

The Lags in the Transmission of Monetary Policy to Prices

Considering its uncertain and variable nature, the lags in the effects of monetary policy on activity and prices are a constant concern for policymakers. Among the various channels most often cited as relevant to the monetary policy transmission, the demand channel, the channel associated with external variables and the expectations channel receive special attention from the Central Bank. Historically, these channels have been the most effective ones, despite the growing importance of the credit channel in recent years. This box discusses issues regarding the lags of the monetary policy transmission mechanism in the Brazilian economy, with particular attention to estimates from economic models in use at the Central Bank.

In a way, the demand channel reflects the institutional arrangement of the production sector, in the sense that the lags in the transmission mechanism are determined by the duration of contracts between agents (firms, individuals and governments) and the frictions that slow down the propagation of shocks along the production chain. The exchange rate channel is primarily based on two no-arbitrage conditions: one in the asset market and the other in the market of internationally tradable goods. Due to relatively lower transaction costs, the first mechanism, in principle, would operate quickly. However, due to the difficulties in accurately assessing the risks associated with both the domestic and foreign assets, it is not a simple task to identify arbitrage opportunities. This makes highly unpredictable the movements of the exchange rate that are related to the functioning of asset markets. In turn, the channel capturing expectations – which are directly implicated by the structure of the economy in models with rational expectations –

of the three, is perhaps the easier to understand. Nevertheless, the uncertainty that this channel adds to the analysis is significant – although the evidence for the Brazilian case suggests that expectations respond to policy decisions in an important way.¹

Due to the maturity of Brazilian institutions and the perception of the consolidation of macroeconomic stability, expectations regarding the evolution of the Brazilian economy seem to be well anchored. This phenomenon could be illustrated by the resilience of the economy to the recent turmoil in international financial markets. Indeed, expectations regarding economic activity, exchange rate and the premium on Brazilian sovereign bonds experienced much lower deterioration compared to the levels observed in the past, even when the shocks were smaller. In such circumstances, with expectations better anchored, hence less volatile, the demand channel becomes more important.

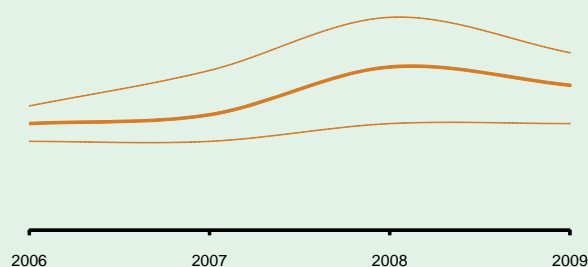
As explained in previous boxes and other publications of the Central Bank, the transmission of monetary policy to prices through the demand channel occurs in two steps. Initially, through the mechanism described in the Investment and Savings Curve (IS Curve),² a monetary policy easing (a reduction of the base interest rate Selic) leads to a fall of the long-term interest rates. Lower rates allow individuals and companies to finance consumption and investment at lower cost, which ultimately boosts aggregate demand. According to the estimates of the Central Bank in recent years, the maximum effect of the policy rate on aggregate demand would take something like two to three quarters to materialize. In the second step, and given a constant aggregate supply in the short run, the Phillips curve implies that the increase in demand puts upward pressure on the market prices of goods and services. Due to the wage rigidity inherent in labor contracts, the maximum effect on prices would take around three to four quarters to materialize, according to the estimates of the Central Bank.

1/ See, eg, A. S. Bevilaqua, M. Mesquita and A. Minella (2007), “Brazil: taming inflation expectations,” Central Bank of Brazil, Working Paper Series N. 129; F. A. Carvalho and A. Minella (2009), “Market Forecasts in Brazil: performance and determinants,” Central Bank of Brazil, Working Paper Series N. 185.

2/ IS = Investment and Savings.

Figure 1 – Lags in the demand channel

Estimated minimum, average and maximum values



The two main pieces of the small structural models used by the Central Bank are the aggregate demand equation (IS curve) and the aggregate supply equation (Phillips curve). Figure 1, drawn from a broad set of different specifications for the IS and Phillips curves, illustrates how the lags (minimum, average and maximum) in the transmission of monetary policy to prices have evolved in recent years. The figure considers the combined effect of interest rates on aggregate demand and the effects of the latter on prices.

It should be noted that in recent years, there was an increase in the lags of the monetary policy transmission mechanism, as a result of the longer duration of contracts over the same period. In this regard, the maximum effect on economic activity of the ongoing monetary policy easing, which started in January 2009, will take place next semester, whereas the effect on prices will materialize by the end of this year and early 2010.

The lags in the transmission mechanism can also be evaluated through the lens of the medium-sized semi-structural models used by the Central Bank. These models allow decomposing the total effects of monetary policy into the contributions of the three aforementioned channels: exchange rate channel, expectations channel and demand channel.³ According to the medium-sized models, using information for the inflation-targeting period, the maximum effect of changes in the Selic rate on output and inflation takes, respectively, 3-4 quarters and 5-6 quarters to materialize.⁴ In addition, three points should be highlighted: (1) there are no large differences between the lags implied by the small structural models and those implied by the medium-sized semi-structural models; (2) the effect of monetary policy through the expectation channel occurs relatively faster than through the other channels; and (3) according to the medium-sized models the lags associated with the exchange rate channel are relatively long, contrary to the common sense. This suggests that the exchange rate channel operates more intensively

3/ In the medium-sized models, the demand channel is represented by the channels associated with the interest rates that are relevant for consumption and investment. For details, see André Minella and Nelson F.Souza-Sobrinho (2009). "Monetary Channels in Brazil through the Lens of a Semi-Structural Model." Central Bank of Brazil Working Paper Series N. 181.

4/ Roughly speaking, these ranges can be seen as average lags for the period 1999/2008.

through the market of tradable goods market than through the asset market.

To conclude, it should be noted that the estimates presented in this box refer to the maximum effect of monetary policy on economic activity and prices through the aggregate demand channel. On the other hand, in statistical sense, the initial impact on activity and prices occurs after 1-2 quarters and 2-3 quarters, respectively.