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On the effects of monetary policy shocks in developing countries☆

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Abstract

Using annual data for a sample of developing countries, the time-series evidence indicates the allocation of monetary policy shocks, both expansionary and contractionary, between price inflation and output growth. Subsequently, cross-country regressions evaluate factors that underlie the difference in these allocations and their implications. The real effects of monetary shocks increase as the elasticity of aggregate demand increases with respect to monetary shocks. Nonetheless, capacity constraints hamper the output adjustment to monetary shocks and increase price inflation. Across countries, trend output growth increases with the output response to monetary shocks. Consistent with the stabilizing function of monetary policy, the variability of output growth decreases in the face of monetary fluctuations across countries. In contrast, monetary fluctuations increase the trend and variability of price inflation across countries.

JEL classifications: E3; E31; E32; E40

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1. Introduction

Economic models that attempt to identify a reaction function for the monetary authority focus on central bank activities in developed countries. Those in developing countries, in contrast, do not get the same attention, owing to the belief that central banks in these countries were created with the primary objective of financing the government deficit. There has been, however, a growing surge of interest in analyzing monetary policy in developing countries.[1] In these studies, investigators have differentiated between the type of policies: accommodative and stabilizing. An accommodative policy is defined to be a policy that provides a regular supply of credit for an expanding economy. A stabilizing policy, in contrast, is a policy that is used to dampen, or offset, undesired changes affecting the economy. In the first accommodative scenario, monetary growth accommodates output growth and price inflation. In the second stabilizing scenario, the monetary authority varies monetary growth in order to counter the

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[1] Recent research has considered several dimensions that could impact on the effectiveness of monetary policy, e.g., uncertainty and labor market frictions (Kilponen & Leitemo, 2008; Sala, 2008); asset substitution (Jones, 2008); international policy coordination (Chapman, 2008; Sahuc & Smets, 2008); exchange rate pressure (Kumah, 2007); Islamic management (Wilson, 2008); fiscal crises and globalization (Sentance, 2008); central bank profitability (Buiter, 2008); monetary union (Kamar & Naceur, 2007); influencing private sector (Weise, 2008); tradeoffs (Graham & Snower, 2008); rules versus discretion (Doyle & Falk, 2008).

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effects of other shocks, depending on the objectives of monetary policy.

Many central banks in developing countries lack independence in their operations. Hence, the objectives of monetary policy may not be clearly defined.[2] The stabilizing function may be targeting output growth. Accordingly, the central bank increases liquidity in order to increase credit expansion and stimulate the economy during periods of a slowdown. In an extreme scenario, the government may be pursuing a leading role in structural, economic, and social development. Hence, the Central Bank may be obliged to provide credit to finance the increased government spending. A problem arises, however, if the increased government spending, by limiting available credit, crowds out private spending.[3] Additionally, the increased spending may not be appropriately geared towards expanding productive capacity. Hence, higher government spending may prove inflationary. Financing the increased government spending via monetization depletes the stock of foreign reserves in a small open economy. As a result, devaluation of the domestic economy may prove necessary, increasing the risk of a vicious cycle of depreciation and inflation.

Given concerns about accommodating higher government spending, central banks may resort to establishing nominal anchors that guide the design of monetary policy. In a small open economy, priorities may be established to defend an exchange rate peg. Hence, the independence of monetary policy is severely undermined, since fluctuations in the interest rate may contradict the target for the exchange rate and the supporting level of foreign reserves.

Some developing countries may decide, however, that pegging the exchange rate is not the optimal anchor for monetary policy if they suffer from high inflation. Hence, targeting inflation may provide a better nominal anchor for the design of monetary policy. Accordingly, the monetary authority establishes a variety of indicators that drive the inflation process. The money supply responds to changes in these indicators in order to keep inflation under control. This scenario deprives the monetary authority of a good deal of independence.

Under a scenario that involves a higher degree of independence, the Central Bank may follow a more discretionary approach. Hence, priorities may be established, and not necessarily announced, in reaction to economic development. The design of monetary policy may be targeting the stability of the exchange rate, the price level, or output growth.

Regardless of the objectives established for monetary policy, the ultimate result of fluctuations in the money supply will be absorbed in output growth and price inflation. The transmission mechanism of monetary policy to the real economy is through aggregate demand. The size of the aggregate demand shift is dependent on the liquidity effect attributed to a change in the money supply and the sensitivity of the aggregate demand to the change in liquidity. Crowding out may arise, however, if inflationary expectations develop and/or capital outflow increases.

Assuming that monetary policy is effective in stimulating demand growth, the allocation of the change in demand between output growth and price inflation is dependent on constraints on the supply side of the economy. Capacity constraints are bound to accelerate price inflation. Nonetheless, wage and/or price rigidity may reinforce the real effect and moderate the nominal effects of fluctuations in the money supply.

Realizing the complexity surrounding the effectiveness of monetary policy, the present investigation will shed some light on the results of variation in monetary growth in developing countries. The data under investigation are annual for a large sample of developing countries. The time-series evidence will indicate the effects of expansionary and contractionary monetary shocks on real output growth and price inflation within countries.

Cross-country regressions will evaluate constraints that determine the allocation of monetary shocks between output growth and price inflation across countries: supply constraints, the elasticity of aggregate demand, and the variability of monetary shocks. Underlying these factors are structural constraints on the demand and supply sides of the specific economy. Additionally, the analysis will demonstrate the effects of monetary shocks on key determinants of macroeconomic performance across countries.

To anticipate the results, both demand and supply constraints differentiate the impact of monetary policy on real growth across countries. The response of real growth increases the more elastic aggregate demand to the change in monetary growth. Moreover, supply-side constraints decrease the output response and increase price inflation in the face of monetary shocks. Economic performance is dependent on monetary variability. Across countries, trend output growth increases the higher the response of real growth to monetary shocks. Consistent with the stabilizing function of monetary policy, output variability decreases the higher the response of real growth to monetary shocks. In contrast, the variability of monetary shocks increases both the trend and variability of price inflation across countries. This evidence indicates the importance of monetary policy in determining economic performance in developing countries. Addressing structural constraints and increasing policy credibility are key determinants of the effectiveness of monetary policy.

[2] Some have claimed that lags, rigidities, and the disequilibrium analysis are the essence of short-term LDCs macro understanding (for example, Behrman, 1981; Crockett, 1981). Others have focused on more elaborate analysis of structural differences between developing and developed countries. See Porter and Ranney (1982) for a summary of the theoretical literature. For more detailed references, see Behrman and Hanson (1979), Cline and Weintraub (1981), and Bruno (1979). For some empirical evidence on the success of macroeconomic policies in developing and developed countries, see Kandil (1991).

[3] For more details, see Bean and Buiter (1987). Some studies have considered the evidence of specific factors that determine crowding out in the face of government spending. First is the impact of government spending on the interest rate (see, e.g., Evans, 1987). A second strand of the literature considered the sensitivity of investment demand to the change in the interest rate (see, e.g., Chirinko, 1993).