Monetary and Fiscal Policy Interactions and the Impact of the COVID-19 Pandemic: The Latin American Experience in Perspective*

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Abstract

Although the onset of the pandemic pressured monetary and fiscal policy across the globe, deficit finance was aided by the large, established debt markets in countries like the United States. The expansionary efforts in emerging markets like Latin America put greater strains on their more limited capacity. This paper demonstrates strong and significant interactions between monetary and fiscal policy in Latin America around the time of the pandemic. This was far from a one-way street. Not only did larger deficits elicit more monetary accommodation but also looser monetary policy seems to have encouraged more fiscal expansion.

Keywords: Central Banks; Budget Deficits; Latin America; COVID-19

JEL classification: E58; E52; G15

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Introduction

The onset of the pandemic led to intense pressure on both monetary and fiscal policy around the world. While not matching the scale of the US policy responses in absolute size, the expansionary efforts in emerging markets often put greater strains on their more limited capacity. This was especially evident in Latin America, where the rise in overall indebtedness from 68.9% of GDP in 2019 to 79.3% in 2020 made it the most indebted region in the world (see Vanoli, 2021). The Brazilian support package of as much as USD 10 billion per month exceeded that of any other developing nation, helping Brazil's GDP exceed its pre-pandemic January 2020 levels by July but coming at the expense of potentially disastrous longer-term fiscal consequences (Magalhaes and Pearson 2020). Even as budget deficits in Latin America as a whole subsequently improved in 2021, gross debt remained elevated relative to pre-pandemic levels (Grittayaphong and Restrepo-Echavarria, 2022). Accompanying monetary expansion can not only provide additional stimulus but also help the government finance its deficits through monetization of the new debt issues. This financing channel is particularly important in countries that lack the deep market for government debt enjoyed in nations like the United States. Although rising central bank independence in Latin America may have worked to reduce this practice (Burdekin and Laney, 2016), the pandemic policy responses pushed deficits to levels difficult, if not impossible, to sustain without supporting monetary expansion.

What if monetary accommodation is not provided? In that case, financing burdens will rise if the government is forced to collect revenues from conventional taxes rather than seigniorage revenue (Nolivos and Vuletin, 2014). Meanwhile, bond financing will push bond

prices down and interest rates up unless there is an accompanying increase in bond demand. Sargent and Wallace (1981) demonstrated that such bond-financed deficits eventually become not only costly but also non-sustainable – and, the shallower the country's financial markets, the more quickly that point is likely to be reached. It would therefore not be surprising for governments confronted with more independent central banks to run smaller deficits. This appears to have been true across core industrial countries (Burdekin and Laney, 1988; Jonsson, 1995); emerging post-Communist economies in Eastern Europe (Bodea, 2013); and across Latin America (Burdekin and Laney, 2016). This suggests that the linkage between monetary and fiscal policy is by no means a one-way street. Just as rising deficits may elicit more monetary expansion, more accommodative monetary policy makes fiscal expansion both less costly and more feasible than when budget deficits must be financed through bond finance and/or imposing higher taxes.

Methodology and Data

Elgin et al. (2021) consider interplay between monetary policy and the government's fiscal policy moves and associated support measures following the onset of the coronavirus pandemic. Their focus on interest-rate setting left little room for manoeuvre after most central banks quickly cut their policy rates to near zero after the onset of the pandemic, however. Continued monetary expansion is captured in this study by the growth in the monetary base associated with mass purchases of government bonds and other securities (cf, Burdekin and Nguyen, 2023). Meanwhile, fiscal policy is assessed in terms of the government's budget balance (tax revenues less government expenditure). This series is then scaled by nominal GDP in order to avoid non-stationarity and obtain a variable comparable across countries. Monetary accommodation of

rising deficits would imply a *negative* monetary base reaction to the fiscal variable (i.e., more money as the budget balance worsens). Insofar as looser monetary policy encourages fiscal expansion, we would also expect a negative coefficient on monetary base growth in the fiscal equation.

In addition to their interactions with each other, the fiscal and monetary series are also regressed on inflation and their own lags.[1] A countercyclical response to inflation would imply negative coefficients in the monetary base response but positive coefficients in the fiscal equation. Finally, pandemic-specific reactions are captured using data available from Oxford University's "COVID-19 Government Response Tracker" (Hale et al. 2022). The Oxford University dataset utilizes an ordinal scale and we incorporate their series on the overall level of government response, which encompasses their "Containment and Health Index" ('lockdown' restrictions and closures plus measures such as testing policy and contact tracing and investment in vaccines), their "Stringency Index" (strictness of 'lockdown style' policies), their "Economic Support Index" (income support, debt relief etc.) and their "Risk of Openness Index." This overall Government Response Index is measured on a scale of 0–100, with zero being lowest and 100 representing maximum intensity.[2]

The main limiting factor for the countries included in our analysis was the availability of monthly data on the government's budget balance. Monthly series are needed in order to have sufficient degrees of freedom for an analysis centered around the onset of the pandemic. We were able to obtain consistent data for seven Latin American countries (Argentina, Brazil, Chile, Colombia, Guatemala, Mexico and Peru), for which we estimate monetary and fiscal equations

[1] The first difference of the CPI inflation rate is employed in the econometric analysis due to non-stationarity in the inflation rate itself. Additional allowance for responses to exchange rate movements showed this variable to never be significant in the regression analysis.
[2] We did not incorporate the sub-indices due to the frequently high correlations between them.

over the January 2018-September 2022 interval. We also present re-estimation of these equations over the pandemic-only 2020-2022 period. Finally, we compare the Latin American results with findings for a broader group of 14 countries where we add available series on three European countries (Sweden, Switzerland and the United Kingdom), two Asian countries (Japan and South Korea), and the United States.[3] All data sources are listed in the Appendix.

Table 1 provides summary statistics on each series and the respective correlation matrices are depicted in Table 2. The largest correlation for the Latin American dataset is that between monetary base growth and budget balance, with the negative sign being consistent with deficits and monetary expansion going hand in hand. Although this correlation is also negative across the 14-country group, its much smaller magnitude suggests that deficit accommodation was a more important phenomenon in Latin America over our sample period. These relationships are explored further in the regression analysis described below.

Empirical Results

Regression analysis over both 2018-2022 and 2020-2022 confirms significant negative effects of our budget balance variable on monetary base growth in Latin America. This suggests that rising deficits were typically being monetized by the central bank. The fact that this channel is not confirmed for the broader group of 14 countries points to such pressures for monetary accommodation being more intense in Latin American countries with their smaller capacity and less established debt markets.

Monetary base expansion has a significant negative effect on budget balance in all cases. This is consistent with fiscal policy becoming more expansionary when the central bank follows

[3] European Union nations could not be included owing to the absence of national monetary data.

a looser monetary policy. In this case, the government has less need to resort to bond issuance or tax hikes to fund increased spending, making deficits less costly to the economy (at least initially) and therefore more attractive to the government. In essence, greater degrees of deficit monetization and bigger deficits seem to go hand in hand.

The results also reveal consistently significant effects of the Government Response Index. Not surprisingly, a rising Government Response Index works to push both monetary and fiscal policy in an expansionary direction. There is also some support for countercyclical responses to inflation for both monetary and fiscal policy in the Latin American case. This is not true for the broader group of 14 countries, however.

Conclusions

This paper explores the interactions between monetary and fiscal policy around the time of the pandemic. The relationships appear stronger in Latin America than elsewhere and regression analysis confirms significant negative effects of budget deficits on Latin American monetary base growth. Rising deficits being monetized by Latin American central banks is consistent with pressures for monetary accommodation being especially intense in countries with less established debt markets. The interactions run both ways, however. We not only find that larger deficits elicit more monetary accommodation but also that looser monetary policy encouraged more fiscal expansion. Money finance makes deficits less costly in the short run, albeit at the risk of substantial inflation risks over the longer term.

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Table 1: Summary Statistics

A. Latin American Group (7 countries; January 2018-September 2022)

Variable	*Mean*	*Standard Deviation*	*Minimum*	*Maximum*
Monetary Base Growth	0.01	0.06	-0.19	0.35
Budget Balance/GDP	-0.01	0.02	-0.12	0.10
Govt Response Index	31.15	31.08	0	87.55
Change in the Exchange Rate per $US	0.01	0.05	-0.13	0.36
Change in CPI Inflation Rate	0.01	0.57	-6.00	4.00

B. Global Group (14 countries; January 2018-September 2022)

Variable	*Mean*	*Standard Deviation*	*Minimum*	*Maximum*
Monetary Base Growth	0.01	0.05	-0.19	0.35
Budget Balance/GDP	-0.02	0.05	-0.32	0.14
Govt Response Index	29.79	29.50	0	87.55
Change in the Exchange Rate per $US	0.01	0.04	-0.13	0.36
Change in CPI Inflation Rate	-0.01	1.46	-35.00	5.00

Table 2: Correlation Coefficients

A. Latin American Group (7 countries; January 2018-September 2022)

	Monetary Base Growth	Budget Balance/ GDP	Govt Response Index	Change in Exchange Rate	Change in CPI Inflation
Monetary Base Growth	1.00				
Budget Balance	-0.28	1.00			
Govt Response Index	0.12	-0.24	1.00		
Change in Exchange Rate	0.04	0.02	-0.07	1.00	
Change in CPI Inflation	-0.06	0.10	0.05	-0.02	1.00

B. Global Group (14 countries; January 2018-September 2022)

	Monetary Base Growth	Budget Balance/ GDP	Govt Response Index	Change in Exchange Rate	Change in CPI Inflation
Monetary Base Growth	1.00				
Budget Balance	-0.05	1.00			
Govt Response Index	0.16	-0.11	1.00		
Change in Exchange Rate	0.03	0.03	-0.05	1.00	
Change in CPI Inflation	-0.03	0.01	0.01	0.001	1.00

Table 3: Latin American Regressions (7 countries; January 2018-September 2022

	Monetary Base Growth (1)	*Budget Balance/ GDP* (2)
Monetary Base Growth		-0.099**
		(0.034)
Lagged Monetary Base Growth	-0.177*	
	(0.089)	
Budget Balance/GDP	-0.846***	
	(0.176)	
Lagged Budget Balance/GDP		0.058
		(0.077)
Government Response Index	0.013**	-0.013**
	(0.005)	(0.004)
Change in Exchange Rate per $US	-0.001	-0.011
	(0.040)	(0.028)
Change in CPI Inflation	-0.003*	0.002**
	(0.001)	(0.001)
Constant	0.002	-0.006***
	(0.003)	(0.002)
Observations	369	369
R-squared	0.136	0.154

Notes: ***, **, and * denote significance at the 99%, 95%, and 90% levels, respectively; robust standard errors are in parentheses (and Government Response Index has been divided by 100).

Table 4: Latin American Pandemic-only Regressions (January 2020-September 2022

	Monetary Base Growth (1)	*Budget Balance/ GDP* (2)
Monetary Base Growth		-0.080**
		(0.027)
Lagged Monetary Base Growth	-0.211	
	(0.132)	
Budget Balance/GDP	-0.707**	
	(0.201)	
Lagged Budget Balance/GDP		0.058
		(0.077)
Government Response Index	0.067***	-0.031**
	(0.010)	(0.009)
Change in Exchange Rate per $US	-0.023	-0.001
	(0.070)	(0.040)
Change in CPI Inflation	-0.009	0.004*
	(0.006)	(0.002)
Constant	-0.028***	0.006
	(0.006)	(0.005)
Observations	210	210
R-squared	0.175	0.210

Notes: ***, **, and * denote significance at the 99%, 95%, and 90% levels, respectively; robust standard errors are in parentheses (and Government Response Index has been divided by 100).

Table 5: Global Regressions (14 countries; January 2018-September 2022

	Monetary Base Growth (1)	*Budget Balance/ GDP* (2)
Monetary Base Growth		-0.071**
		(0.029)
Lagged Monetary Base Growth	-0.099	
	(0.087)	
Budget Balance/GDP	-0.080	
	(0.072)	
Lagged Budget Balance/GDP		0.556***
		(0.146)
Government Response Index	0.026***	-0.006
	(0.005)	(0.004)
Change in Exchange Rate per $US	0.015	0.014
	(0.026)	(0.033)
Change in CPI Inflation	-0.001	0.001
	(0.001)	(0.001)
Constant	0.003	-0.005*
	(0.002)	(0.002)
Observations	741	740
R-squared	0.041	0.319

Notes: ***, **, and * denote significance at the 99%, 95%, and 90% levels, respectively; robust standard errors are in parentheses (and Government Response Index has been divided by 100).

Table 6: Global Pandemic-only Regressions (January 2020-September 2022)

	Monetary Base Growth (1)	*Budget Balance/ GDP* (2)
Monetary Base Growth		-0.056**
		(0.026)
Lagged Monetary Base Growth	-0.103	
	(0.111)	
Budget Balance/GDP	-0.068	
	(0.059)	
Lagged Budget Balance/GDP		0.173
		(0.161)
Government Response Index	0.079***	-0.016
	(0.009)	(0.012)
Change in Exchange Rate per $US	0.018	0.090
	(0.048)	(0.078)
Change in CPI Inflation	-0.001	0.001
	(0.001)	(0.001)
Constant	-0.027***	-0.008
	(0.005)	(0.006)
Observations	423	423
R-squared	0.078	0.028

Notes: ***, **, and * denote significance at the 99%, 95%, and 90% levels, respectively; robust standard errors are in parentheses (and Government Response Index has been divided by 100).

APPENDIX: Data Sources

Country	GDP	Monetary Base
Argentina	Instituto Nacional de Estadistica y Censos	Banco Central de la Republica Argentina
Brazil	IBGE	Banco Central do Brasil
Chile	Banco Central de Chile	Banco Central de Chile
Colombia	Dept. Administrativo Nacional de Estadistica	Banco Central de la Republica de Colombia
Guatemala	Banco de Guatemala	Banco de Guatemala
Mexico	INEGI	Banco de Mexico
Peru	Instituto Nacional de Estadistica e Informatica	Banco Central de Reserva del Peru
Japan	Economic and Social Research Institute Japan	Bank of Japan
South Korea	Bank of Korea	Bank of Korea
Sweden	Statistics Sweden	Statistics Sweden
Switzerland	State Secretariat for Economic Affairs	Swiss National Bank
Thailand	National Economic Development Council	Bank of Thailand
UK	UK Office for National Statistics	Bank of England
USA	Bureau of Economic Analysis	Federal Reserve

Country	Budget Balance	CPI
Argentina	Ministerio de Hacienda	Instituto Nacional de Estadistica y Censos
Brazil	Banco Central do Brasil	IBGE
Chile	Ministerio de Hacienda - Chile	Instituto Nacional de Estadistica - Chile
Colombia	Banco Central de la Republica de Colombia	Dept. Administrativo Nacional de Estadistica
Guatemala	Banco de Guatemala	Banco de Guatemala
Mexico	Banco de Mexico	INEGI
Peru	Banco Central de Reserva del Peru	Instituto Nacional de Estadistica e Informatica
Japan	Ministry of Finance Japan	Ministry of Internal Affairs and Communications
South Korea	Bank of Korea	Statistics Korea
Sweden	Statistics Sweden	Statistics Sweden
Switzerland	Swiss National Bank	Federal Statistics Office of Switzerland
Thailand	Bank of Thailand	Thailand Ministry of Commerce
UK	UK Office for National Statistics	UK Office for National Statistics
USA	US Treasury	Bureau of Labor Statistics

Note: The data on the Government Response Index are all drawn from the Oxford database (Hale et al., 2022).