Special Issue on Inflation Targeting in Latin America

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Editors' Summary

With the advent of the millennium several central banks in Latin America adopted inflation targeting (IT) as a framework for monetary policy analysis and implementation. In so doing, they joined the Reserve Bank of New Zealand and other central banks in advanced economies where IT had been credited with successfully reducing inflation at relatively little cost in terms of employment and growth.

As recently discussed by Powell (2012) and Céspedes, Chang, and Velasco (forthcoming),[1] however, the behavior of Latin American inflation targeters has sometimes differed notably from that of their advanced country counterparts. Perhaps this is clearest when one considers the role of the exchange rate: while flexible exchange rates are an integral part of conventional IT, Latin central banks have often intervened in foreign exchange markets. In fact, foreign exchange intervention has at times worked at odds with the inflation objective (Chang, 2007).

Beyond exchange rate interventions, IT central banks in Latin America have resorted to policy tools other than a conventional reference interest rate. The use of such unconventional tools—which include reserve requirements, liquidity facilities, and central bank debt management—has actually become more frequent following the 2007–08 global financial crisis (see Montoro and Moreno, 2011, for example) in a way that seems complementary to standard policy tools (Powell, 2012). This trend reflects an ongoing reconsideration of the role of unconventional policies in IT, partly brought about by the need to find additional sources of monetary stimulus in advanced countries after policy rates were brought to their minimum level of zero. But, as emphasized in Powell (2012) and Céspedes, Chang, and Velasco (forthcoming), unconventional policies in Latin IT countries were often seen even before the global crisis.

1. An early version of this study circulated as Céspedes, Chang, and Velasco (2012).

This state of affairs has prompted an active debate on inflation targeting, its prospects, and its alternatives in the emerging world. This volume of *Economía* contributes to the debate by presenting five studies on the recent experience and performance of central bank policies in Latin American inflation-targeting countries, with emphasis on whether and how unconventional tools and objectives can be reconciled with received wisdom about IT. The studies, which were part of a project on these topics sponsored by the *Red de Centros* of the Inter-American Development Bank, attempt to provide a narrative of the experience of different IT countries. In addition, they implement various formal techniques in order to model aspects of unconventional policies and quantify their impact in Latin America.

The paper by Franz Hamann, Marc Hofstetter, and Miguel Urrutia discusses Colombia's recent experience, a main aspect of which is that the Banco de la República intervened often, and sometimes quite actively, in the foreign exchange market. According to the authors, these interventions were aimed at preventing excessive exchange rate appreciation, driven by strong inflows of foreign capital. Accordingly, they develop an extension of the basic New Keynesian model in order to allow for a role of the real exchange rate and foreign exchange intervention. The extension assumes that aggregate demand for domestic goods depends on the real exchange rate. In turn, the real exchange rate is determined by the interaction of the current account, the financial account of balance of payments, and a policy rule for foreign exchange intervention. The model is estimated to Colombian data via Bayesian techniques.

Among other interesting findings, Hamann, Hofstetter, and Urrutia's estimations indicate that their proposed foreign-exchange-intervention rule for the Banco de la República exhibits a significant response to perceived misalignments of the real exchange rate. On the other hand, they also find that the estimated coefficients of their model imply a very weak interaction between foreign sector variables, including the real exchange rate, and the model's domestic block, which determines inflation, output, and interest rates. The conclusion is, then, that foreign exchange intervention in Colombia, while quite visible, has had negligible impact on the dynamics of main real aggregates. This raises the question of why the Banco de la República has bothered to intervene in the foreign exchange market at all. While the paper does not directly address this question, Hamann, Hofstetter, and Urrutia conjecture that intervention should be seen as a response by the Banco de la República to political pressures by the executive and the private sector, especially exporters.

A second paper, by Javier García-Cicco and Enrique Kawamura, presents a narrative of Chile's recent IT experience. As in Colombia, García-Cicco and Kawamura stress that the Chilean case includes sporadic but noteworthy episodes of foreign exchange intervention, especially around times of volatile capital flows. García-Cicco and Kawamura's narrative also stresses the response of Chile's Banco Central to the Lehman episode, which included such liquidity provision measures as the lengthening of repo operations and the enlargement of the set of assets acceptable as collateral for central bank loans. To shed light on these policies, García-Cicco and Kawamura propose a dynamic model in which banks need liquidity in order to provide credit and issue deposits with the private sector. To obtain liquidity, banks are assumed to be able to borrow via repos from the central bank. Repo loans must be collateralized with central bank bonds or, possibly, with other assets, and indeed a main virtue of García-Cicco and Kawamura's model is that it allows one to examine the implications of changing the range of assets acceptable as collateral.

A significant payoff of García-Cicco and Kawamura's analysis is that it identifies a new mechanism through which sterilized foreign exchange intervention might have real effects. When the Central Bank of Chile purchases dollars with pesos, it sterilizes the operation via issuance of its own debt. The conventional wisdom behind this sterilization is that it undoes the expansionary effect of the intervention in aggregate demand and its inflationary consequences. However, the authors notice that the increased availability of central bank bonds used to sterilize the purchase of foreign currency allows commercial banks to obtain more repo liquidity from the central bank, which still leads to an overall expansion of credit and, therefore, aggregate demand. This possibility, as García-Cicco and Kawamura stress, implies that foreign exchange intervention requires complementary financial policy if it is not to undermine conventional IT implementation.

García-Cicco and Kawamura calibrate their model to Chilean data and examine the dynamic responses of the model to sterilized foreign exchange intervention (augmented with a liquidity management policy, as just discussed) and to including bank loans, in addition to central bank bonds, as collateral for repos. They tailor the policy experiments to replicate corresponding Chilean episodes. Overall, the model responses are found to accord with intuition and to be quantitatively small.

Two other papers in this volume stress the analysis of reserve requirements, perhaps the dimension along which central bank activism has changed the most since the global crisis (Montoro and Moreno, 2011).

The contribution by Matías Escudero, Martín Gonzalez-Rozada, and Martín Sola reviews the experience of Uruguay and argues that the central bank has employed reserve requirements as a tool, especially when attempting to attain a desired path for exchange rates. To aid in understanding this issue, the authors extend a small, open New Keynesian model to allow for an interbank market and a role for required reserves. The key idea, due to Glocker and Towbin (2012), is to assume that there are two types of banks: deposit banks, which take deposits from households and lend them in the interbank market; and lending banks, which borrow from the interbank market and lend to productive firms. Deposit banks are subject to reserve requirements, which in turn are driven by a policy rule chosen by the central bank.

Escudero, Gonzalez-Rozada, and Sola estimate their model in Bayesian fashion with Uruguayan data under alternative assumptions on financial frictions and policy. A particularly interesting part of the analysis is the comparison of a setting in which the central bank's reference interest rate (the interbank rate in the model) and reserve requirements both respond to inflation, the output gap, and bank credit, against an alternative setting in which the policy interest rate responds to inflation and the output gap only, while reserve requirements respond only to bank credit. It is found that the sacrifice ratio associated with the former setting is higher than the one implied by the latter, which prompts the authors to write "the use of reserve requirements as a policy instrument is successful only when there is a clear separation of the objectives."

The study by Adrián Armas, Paul Castillo, and Marco Vega includes a review of Peru's recent experience with IT. Their discussion emphasizes that Peru has been notable not only in terms of the vulnerability of its financial sector but also in terms of the degree of dollarization of the economy, which has recently subsided but remains high, at around 40 percent of a bank's liabilities. They argue that these features justify the Banco Central de Reserva's deployment of unconventional tools, especially reserve requirements on deposits in financial institutions as well as the latter's short-term debts abroad.

Armas, Castillo, and Vega use Peruvian data to test whether changes in reserve requirements have had a statistically significant effect on the amount and cost of credit provided by the Peruvian financial sector, represented by banks and *cajas muncipales* (small financial institutions). To do this, Armas, Castillo, and Vega adapt ideas developed by Pesaran and Smith (2012), which involve estimating reduced-form forecasting equations relating the impact of the policy variable of interest (here, reserve requirements) on outcome variables (interest rates, credit volumes, and the ratio of short-term

to total debt of banks and *cajas*). The estimated equations are then used to forecast counterfactual scenarios, after which a statistical test can be devised to assess the significance of the average difference of the dynamic paths of the outcome variables with and without the policy. Armas, Castillo, and Vega find that changes in reserve requirements did have a statistically significant effect, and in the expected direction, on the price and quantity of credit granted by banks, as well as on the maturity of bank liabilities. For *cajas municipales,* the results are mixed.

The fifth and last paper, by Adolfo Barajas, Roberto Steiner, Leonardo Villar, and Cesar Pabón, is an empirical study of the characteristics and determinants of monetary policy in Brazil, Colombia, Chile, and Peru. A main question is whether management of the conventional policy tool, the central bank reference interest rate, has been affected by unconventional determinants, such as the real exchange rate or financial stability; the authors also examine if there are changes in regime, presumably in periods of financial turbulence. Accordingly, they estimate interest rate rules that allow for Markov regime switching. Their results suggest that interest rate policy in the four countries under study has been quite stable. While there is some evidence of sensitivity to exchange rates in Colombia and to credit growth in Chile, policy rates have mostly followed conventional guidelines, in the sense of reacting to inflation rates and output gaps. These guidelines were suspended in periods of exacerbated financial volatility, such as the Lehman crisis, and replaced by a more accommodative stance on interest rates. Such suspensions, however, were infrequent and short-lived.

Barajas, Steiner, Villar, and Pabón also estimate policy rules for foreign exchange intervention. Interestingly, they find little evidence that intervention has responded to exchange rate volatility. Rather, the data suggest that central banks have intervened mostly to prevent excessive exchange rate misalignment, and in an asymmetric way: intervention has occurred more strongly in response to excessive appreciation rather than to depreciation.

All in all, the articles in this volume contribute to the broader debate on the consequences and effectiveness of unconventional tools, their relation to policy goals beyond inflation-output stabilization, and their interactions with the standard objectives of monetary policy under flexible IT. They provide evidence that unconventional tools used by Latin American IT central banks, such as exchange rate intervention and reserve requirements, are able to affect exchange rates, interest rates, and credit creation. In that sense, these tools may offer valuable options for central banks that, because of either their mandate or specific situations, would like to affect those variables without

using their policy rate. The articles also offer some evidence that the use of these tools may ease policy trade-offs between the standard goals of IT central banks, although much more research is needed to settle the ongoing debate on this issue. Finally, the results obtained also indicate that, despite the frequent resort to unconventional policies, central banks in the region use their main policy tool—the short-term policy rate—mainly for standard purposes of output inflation stabilization. In that regard, IT countries in Latin America still seem to rely on conventional tools for conventional goals.

We owe a big debt to several people and institutions for their help in making this valuable issue of *Economía* a reality. Most of the papers in this issue were first written as part of a project sponsored by the Inter-American Development Bank and organized by Andrés Fernández, Andrew Powell, and Alessandro Rebucci, and Roberto Chang as external adviser. The papers then formed the core of an associated conference hosted by Peru's Banco Central de Reserva, with additional financing from the IDB. Subsequent revisions and final versions of the papers were reviewed by anonymous referees and associate editors of the journal. We are grateful to each of them for their evaluations, suggestions, and general help in maximizing the quality of the final products. *Economía*'s managing editor, Roberto Bernal, steered the production of this issue with his usual efficiency and dedication. We would like to thank the IDB for their ongoing financial support. Finally, we acknowledge the essential and sustained support of the Latin American and Caribbean Economic Association in ensuring the continual publication of this journal.

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