rate. The analysis is based on Cholesky factorization with the following ordering of the variables: G, M2, RER and RGDP. We also used different orderings

of the variables. The findings obtained from different orderings of variables are robust to changes, as the correlation coefficients of reduced form VAR residuals are found to be low (Table 6).

Table 5 indicates that the effect of government expenditure on RGDP is relatively small within first few years-ahead of the forecast horizon. For example, except for the first year, government expenditure explains only less than 10 percent of variability in output growth in the next three years-ahead of the forecast period. However, the effect accumulates over time. By 10 years ahead, government expenditure accounts for about 18 percent of the variability in output growth.

In contrast, monetary measure explains a large proportion of variability in the output in the short-run as compared to the government expenditure. The effect of monetary measure is about 41 percent in the first year and the proportion becomes larger in the next 4 years. After 6 years, it accounts for 50 percent of the total variability in the output growth. It is clear between innovations in government expenditure and monetary aggregate, compared to their effect on the output growth innovations in monetary aggregate have a more significant effect on the output growth over all the time horizons in Mauritius.

Table 5. Results of Variance Decomposition of RGDP

Period	S.E.	RGDP	G	M2	ER
1	0.029	35.353	18.019	40.966	5.662
2	0.055	22.941	4.985	63.922	8.152
3	0.076	17.421	4.857	65.152	12.570
4	0.088	16.805	9.878	60.807	12.511
5	0.096	18.564	14.560	56.214	10.662
6	0.106	21.453	18.928	50.616	9.002
7	0.114	24.528	19.877	47.524	8.071
8	0.121	25.993	18.745	46.611	8.650
9	0.125	26.111	17.824	46.931	9.133
10	0.129	24.899	17.551	47.474	10.076

Cholesky Ordering: G, M2, RER, RGDP

Table 6: Correlation Matrix reduced form VAR residuals

	RGDP	G	M2	ER
RGDP	1	-0.263	-0.387	-0.372
G	-0.263	1	-0.001	0.131
M2	-0.387	-0.001	1	0.279
ER	-0.372	0.131	0.279	1

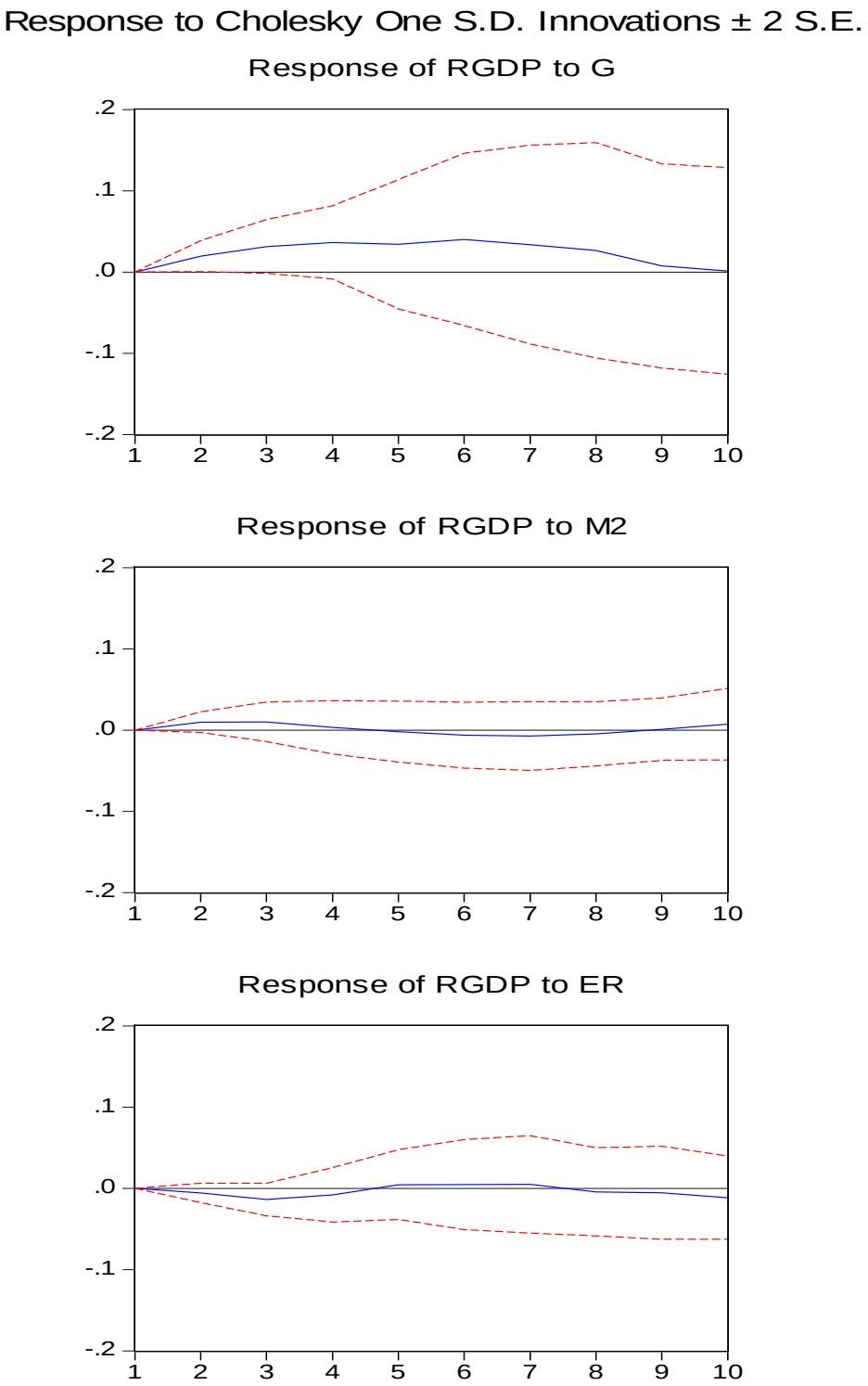
In contrast to both government expenditure and monetary measure, exchange rate shock is the least predominant shock for the output for Mauritius. The exchange rate shocks accounted for 10% at the 9-year horizon, respectively. Over time, it seems that the variability of exchange rate shocks on output growth depict a minor fluctuation.

Impulse response functions

We proceed to undertake impulse response function analyses. Figure 3 displays the results of the generalized impulse response functions, which are plotted for a ten year period. Since the variables are in logs and as they are entered into IRF analyses in their first differences, the vertical axis shows the values in percentages. The horizontal axis shows the passage of time: in this case ten years are displayed. In each graph, point estimates of the function are represented by a solid line while the dotted lines indicate a two standard deviation band around the point estimates. A shock is said to be significant when the lower standard deviation is above the zero line.

Overall, the results of impulse response functions are quite consistent with the variance decomposition analysis. In Mauritius, a shock to the government expenditure has positive and significant effect on output growth in the third year, implying that output growth is very sensitive to government expenditure changes. The effect of the shocks on output growth, however, is not permanent as reflected by the stable movement of the shocks for the remaining horizons. On the other hand, a shock to the monetary measure appears to have a substantial, positive impact on output growth. However, the estimated effect is fleeting and statistically significant only in the second year. This suggests that the monetary effects on output growth are modest and transitory. Consistent with the results of variance decomposition analysis, the impulse response functions exhibit positive but no significant impacts of exchange rates on output growth in both countries.

Figure 3: The Results of Impulse Response Function Analysis for Mauritius



V. Summary and Conclusions

Since the global economic downturn in 2008, central banks and the governments in the developed and developing countries have been undertaking mitigating measures in terms of changes in fiscal and monetary policies. This paper undertook an empirical analysis with a view to determining their relative effectiveness in Mauritius.

A quantitative analysis indicates that for a small open economy such as Mauritius without a fully developed financial sector, fiscal policy is a more important policy tool in the short-run than monetary policy for stimulating economic growth. In the long-run, monetary policy has a more significant effect on the output growth.

This has important policy implications for policy makers in all developing countries, including small island states. The use of monetary policy, for example, is expected to be not only supportive to fiscal policy measures but also to be on guard to keep any inflationary potential under check. The monetary policy measures in this regard are quick use of cash reserve requirements and repo rates, and sale of short term securities which would enable the central bank to mop up any excess liquidity. Thus, what is critically needed is a high degree of monitoring by and coordination between ministry of finance and central bank.

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