

5. Has Fiscal Policy Become More Countercyclical in Latin America?

For many decades, fiscal policy in Latin America has been, on average, procyclical. However, country-specific estimates for the cyclicalities of fiscal policy are mostly insignificant, with only a few exceptions of clearly procyclical policy. Some countries (Brazil, Chile, Colombia, El Salvador, Mexico), meanwhile, appear to have moved toward less procyclical or more countercyclical policy in recent years. Nonetheless, other important attributes of sound fiscal policy, including fiscal sustainability, transparency, and efficiency, need to be strengthened further in many countries.

Introduction

For many decades, fiscal policy in Latin America has been procyclical. The easy availability of funds during periods of economic expansion, against a background of major social and infrastructure needs, repeatedly prompted rapid increases in government expenditure. But later spending often had to be cut sharply when economies fell into recession or faced a sudden stop of capital inflows.

This procyclicality has been empirically documented in a growing literature that started in the late 1990s (with Gavin and Perotti, 1997; see the summary in Annex 5.1). With very few exceptions, studies have found evidence of procyclical fiscal policy in developing and emerging markets, and especially in Latin America.

The overall improvement in the macroeconomic performance and policy frameworks of many Latin American economies over the last decade or so makes this a good time to check progress in reducing the procyclicality of fiscal policy.

To be sure, the cyclical stance is only one of many dimensions along which to assess improvements in fiscal policy. It is entirely possible, for example, that countercyclical fiscal policy increases wasteful spending or endangers fiscal sustainability.

Note: Prepared by Alexander Klemm, based on the analysis in Klemm (2014). Anayo Osueke provided excellent research assistance.

The rest of this chapter is structured as follows. First, it clarifies some methodological issues, notably regarding the treatment of automatic stabilizers. It then presents empirical results, both for Latin America as a whole and for individual countries, followed by a broader discussion of the quality of fiscal policies in the region and a brief conclusion.

Methodology

The idea behind countercyclical fiscal policy is simple: fiscal policy should be tighter during booms and looser during recessions. To test for this empirically, previous studies have either looked at correlations between fiscal and macroeconomic variables or used a regression approach, which allows further controls. The typical regression relates the change in (a measure of) the fiscal balance to the output gap and a few additional variables:

$$\Delta \frac{B}{Y} = \beta_0 + \beta_1 \left(\frac{Y - Y^*}{Y^*} \right) + \beta_2 \frac{B}{Y_{t-1}} + \gamma'x + f_i + \varepsilon \quad (5.1)$$

where B is the fiscal balance, Y is nominal GDP, Y^* is potential GDP, x is a vector of other control variables, f_i is a country fixed effect, which may be added in case of estimation on panel data, and ε is an error term. Variants in the literature include using real GDP growth instead of the output gap as a regressor, and focusing on government revenues or expenditures instead of a fiscal balance.

In these studies, the estimated coefficient on the output gap (β_1) is the main indicator of the cyclicity of policy. A negative coefficient is evidence of procyclical policy, as it suggests that the fiscal stance is relaxed in a boom. Conversely, a positive coefficient implies countercyclical

policy. With an insignificant coefficient, acyclical fiscal policy cannot be rejected against the alternative hypotheses of pro- or countercyclical fiscal policies.

When estimating this type of regression, three main issues have to be addressed:

- The definition of the cyclical stance;
- The endogeneity of the output gap; and
- Other major influences on the fiscal balance, such as commodity-related revenues.

The Cyclical Stance

Previous studies have used two approaches to measure the cyclical stance. Some have considered only discretionary policy actions—such as tax cuts or budget revisions—to delimit the cyclical stance. In practice, this means using changes in the cyclically adjusted primary balance (or a structural balance) as the dependent variable of the regression. Other studies have taken all actual changes in the fiscal balance, whether owing to discretionary action, or occurring automatically—for instance, because of rising revenues—when the economy performs better than expected.

We propose an innovative third approach. Specifically, we include as part of the cyclical response of fiscal policy the automatic stabilizers that are an inherent part of the economy's tax and welfare system (such as the additional revenues gained during a boom owing to a rising average tax rate under a progressive tax system, or the reduction in welfare spending as the unemployment rate drops). We do not, however, consider as a policy response (i) the additional revenues from taxing deviations of GDP from potential at an unchanged average tax rate and (ii) declines in spending ratios that are only the result of GDP exceeding potential.

The reason for adopting this approach is that ignoring the contribution of systematic automatic stabilizers could be misleading in the analysis of policy. For example, when comparing the policy

responses of two countries, noting a more active discretionary response in one of them but not reporting on the larger automatic stabilizers in the other would bias the assessment. Lesser reliance on discretionary measures could, in fact, be motivated by the presence of stronger automatic stabilizers, which reduce the need for policy action.

The definition used here strikes a balance between ignoring automatic stabilizers and counting all temporary revenue gains as a policy response. Empirically, it is implemented by using changes in an adjusted primary balance as the dependent variable.¹

A number of studies use as a dependent variable indicators of expenditure, rather than the fiscal balance. This has the advantage of largely avoiding the question of cyclical adjustments, especially if spending excluding transfer payments is considered. Conclusions about cyclical policy drawn from expenditure analysis are, however, only valid if there is no policy change on the revenue side. Otherwise, a fully tax-financed increase in expenditure would incorrectly be interpreted as a cyclical policy response.

The Endogeneity of the Output Gap

The output gap is partly the result of fiscal policy, which affects the economy. Estimating equation (5.1) using ordinary least squares would therefore produce biased results. To avoid this, an instrumental variable approach should be used instead. The results reported below were obtained using a system-Generalized Method of Moments estimator in panel data regressions and a simple instrumental-variable approach in country-specific regressions.

¹ Specifically, the adjusted balance is defined as

$$\left(\frac{B}{Y}\right)' = \frac{B}{Y} + G\left(\frac{1}{Y} - \frac{1}{Y^*}\right),$$

where G is government spending. The year-to-year difference in this adjusted balance will rise if the average tax rate goes up and/or spending grows less than potential GDP.

Commodity-Related Revenues

Apart from the business cycle, other factors can affect tax revenues, of which commodity prices are particularly important in Latin America. Commodity prices may boost revenues beyond what can be explained by real GDP growth, and the effect will tend to be stronger in larger exporters of natural resources, which may be highly taxed or where the government itself may be a major investor.

To control for the effect of commodity prices on the fiscal balance, we include a commodity price index as a regressor, following Cespedes and Velasco (2011). The index is constructed as the change in commodity prices, weighted by the share of each exported commodity in GDP. It is therefore specific to each country, reflecting the relevant dependence on commodities.

Regression Results

A panel data estimation of equation (5.1), allowing for different intercepts for each country, but imposing the same slope within a region, was conducted for a group comprising 19 Latin American economies (see Table 5.2 for a list) and for a group of 32 advanced economies. Table 5.1 summarizes the results.²

The results suggest that fiscal policy in Latin America has been procyclical, as the coefficient on the output gap is negative and statistically significant, both in a standard within-group regression and in a Generalized Method of Moments regression that allows for endogeneity.³

² See Klemm (2014) for further results and robustness checks, including the use of growth rates instead of output gaps, different instruments, and different dependent variables (expenditure ratios, discretionary measures, and unadjusted fiscal balances).

³ Table 5.1 also reports the standard specification tests: the Arellano-Bond AR(1) test is rejected as expected, whereas the AR(2) test and the test of overidentifying restrictions (Sargan/Hansen test) are not rejected, as required.

Table 5.1. Regionwide Results

Dependent variable: Δ Adjusted primary fiscal balance				
Countries	Latin America		Advanced economies	
	WG	GMM	WG	GMM
Estimation method	(1)	(2)	(3)	(4)
Output gap	-0.343** (0.142)	-0.337** (0.150)	0.138** (0.057)	0.302*** (0.106)
Commodity price growth	0.386*** (0.075)	0.414 (0.261)	0.565*** (0.069)	1.405** (0.644)
Adjusted deficit _{t-1}	-0.441*** (0.082)	-0.479*** (0.125)	-0.228*** (0.025)	0.042 (0.103)
Observations	333	333	760	760
R-squared	0.343		0.184	
Number of countries	19	19	32	32
AB AR(1) test	0.079		0	
AB AR(2) test	0.494		0.406	
Hansen p-value	0.347		0.764	

Source: IMF staff calculations based on data from IMF, *World Economic Outlook* (October 2013); and UN Comtrade.

Note: Robust errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. AB = Arellano-Bond test; WG = within-group regressions; GMM = system Generalized Method of Moments regressions that treat the output gap and the lagged adjusted primary fiscal balance as endogenous, using the first and second lags as collapsed instruments. Sample: 1980–2012.

In contrast, the results for advanced economies, which are reported for comparison, show a positive and statistically significant coefficient, implying countercyclical fiscal policy. These results are in line with most of the previous studies, which have also found procyclical policy in Latin America, and either acyclical or countercyclical policy in advanced economies.

The coefficient on the commodity price is positive and statistically significant in three of the four regressions. This confirms the conjecture that the adjusted primary fiscal balance improves when commodity price growth is strong.

We also estimated country-specific regressions, using the same explanatory variables as those in Table 5.1. To address endogeneity, we applied an instrumental-variable approach with the lagged output gap as an instrument. Table 5.2 presents estimates of the coefficient on the output gap obtained in these regressions.

What stands out from the first two columns of Table 5.2 is the very small number of statistically significant coefficients. This is a common—though rarely mentioned—feature of studies on fiscal

Table 5.2. Country-Specific Results—Coefficient on the Output Gap

	Dependent variable: Δ Adjusted primary balance			
	OLS		OLS	
	OLS	IV	Pre-2005	Δ since 2005
Argentina	-0.32*** (0.08)	-0.381** (0.15)	-0.26** (0.11)	-0.36 (0.67)
Belize	0.22 (0.30)	2.40 (1.76)	0.54 (0.35)	-0.53 (0.48)
Bolivia	-0.45 (0.38)	-0.21 (1.00)	-0.42 (0.43)	0.01 (1.12)
Brazil	0.32 (0.19)	5.55 (21.96)	-0.16 (0.21)	0.74* (0.33)
Chile	0.27 (0.26)	-1.10 (1.21)	0.00 (0.17)	0.90** (0.34)
Colombia	-0.14 (0.16)	-0.50 (0.45)	-0.31 (0.25)	0.69* (0.38)
Costa Rica	0.25 (0.20)	-0.77 (1.45)	-0.35 (0.33)	0.75 (0.51)
Ecuador	-0.48** (0.22)	0.60 (2.45)	-0.28 (0.23)	0.13 (0.50)
El Salvador	0.30 (0.19)	-1.03 (2.90)	-0.08 (0.24)	0.61* (0.32)
Guatemala	0.14 (0.16)	-0.75 (1.69)	-0.42 (1.24)	0.62 (1.28)
Guyana	1.12*** (0.23)	-0.89 (6.46)	1.12 (0.83)	0.07 (0.83)
Honduras	0.21 (0.14)	0.18 (0.37)	1.51* (0.65)	-1.42* (0.69)
Mexico	-0.21 (0.14)	0.43 (0.66)	-0.32** (0.15)	0.46** (0.19)
Nicaragua	-0.33 (0.21)	-0.71 (0.61)	-0.81** (0.29)	0.84 (0.45)
Paraguay	-0.07 (0.13)	4.98 (35.75)	-0.13 (0.25)	0.19 (0.29)
Peru	0.36 (0.30)	0.58* (0.28)	0.20 (0.58)	0.15 (0.53)
Suriname	-1.10 (0.68)	-9.85 (10.88)	-1.26 (0.77)	0.79 (2.16)
Uruguay	-0.45*** (0.07)	-0.71*** (0.18)	-0.46*** (0.08)	0.14 (0.22)
Venezuela	-0.60*** (0.16)	0.28 (0.83)	-0.54*** (0.15)	0.26 (0.37)

Source: IMF staff calculations based on data from IMF, *World Economic Outlook* (October 2013); and UN Comtrade.

Note: IV = instrumental variables; OLS = ordinary least squares. Robust standard errors in parentheses. In IV regressions, the lagged output gap serves as instrument. All regressions also include a constant, the lagged adjusted primary balance, and the commodity price index. Sample: 1990–2012. See Annex 2.1 for details on Argentina's GDP.

policy cyclicity, many of which do not report tests of significance. Still, the coefficients for some countries show evidence of procyclical policy under both the ordinary least squares and instrumental-variables regressions. In other countries, such as Ecuador and Venezuela, the evidence for procyclical fiscal policy does not hold up in the

instrumental-variables estimates. The coefficient is not positive or consistently statistically significant in any of the 19 countries. In other words, there is no significant evidence for countercyclical policy in any Latin American country. In summary, for most countries, acyclical policy cannot be rejected, although a mildly cyclical (with a coefficient close to zero) or erratic (with large standard errors) fiscal policy is also consistent with the evidence.

Of course, there is no reason for the cyclicity of fiscal policy to remain unchanged in the 23-year period covered in the regressions. To investigate whether there have been any recent changes to fiscal policy, Table 5.2 also reports regressions that allow for a varying degree of cyclicity over time, showing coefficients for the period 1990–2004 and the change to the coefficient during the following years.⁴

The results suggest that fiscal policy may have become less countercyclical only in Honduras, while it moved toward more countercyclical or less procyclical policy in Brazil, Chile, Colombia, El Salvador, and Mexico. As the later period includes the global financial crisis and any related stimulus, the next boom period will provide a test of whether more countercyclical policies will prevail.

The Quality of Fiscal Policy

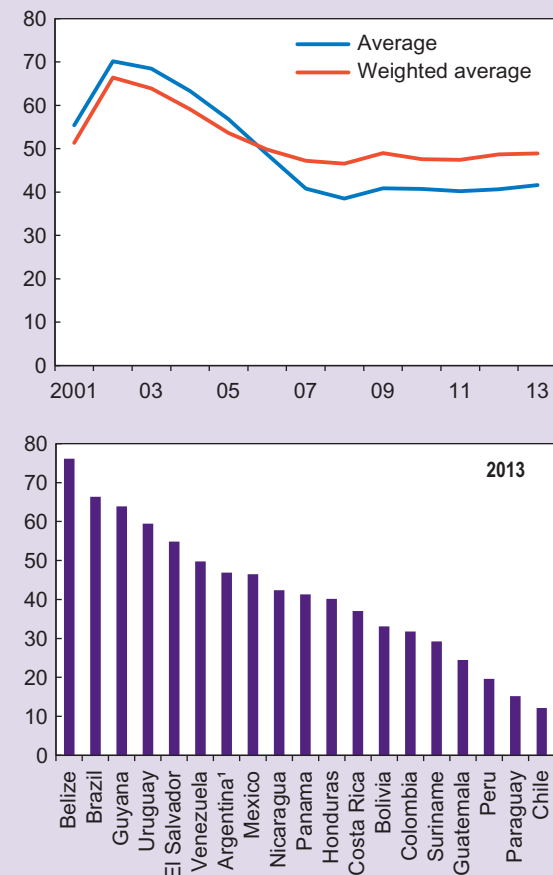
As noted earlier, the cyclical stance of fiscal policy is only one dimension of the quality of fiscal policy. A given fiscal stance could be achieved with many different underlying tax and expenditure policies. Hence, a move toward more countercyclical policy could be problematic if certain risks are not addressed.

Fiscal Sustainability

A countercyclical policy response—and in particular deficit-increasing policy during recessions—must

⁴The year 2005 was chosen because the panel regressions suggest that this is the year with the most significant change in the coefficient, and because a single year for all countries allows easy comparability. Moreover, to ensure a sufficient sample size during the second period, a later year would not be advisable.

Figure 5.1
Public Debt in Latin America
(Percent of GDP)



Source: IMF, World Economic Outlook database.
¹ See Annex 2.1 for details on Argentina's GDP.

not go so far as to put medium-term finances at risk. In Latin America, public debt remains very high, on average, having stopped declining in 2007 (Figure 5.1). The high level of debt and its evolution in recent years act as a constraint for countercyclical policy during downturns. However, the situation differs greatly across countries, as some have very low debt stocks.

Fiscal expansions in downturns are meant to address a demand shortfall and thus should be reversible or limited in time. If the higher expenditures are structural in nature, it will be harder to readjust the stance when the economy improves. Chile is an example of a country that

has tried to reduce this risk, by linking increases in structural spending to permanent revenues (for example, a recent tax reform to finance education spending). Most other countries in Latin America, however, do not make this distinction.

Fiscal Institutions

Many countries in Latin America have adopted reforms to strengthen fiscal institutions, including fiscal rules.⁵ Provided that such rules are well-designed, they can support sustainable fiscal policy while avoiding procyclicality. Indeed, countries such as Chile, Colombia, and Mexico have managed to move toward more countercyclical policy while following a fiscal rule.

Fiscal transparency is also important, for both policymakers and the public. Some recent examples of intransparent policies include the use of one-off transactions to reduce reported deficits or the increased use of deficit-neutral operations such as policy lending, which may still increase fiscal liabilities.

Conclusion

The evidence presented in this chapter suggests that fiscal policy in Latin America has been procyclical, on average, rather than acyclical or countercyclical as in most advanced economies. Country-specific estimations, however, yield mostly insignificant results, as is common—but often unacknowledged—in comparable studies. In more recent years, Brazil, Chile, Colombia, El Salvador, and Mexico appear to have moved toward less procyclical or more countercyclical fiscal policy. It remains to be seen whether this development will prevail during times of closed or positive output gaps, when previous fiscal stimulus measures should be unwound. More generally, countries need to rebuild their buffers, not least to be prepared for any future negative economic shock.

⁵ For an overview of fiscal rules in Latin America, see the October 2011 *Regional Economic Outlook: Western Hemisphere*.

Apart from cyclical considerations, fiscal policy should be sustainable and transparent. Fiscal institutions, such as well-designed fiscal rules can support sustainability without leading to procyclical fiscal policy. Fiscal transparency has been improved

in many countries over the last decade, but recent examples indicate the reappearance of problematic behavior, such as the use of one-off transactions and operations that are chosen to avoid increasing reported deficits.

Annex 5.1. Summary of Empirical Literature

Table A5.1. Empirical Literature on the Cyclical Stance of Fiscal Policy in Emerging Markets

Study	Method	Finding ¹
Alesina, Campante, and Tabellini (2008)	Regression of change in fiscal balance/spending on output gap	Only advanced (OECD) economies countercyclical
Catão and Sutton (2002)	Regression of change in fiscal balance on output gap	Most emerging markets procyclical
Céspedes and Velasco (2011)	Regression of change in fiscal balance on output gap and cyclical component of commodity prices	Diversity across countries; some developing economies have become more countercyclical
Daude, Melguizo, and Neut (2011)	Correlation between change in cyclically adjusted primary balance and output gap	Most of Latin America procyclical
Di Bella (2009)	Regression of change in cyclically adjusted primary balance on cyclically adjusted primary balance and debt rating during 2009 downturn	Countries with stronger fiscal positions and credit ratings more countercyclical
Frankel, Vegh, and Vuletin (2013)	Correlation between cyclical components of real government spending and GDP	Developing countries more procyclical than advanced, but less than in the past
Gavin and Perotti (1997)	Regression of change in fiscal balance/revenue/spending growth on GDP growth	Advanced economies countercyclical; Latin America procyclical
Ilizetki and Vegh (2008)	Regression of real spending on real GDP	Developing economies often procyclical
Jaimovich and Panizza (2007)	Regression of fiscal balance or spending on growth	Advanced economies countercyclical; developing economies indeterminate
Kaminsky, Reinhart, and Vegh (2004)	Difference between spending growth in good and bad times; correlation between spending and growth	Most non-OECD and half of OECD countries procyclical
Lane (2003)	Regression of government spending on GDP	Procyclical policies more likely in countries with volatile output and dispersed political power
Lledo, Yackovlev, and Gadenne (2011)	Regression of government spending on GDP growth	Developing countries, especially in sub-Saharan Africa, procyclical
Talvi and Vegh (2005)	Correlation between real output and government consumption/revenues	Developing countries procyclical
Vegh and Vuletin (2012)	Regression of tax rates on cyclical component of real GDP	Tax policy acyclical in advanced economies; procyclical in developing economies

Source: IMF staff compilation.

Note: OECD = Organization for Economic Cooperation and Development.

¹ Many papers have a different focus; the finding reported here is related to the cyclicity of fiscal policy.