THE INTERDEPENDENCE OF FISCAL AND MONETARY POLICY

INTRODUCTION

Editors:
Santiago García-Verdú and Jorge Ponce

2020 Joint Research Program

XXV Meeting of the Central Bank Researchers Network

The Center for Latin American Monetary Studies' (CEMLA) Board of Governors created the Joint Research Program with the dual aim of promoting the exchange of knowledge among researchers from Latin American and Caribbean central banks and of providing insights on topics that are of common interest to the region. Annually, the Central Bank Researchers Network chooses a subject to study among its members. The collection of papers in the Joint Research Program contains research by researchers from CEMLA's associates and collaborating members. It is published as a working paper series to encourage debate among the central bank and academic community. The views expressed in the Joint Research Program are those of the author(s) and do not necessarily represent the views of their central banks, CEMLA's Board of Governors, or CEMLA's Staff. Previous volumes are available at https://www.cemla.org/jointresearch.html.

The Interdependence of Fiscal and Monetary Policy

Jorge Ponce* and Santiago García-Verdú†

*Banco Central del Uruguay**
Banco de México and CEMLA†

Following the 2019 Joint Research Project on 'Fiscal Sustainability and Institutional Change' a natural step in our research agenda for 2020 was to explore 'The Interdependence between Fiscal and Monetary Policies'. This topic is relevant on its own and from an everyday perspective for some jurisdictions. Moreover, the COVID-19 pandemic is calling for heightened levels of public intervention worldwide. Policy options may be constrained and policy choices during the pandemic may shape the economy for long time. Hence, it is worth to provide research with the aim of informing policymakers about the interdependence between fiscal and monetary policies, as well as about its potential implications in the aftermath of the pandemic.

In mid of exceptional circumstances during 2020, nine projects transited from scratch to publishable versions. In the way we counted with the invaluable advice by Carlos Urrutia from ITAM, the fruitful comments by anonymous peer-reviewers, and the support by CEMLA staff. The outcome is compiled in a collection of papers with new empirical results and insights for the participating jurisdictions. They should help decision making processes and also serve as a platform for further research on the topic. The interaction between fiscal and monetary policies and its consequences can be studied from different perspectives. This Joint Research Project delivers results from the application of some of them. Hence, it presents complementary views and results aiming to help the understanding of a complex topic. In particular, the degree of fiscal dominance is analyzed from a macroeconomic perspective for fourth jurisdictions; disaggregated information is used to go deeper in understanding the specific channels through which fiscal outcomes can affect monetary policy; and a series of macroeconomic models are developed and used to understand under what circumstances may a coordinated response from the fiscal and

*Head Financial Stability Department, Banco Central del Uruguay. E-mail: jponce@bcu.gub.uy.
†Research Advisor, CEMLA (On Commission from Banco de México). E-mail: sgarciav@cemla.org

monetary authorities deemed optimal.

Starting from the fact that government nominal debt should be backed by future net fiscal resources or by seigniorage, if there is the perception that fiscal resources will be insufficient then the need to obtain resources from monetary creation rises. In turn, this would put pressure on the general price level and affect monetary policy, a situation commonly known as fiscal dominance. Given the importance of this issue, the main objective of several contributions in this Joint Research Project is to evaluate the degree to which fiscal dominance could be present in the region.

Conceptually, poor fiscal outcomes (e.g. high debt levels without foreseeable improvements in the budget deficit) could lead to increasing prices today as agents anticipate the rising inflation and pass it into current prices and wages. While theory suggests that inflation expectations play an important role in transmitting fiscal considerations into inflation, little empirical evidence exists on the matter. The main objective of other papers in this Joint Research Project is to provide new empirical evidence about specific channels, e.g. inflation expectations and interest rate spreads, through which fiscal policy actually affects and even impair monetary policy.

Other contributions complete the analysis by assessing complementarities between fiscal and monetary responses to relevant external and internal shocks, showing the conditions under which both policies might complement each other. This line of research also study how fiscal consolidation differentially affects the risk premium channel in a monetary union depending on whether or not the zero lower bound is reached; and how recent integration efforts in banking and capital markets change the relationship between fiscal fundamentals and sovereign spreads.

Empirical results about the degree to which fiscal dominance could be present are shown for the cases of Belize, Costa Rica, Guatemala and Uruguay.

Candice Soutar and Rumile Arana from the Central Bank of Belize find evidence of fiscal dominance in Belize by applying a Dynamic Ordinary Least Squares (DOLS) methodology. The evidence is stronger between the first quarter of 2006 and the third quarter of 2013, with a higher percentage of central government debt being financed by the central bank. They also find empirical evidence of a statistically significant negative relationship between negative fiscal outcomes and the country's foreign reserves by using an Autoregressive Distributive Lag (ARDL) model. This relationship gets stronger in periods of higher fiscal dominance and, according to the authors, represents a worrisome trend given the fact that the main policy objective of the Central Bank of Belize is to maintain a stable fixed exchange rate.

For the case of Costa Rica, Valerie Lankester and Catalina Sandoval assess fiscal dominance through three complementary methodologies. First, they use a Vector Autoregression (VAR) model and find mixed results that do not allow to clearly identify a regime of fiscal dominance in the country. Second, they focus on the reaction function of the central bank by using an Autoregressive Distributive Lag (ARDL) model. Their results show that the monetary policy rate reacts positively to a raise on debt in the long run, but does not to the fiscal deficit. Third, in order to evaluate the long-run relationship between inflation and the fiscal deficit they apply an ARDL model with error correction. They find evidence that the fiscal deficit affects inflation in the long-run and that this relationship was stronger in the 90s. Overall, their findings suggest that fiscal policy in Costa Rica does not affect monetary policy, except during the 90s.

Empirical evidence of fiscal dominance during the 80s and 90s is also shown for the case of Guatemala. José Roany Toc Bac analyzes the interdependence of monetary and fiscal policy in Guatemala using the intertemporal budget constraint of the government. Their estimations of both DOLS and ARDL models support this result by showing a statistically significant deficit-inflation relationship. They also show that this relationship changes between 1999 and 2008 where no statistically significance deficit-inflation relationship is fund. In the most recent period, however, the results suggest evidence of fiscal dominance again but with a wider confidence interval and a fiscal deficit relationship not statistically significant, which may be related to insufficient data observations for this period.

Two complementary strategies are followed by Elizabeth Bucacos in order to evaluate the degree of fiscal dominance in Uruguay. First, she quantifies the fraction of fiscal expenditures that is financed by monetary liabilities by using a DOLS model. Second, she applies an ARDL model in order to analyze the effects of fiscal deficit on the price level and inflation because inflationary financing may subordinate the monetary to the fiscal policy, signaling fiscal dominance. Overall, the results suggest that inflation has not been exclusively a monetary phenomenon during the last two decades. Moreover, there is some evidence of inflationary financing with a mild degree of fiscal dominance.

The previously summarized work focus on assessing situations where there is fiscal dominance such that government deficits are financed by the central bank, thus imposing a constraint to the effectiveness of monetary policy. However, even outside such extreme framework of fiscal dominance, government spending could impair monetary policy by affecting its transmission mechanisms and altering the effect of fiscal expansions on the economy. Another fourth papers in this Joint Research Project explore deeper this kind of relationships.

For the case of Colombia, Carolina Arcila, Fernando Arias and Ignacio Lozano provide evidence on fiscal and monetary policies relationship by exploring empirically the credit risk channel. Under this approach fiscal policy plays an important explanatory role in the sovereign risk premium. In turn, it could affect the exchange rate and inflation expectations, conditioning the reaction by the central bank. They use monthly data in order to estimate both separately and jointly the reduced form core equations of a system that describes the credit risk channel in a small-open economy. Results suggest that fiscal policy in Colombia affects the country's sovereign risk marginally. Nevertheless, there is not clear evidence suggesting that the monetary policy stance has been influenced through this credit risk channel. Using a semi-structural model that is estimated for Costa Rica, Guatemala and the Dominican Republic, Nabil López and Francisco A. Ramírez provide further evidence about the transmission mechanisms through which monetary and fiscal policies interact. More precisely, they estimate the impact of fiscal shocks on market interest rate spreads for these three countries in a period where all follow an inflation targeting regime. Their results provide evidence suggesting that the effectiveness of monetary is affected by the role of fiscal policy in determining market interest rates.

The decoupling between public debt fundamentals and bond spreads in the aftermath of the European sovereign debt crisis is studied for the cases of Spain, France and Italy by Luis Guirola and Javier J. Pérez. They first generate a novel measure of fiscal sustainability based on a large number of Monte-Carlo debt trajectory simulations on the basis of Vector Auto Regressions (VARs) models. Then, they use this measure to establish that the relationship between fundamentals and sovereign spreads differs across countries, varies over time, and in particular, became weaker after the European sovereign debt crisis. Possible explanations for these results might be related to policy actions in the euro area that affect the interdependence of fiscal and monetary policies: a deepening in the fields of banking and capital markets' integration; further supra-national oversight of fiscal policies; and bold response by the European Central Bank in order to restore the adequate functioning of the transmission mechanism of monetary policy in the euro area.

Miguel Mello and Jorge Ponce exploit a unique dataset of inflation expectations by price setters in Uruguay to assess whether these agents are influenced by fiscal policy outcomes when forming their inflation expectations. The authors find empirical evidence of a positive correlation between the budget deficit-to-GDP and inflation expectations, which is robust to considering other fiscal variables and to controlling for macroeconomic covariates. These results suggest an interdependence between fiscal and monetary policies: monetary policy is impaired and faces more challenges to maintain inflation expectation anchored when the fiscal outcomes worsen.

Two more papers on this Joint Research Project rely on macroeconomic models, semi-structural and dynamic stochastic general equilibrium (DSGE) ones, to assess the interaction between fiscal and monetary policies.

Marine C. André, Alberto Armijoy, Sebastián Medinaz and Jamel Sandoval analyze the interaction between monetary and fiscal policies in Mexico by using a semi-structural, small open economy model. They consider rigorously the dependence of that economy to oil exports, and build a fiscal policy block considering the fiscal deficit depending on output, an endogenous sovereign risk premium, a state-owned oil company and the dynamics of public debt with domestic and foreign components. Using the model to study qualitatively the effects of shock, they find that the risk premium channel transmits fiscal shocks into the monetary policy block, calling for the central bank to stabilize inflation. Whereas, an exogenous monetary policy shock affects the fiscal block mainly through the interest rate influencing the debt service, leading to a fiscal response in order to stabilize deficit. Overall, the results call for coordination between fiscal and monetary policies in response to shocks.

The dynamics of debt sustainability and fiscal space in a heterogeneous monetary union in normal and zero-lower-bound times is studied in a DSGE model by Javier Andrés, Pablo Burriel and Wenyi Shen. They model of a two-country monetary union, calibrated to match characteristics of Spain and Germany, where policy shocks change the market's expectation about future primary surplus, and produce a direct effect on the sovereign risk premium and macroeconomic responses of the economy. In normal times, the costs of a government spending driven fiscal consolidation in the high-debt country are greatly diminished when the consolidation improves its debt sustainability prospects. Fiscal consolidations in both members of the monetary union decrease real interest rates and amplify the reduction in risk premium in the highly-indebted country, improving union-wide output in the long run, at the cost of lower output in the low-debt country in the short run. On the contrary, when monetary policy is constrained at the zero lower bound, the risk premium channel arising from the endogenous determination of debt sustainability becomes muted.

Overall, the collection of papers resulting from the 2020 Joint Research Project provide an extensive and up-to-date treatment of the interaction between fiscal and monetary policies, with a special focus on jurisdictions that are member of CEMLA. Together with the 2019 results on fiscal sustainability and institutional change, these papers help to inform decision makers in the region. They also pave the road for further research on this very important topic.

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Contributors

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Contributing Authors

Marine C. André
Banco de México

Javier Andrés
Universidad de Valencia

Rumile Arana
Banco Central de Belice

Fernando Arias-Rodríguez
Banco de la República (Colombia)

Alberto Armijo
Banco de México

Elizabeth Bucacos
Banco Central del Uruguay

Pablo Burriel
Banco de España

Santiago García-Verdú
Banco de México and CEMLA

Luis Guirola
Banco de España

Javier J. Pérez
Banco de España

Valerie Lankester-Campos
Banco Central de Costa Rica

Nabil López-Hawa
Banco Central de la República Dominicana

Ignacio Lozano-Espitia
Banco de la República (Colombia)

Sebastián Medina
Banco de México

Miguel Mello
Banco Central del Uruguay

Jorge Ponce
Banco Central del Uruguay

Francisco A. Ramírez
Banco Central de la República Dominicana

Manuel Ramos-Francia
CEMLA

José Roany Toc Bac
Banco de Guatemala

José Manuel Sánchez
Banco de México and CEMLA

Catalina Sandoval
Banco Central de Costa Rica

Jamel Sandoval
Banco de México

Wenyi Shen
Oklahoma State University

Candice Soutar-Smith
Banco Central de Belice

Articles in the 2020 Joint Research Program

The Interdependence of Fiscal and Monetary Policies in Uruguay
Elizabeth Bucacos

Interdependece between Fiscal and Monetary Policy: The Case for Costa Rica
Valerie Lankester-Campos and Catalina Sandoval

Interdependence of Fiscal and Monetary Policy in Guatemala
José Roany Toc Bac

The Interaction of Monetary and Fiscal Policy: Evidence from Belize
Candice Soutar-Smith and Rumile Arana

The Decoupling between Public Debt Fundamentals and Bond Spreads after the European Sovereign Debt Crisis
Luis Guirola and Javier J. Pérez

Fiscal Policy and Inflation Expectations
Miguel Mello and Jorge Ponce

Fiscal and Monetary Policies Relationship in Colombia: Exploring Empirically the Credit Risk Channel
Ignacio Lozano-Espitia and Fernando Arias-Rodríguez

The Interaction between Monetary and Fiscal Policy through the Lens of a Semi-Structural Model: The Case for Central America and the Dominican Republic
Nabil López and Francisco A. Ramírez

Policy Mix in a Small Open Emerging Economy with Commodity Prices
Marine C. André, Alberto Armijo, Sebastián Medina, and Jamel Sandoval

Debt Sustainability and Fiscal Space in a Heterogeneous Monetary Union: Normal Times vs the Zero Lower Bound
Javier Andrés, Pablo Burriel, and Wenyi Shen

Inflation Dynamics under Fiscal Deficit Regime-Switching
Manuel Ramos-Francia, Santiago García-Verdú, and José Manuel Sánchez