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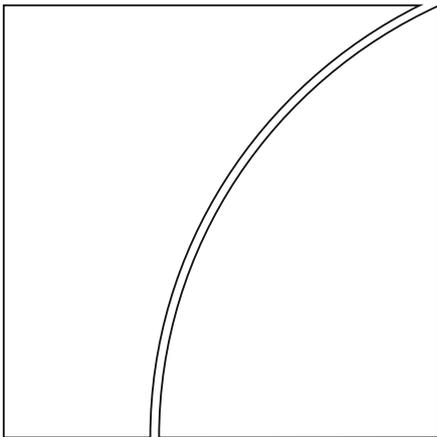
No 543

Fiscal policy and the cycle in Latin America: the role of financing conditions and fiscal rules

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Monetary and Economic Department

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JEL classification: H3, G12

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Fiscal policy and the cycle in Latin America: the role of financing conditions and fiscal rules

Enrique Alberola,¹ Iván Kataryniuk,² Ángel Melguizo³ and René Orozco⁴

Abstract

A stronger macroeconomic position when the financial crisis erupted allowed Latin American economies to mitigate its impact through fiscal expansions, reversing the characteristic procyclical behaviour of fiscal policy. At the same time, in the last two decades fiscal rules have been extensively adopted in the region. This paper analyses the stabilising role of discretionary fiscal policy over time, and the role of fiscal financing conditions and fiscal rules in this evolution in a sample of eight Latin American economies. The analysis shows three main results: i) fiscal policies became countercyclical during the crisis, but they have turned procyclical again in recent years; ii) financing conditions are confirmed to be a key driver of the fiscal stance, but their relevance has recently diminished; and iii) fiscal rules are associated with a more stabilising role for fiscal policy.

Keywords: procyclical fiscal policy, fiscal rules, financing conditions, Latin America

JEL Codes: H3, G12

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1. Introduction

The stabilising role of fiscal policy is elusive in Latin America. Empirical studies show that fiscal policy has traditionally been procyclical in the region, as in other emerging regions (eg Gavin and Perotti (1997), Talvi and Vegh (2005)). The dependence of Latin American finances on external sources of credit and the recurrence of *sudden stops* may have made the region more prone to this behaviour. Since financing constraints tend to be associated with economic weakness, capital dearth lead to fiscal constraints and restraint (Kaminsky, Reinhart and Vegh (2004), Alberola and Montero (2006)). Furthermore, the importance of commodities in exports and revenues in most of the countries analysed is expected to introduce an additional procyclical bias in their fiscal policies (Céspedes and Velasco (2014), IMF Fiscal Monitor (2015)).

Things might be changing, though. On the one hand, the resilience to the 2008 financial crisis shown by most Latin American economies allowed them to mitigate the real impact through monetary and fiscal expansions –see figure 1, left panel/, something highlighted by some empirical studies (see Daude, Melguizo and Neut (2011), Klemm (2014), Vegh and Vuletin (2014), Fernández-Arias and Pérez (2014)). On the other hand, the improvement in macroeconomic management in the last two decades coincided with the progressive adoption of sounder fiscal frameworks, specifically with fiscal rules, as shown in figure 1, right panel. Fiscal rules could facilitate the stabilising role of fiscal policies and ensure debt sustainability in the long run, avoiding expenditure increases in good times, tax hikes in bad times, and allowing the full functioning of the automatic stabilisers.⁵

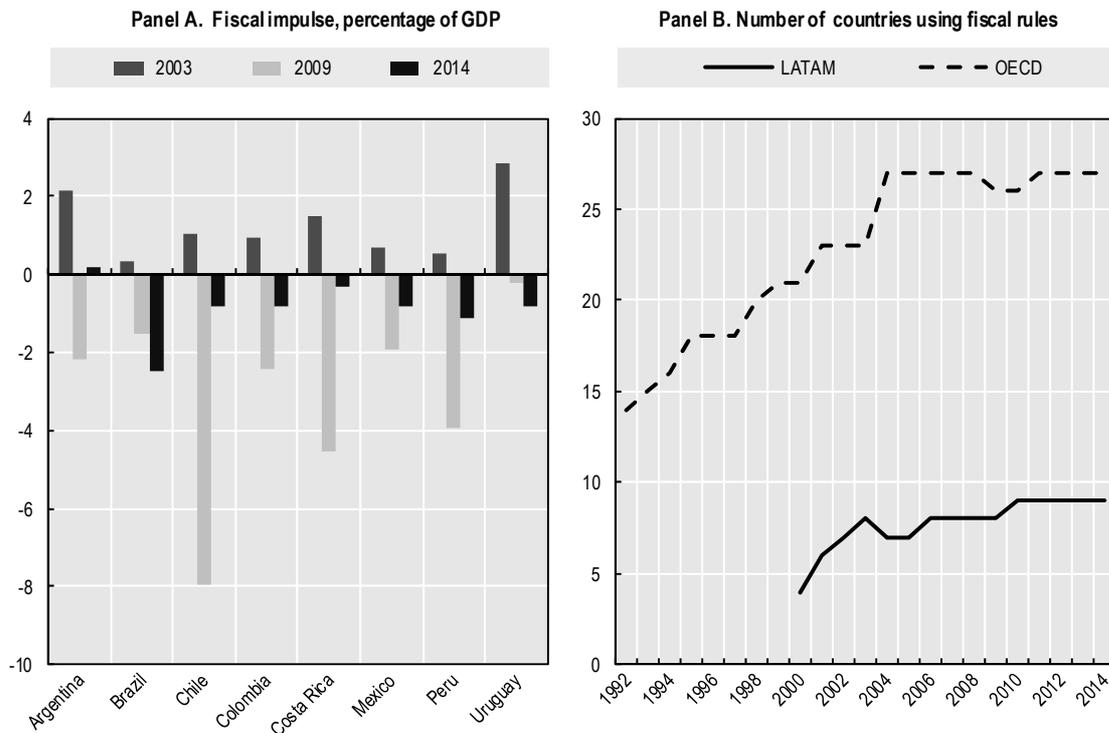
In this paper, we analyse the fiscal policy stance and the impact of financing conditions and fiscal rules for the period 1990-2014 in Argentina, Brazil, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay. The sample, taken from Daude, Melguizo and Neut (2011), accounts for around 80% of the region's GDP and population, and it is based on the availability of estimates of the automatic stabilisers. The analysis covers the non-financial public sector, that is, the central government, subnational entities and state-owned enterprises. We obtain three main results: i) discretionary fiscal policy reacted countercyclically to the financial crisis, but this positive development has had no continuity; ii) financing conditions are confirmed to be a key driver of the fiscal stance in the region, although their relevance has recently diminished; and iii) fiscal rules are associated with better fiscal performance in terms of stabilisation.

Evaluating the fiscal policy stance in Latin America – proxied by the change in the primary structural balance – depends on the correct assessment of commodity prices (for certain countries, especially during the last decade, characterised by high demand impacting prices and quantities), the cyclical position and the computation of a set of tax elasticities that may change with time. In the computation of structural balances we updated and expanded Daude, Melguizo and Neut (2011).

In order to evaluate financing conditions, we take into account not only the costs of financing, but also the underlying fiscal situation, which can give an indication of the fiscal space throughout the economic cycle. This space can be constrained in

⁵ Fiscal rules might also seek to improve expenditure composition by securing funding space for certain items, frequently investment in infrastructure. See Carranza, Daude and Melguizo (2014) for an analysis in Latin America.

difficult times by higher financing costs. For this matter, we update and extend Alberola and Montero (2006), considering the structural primary balance that would stabilise debt at any point in time (*threshold balance*), given the cost of debt, the debt stock and alternative interest rates, and the change in *debt dynamics*.



Note: Fiscal rules have been established in Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Jamaica, Mexico, Panama and Peru (LATAM). For further details, see Appendix 1.

Source: IMF Fiscal Rules Dataset.

On top of this, we introduce fiscal rules. This is not straightforward, since fiscal rules not only entail quantitative variables, but also qualitative ones, which make their correct tabulation challenging. In order to do so, we rely on the IMF *Fiscal Rule Dataset* (Budina et al., (2012)) to construct a *fiscal rule index*. We also tested the relevance of some of their key qualitative features, notably rule coverage, enforcement and flexibility. In spite of it, some caution is still granted in the interpretation of the results. Moreover, as stated in Berganza (2012), these qualitative variables will only register fiscal rule *de jure*, leaving aside the *de facto* implementation of the recommendations of the rule.

Finally, our empirical approach is sensitive to the usual endogeneity and reverse causality problems. Financing conditions could be driven by the stance of fiscal policy, and not the other way round. Also, the adoption of fiscal rules may be the culmination of a process of improving fiscal discipline, or a signal to the markets, and not its cause (Elbadawi et al. (2014)). We address these issues using instrumental variables, although results should be taken with caution, given the limited sample.

The paper is structured as follows. Section 2 briefly describes the methodology chosen to compute structural primary balances and provides preliminary evidence on

the cyclicity of fiscal policy, differentiating across countries and decades. Section 3 explores different indicators of fiscal financing conditions and analyses whether the fiscal stance is related to them. Section 4 adds fiscal rules in order to test their impact on the fiscal policy stance. Section 5 reports several sensitivity analyses. Section 6 displays the whole picture and the evolution of fiscal policy, based on the previous results, and suggests future lines of research. Finally, Section 7 concludes.

2. Assessing the fiscal stance in Latin America: data, methodology and preliminary results

2.1 Adjusting primary budget balances

We define discretionary fiscal policy as the variation of fiscal policy not explained by the impact of the economic business and commodity cycles. The data covers the non-financial public sector, including public enterprises, as reported by the IMF.⁶ In order to compute fiscal balances, we follow the OECD approach (Girouard and André (2005)) to compute adjusted primary budget balances (b^*), adapted for Latin America by Daude, Melguizo and Neut (2011) in order to include tax and non-tax revenues from commodities. This approach computes the cyclically-adjusted primary balance to show the underlying fiscal position when automatic stabilisers are controlled for. Given the small size of expenditure automatic stabilisers, notably unemployment insurance (in contrast to developed economies), we apply this methodology only to revenues, as is usually the case in emerging countries. In particular, we consider four types of taxes: personal income tax (PIT), social security contributions (SSC), corporate income tax (CIT) and indirect taxes (IT), following expression 1

$$b^* = \frac{\left(\sum_{i=1}^4 T_i \left(\frac{Y^*}{Y}\right)^{\varepsilon_{ti,y}}\right) - G + X}{Y^*} + R_c^s \quad (1)$$

where T_i are the cyclically-adjusted receipts from the four families of taxes, G is the current primary government expenditure, X are non-tax revenues minus capital and net interest spending, Y^* is the level of trend output, R_c^s are the structural revenues related to commodities as a percentage of GDP and $\varepsilon_{ti,y}$ is the elasticity of taxes to the economic cycle. We excluded from T_i the taxes (indirect and corporate taxes) related to commodity production.

Taxes and the economic cycle

The response from the different types of taxes i to the economic cycle $\varepsilon_{ti,y}$ is calculated as the product of the elasticity of tax receipts to the tax base ($\varepsilon_{ti,tbi}$) and the elasticity of the tax base to the economic cycle ($\varepsilon_{tbi,y}$), as presented in expression 2.

$$\varepsilon_{ti,y} = \varepsilon_{ti,tbi} * \varepsilon_{tbi,y} \quad (2)$$

As a result, the cyclical budget response from taxes (as a share of GDP) can be expressed as the weighted sum of the four different tax revenue elasticities, shown in

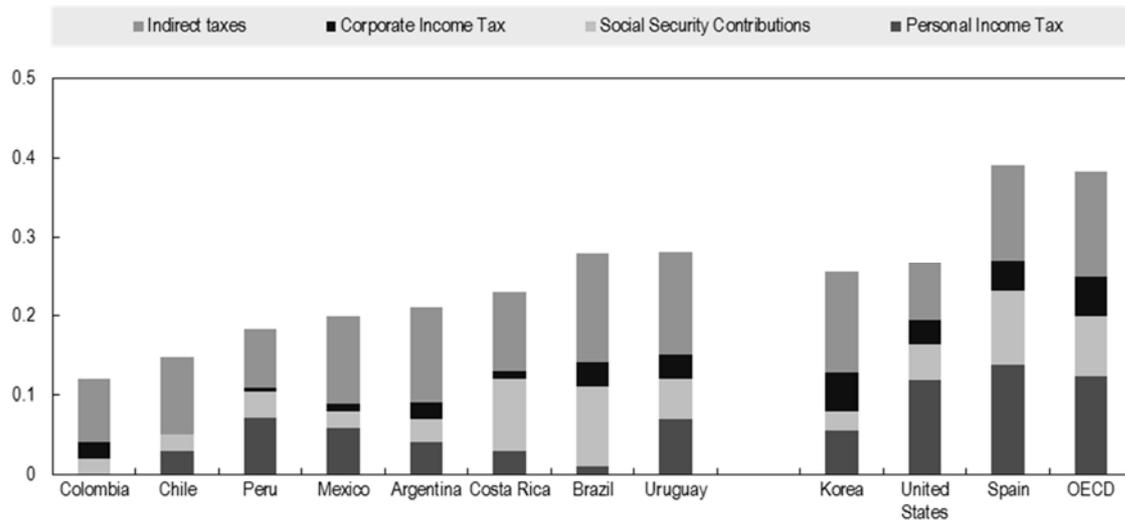
⁶ In the case of Brazil, data does not cover the balance of the Brazilian Development Bank (BNDES), so a caveat applies to its results.

Figure 2. These results imply that a one percentage point change in the output gap would result in a positive change of around 0.12 percentage points (p.p.) in the government budget balance for Colombia, or 0.15 for Chile, while it could be as high as 0.25 for Uruguay or 0.28 for Brazil. In line with the literature (Gali (1994), Fatas and Mihov (2001)), the size of these automatic stabilisers is significantly lower than that observed in most OECD countries.

Automatic stabilisers in selected Latin American and OECD economies

(Tax semi-elasticities of non-commodity taxes to output, p.p. of GDP)

Figure 2



Source: Update of Daude, Melguizo and Neut (2011).

Commodities and public revenues

This methodology is extended to take into account the relevance of public revenues from various commodities (fuels, food and minerals) in Latin American fiscal accounts, either through the share of taxation linked to rents in natural resource extractions or through the utilities of state-owned enterprises in these sectors (see OECD/CIAT/ECLAC/IDB (2014)). These commodity dependent revenues are affected by the high volatility in prices, which could call into question fiscal sustainability in the medium or long term and the fiscal stance in the short term. This adjustment is done for Argentina, Chile, Colombia, México and Peru, updating and expanding Daude, Melguizo and Neut (2011), using the methodology proposed in Marcel et al. (2001) and Vladkova-Hollar and Zettelmeyer (2008).

In particular, we separate revenues into commodity revenues and non-commodity revenues.⁷ Non-commodity revenues are adjusted for the cycle as

⁷ Data for non-commodity revenue for Argentina comes from the Ministerio de Economía y Finanzas Públicas (Ministry of Economy and Public Finance, www.mecon.gov.ar); for Chile, it is obtained from the Dirección de Presupuesto (Budget Directorate, www.dipres.gob.cl); for Colombia, the data is obtained from the Ministerio de Hacienda y Crédito Público (Ministry of the Treasury and Public Credit, www.minhacienda.gov.co). For Mexico, the data comes from the Secretaría de Hacienda y Crédito Público (Secretary of the Treasury and Public Credit, www.apartados.hacienda.gob.mx). In the case of Peru, we used information from the Superintendencia Nacional de Aduanas y de Administración Tributaria (National Superintendence of

previously mentioned, and commodity revenues are adjusted for the volatility in commodity prices following expression:

$$R_{s,t}^c = R_t^c \left(\frac{p_t^*}{p_t} \right)^\gamma \quad (3)$$

in which $R_{s,t}^c$ is the price-adjusted commodity (structural) revenues, which result from the product of R_t^c (the commodity revenues) and the ratio between p_t^* (the equilibrium commodity price, calculated as a 10-year moving average or from experts' panels) and the current commodity price p_t , elevated to the power γ . We assume that the revenues from commodities are proportional to their prices and set $\gamma = 1$ (unitary elasticity).

2.2 Discretionary fiscal policy stance: graphic results

When fiscal policy is procyclical, the structural primary surplus decreases in the good times and increases in the bad ones. Nevertheless, some partial evidence suggests that in the last decade the region might have turned less prone to procyclical fiscal policies. A first rough evidence of this behaviour is presented in Figure 3, Panels A and B.

A simple representation of the relationship between the change in the structural primary balance and the output gap⁸ allows the fiscal stance to be categorised. Quadrants I and III represent the cases in which fiscal policy is counter-cyclical, since the surplus increases in a good year or decreases in a bad one. By contrast, quadrants II and IV present the cases of a procyclical stance. The slightly flatter adjusted line in Panel B suggests that the cases of procyclical fiscal policy tend to be less frequent and/or less intense from 2003 on than in the 1990s (Panel A).⁹

Tax Administration and Customs, www.sunat.gob.pe). In terms of commodities categories, in the case of Argentina, we consider the export taxes on agricultural goods introduced in 2002 and them using a combination of the food price index and the fuel (energy) index taken from the IMF *Commodity Price Database*, and weighted according to their importance in exports (weights are calculated using *World Integrated Trade Solution* data from 1993 to 2012). For Chile, commodity revenues are defined as the corporate income tax paid by the public copper company (CODELCO), the transfers made to the central government by CODELCO and royalties paid by private mining firms. The price adjustment is done using refined copper prices (USD cents/lb.) from the Chilean commission for Copper COCHILCO (based on the London Metal Exchange). In the case of Colombia, we control for the dividends transferred by the national oil company Ecopetrol to the central government. In Mexico, net income from the public oil firm (PEMEX), the royalties paid by private firms in the petrol sector, special tax on petrol-related income and the specific net excise taxes are defined as commodity revenue. Both in Mexico and in Colombia this revenue is adjusted for price volatility using the crude oil (petroleum) price index from the IMF *Commodity Price Database* from 1990 to 2013. Finally, in the case of Peru, revenues from royalties and the income taxes paid by the mining and fishing industries are considered. Prices are adjusted using IMF *Commodity Price Database* on copper (USD per metric ton), fishmeal (USD per metric ton), oil (crude oil price index) and the World Bank commodity price data for gold (annual prices, USD per troy ounce), weighted by importance of sectors in revenue.

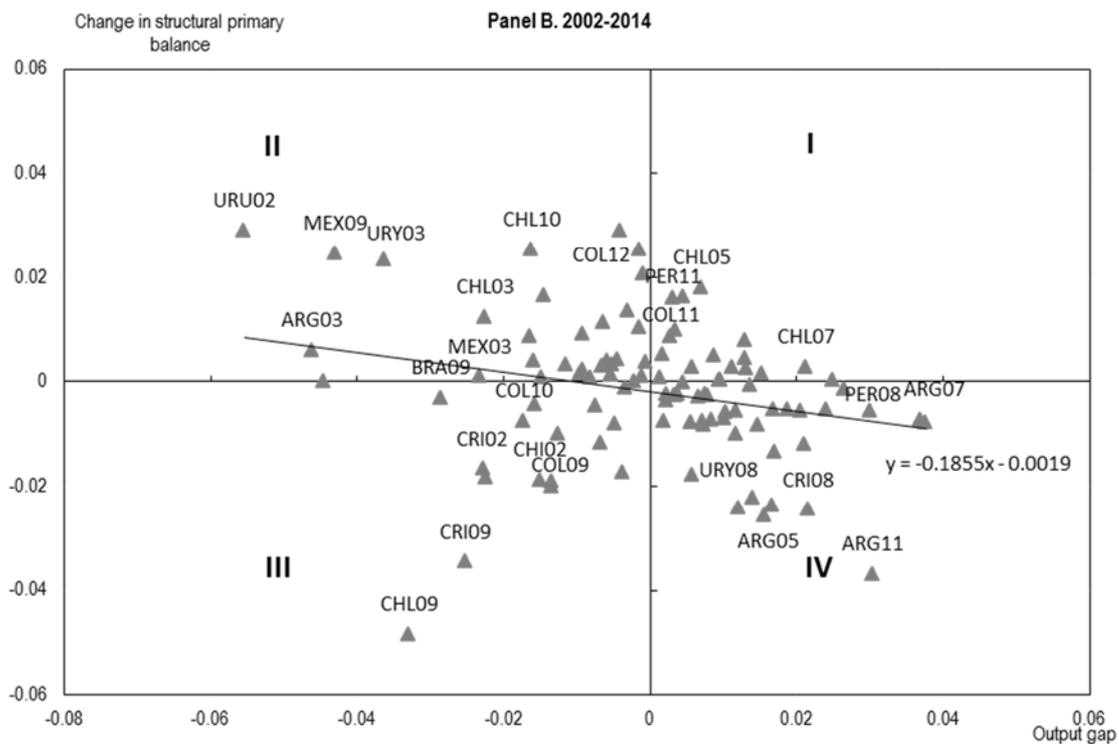
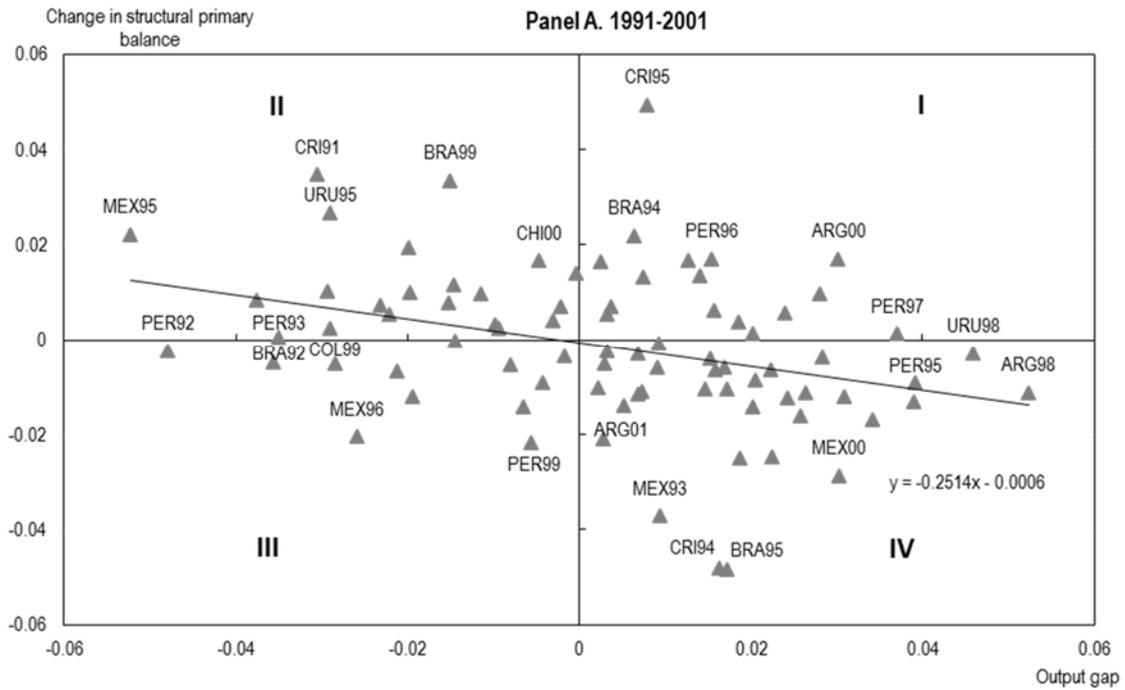
⁸ Computed using a standard HP filter ($\lambda = 6.25$), with annual projections up to 2019 taken from the IMF *World Economic Outlook Database* (accessed April 2014).

⁹ Panel B shows that Brazil, Chile, Colombia and Costa Rica implemented fiscal expansions in times of economic downturns. Also, as illustrated in quadrant I, Chile in 2005 and 2007 but also – and probably less known – Peru in 2011 and Colombia in 2011 and 2012 accumulated fiscal savings in good times. In any case, it must be noted that the number of years in which Latin American economies followed a countercyclical policy is relatively low and tend to be of smaller intensity than the ones in which they followed a procyclical fiscal policy. For instance, during the years 2007-08 Argentina, Chile, Colombia, Costa Rica, Mexico, Peru and Uruguay were benefiting from high growth, and at the same time implementing a fiscal expansion (quadrant IV).

A visual approach to discretionary fiscal policy in Latin America

(Change in the structural primary balance and output gap)

Figure 3



Note: Argentina 2002 is considered an outlier, and is excluded in the year 2002.

Source: Authors' calculations.

2.3 Estimating the fiscal stance in Latin America

In order to empirically characterise the cyclicity of fiscal policy, we estimate the following equation:

$$\Delta b = \mu_i + \beta GAP_{it} + u_{it} \quad (4)$$

Table 1 presents the estimated coefficient β , using the fixed effects estimator in order to take into account unobserved heterogeneity.¹⁰ The estimated coefficient is negative and significant (Column 1), confirming that fiscal policy has been procyclical in the last two decades in this sample of countries in Latin America. However, this effect has varied over time. Columns 2 and 3 show the estimation coefficients splitting the sample into two periods, 1990-2001 and 2002-2014. The fiscal stance has become less procyclical, but it is still significantly so at the 95% confidence level. Performing a rolling-window estimation, setting a five-year window (Figure 4), we find almost constant procyclicality from the 1990s until the crisis. During the crisis and immediately after, the parameters moved towards neutrality. Note that the big shift occurs in 2009 and 2010, showing the countercyclical response to the crisis. The improvement stalls thereafter. In the last years of the window (2010-14), the coefficient sharply falls into procyclical territory again.

Estimation of the fiscal stance in Latin America

Table 1

Dependent variable: D(SPB) =change in structural primary balance			
OUTPUT GAP	(1)	(2)	(3)
Full sample	-0.222 [0.056]***		
1991-2001		-0.259 [0.08]***	
2002-2014			-0.177 [0.08]**
R2	0.08	0.12	0.05
Observations	182	83	99
No. of countries	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.

Source: Author's calculations

Procyclicality and its evolution are unevenly spread. Figure 5 plots the response of the fiscal stance to the output gap for the full sample on a country-by-country basis, with 95% confidence intervals. We find that the procyclicality of fiscal policy has been stronger and significant in Uruguay, Argentina, and, to a lesser extent, Mexico. In contrast, in the other five countries of the sample the coefficients remain negative, but non-significant.

The evolution of the fiscal policy response to the cyclical position of the country in two samples, 1990-2001 and 2002-2014, for each country is also included in Figure 5. We find an improvement in the policy response for Brazil, Chile, Colombia, Costa Rica and Peru, with some episodes of countercyclical policies. These estimates should be taken with special caution, given the small sample. This finding is consistent

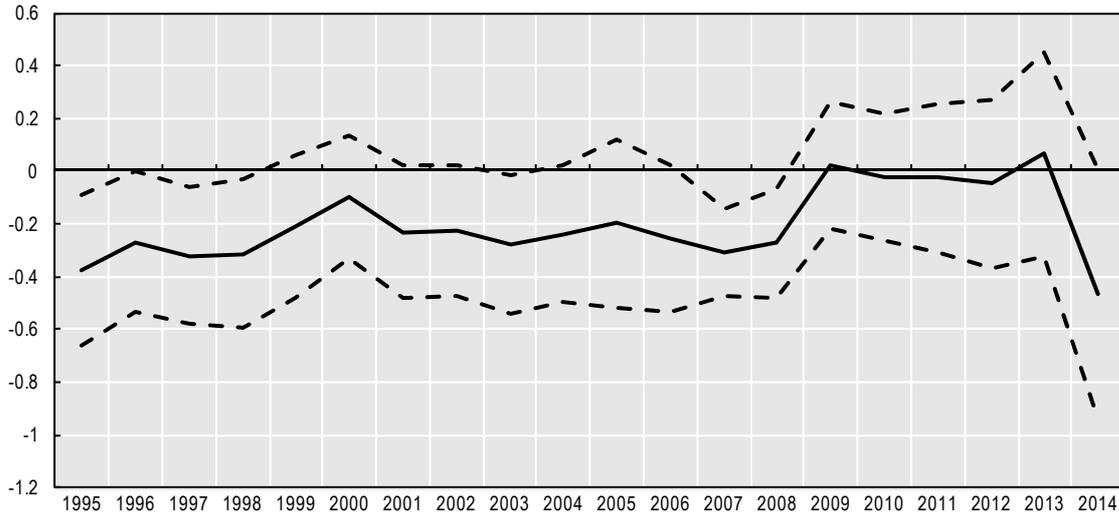
¹⁰ All STATA codes and data are available upon request.

with the “graduation” of monetary and fiscal policies (Frankel, Vegh and Vuletin (2011)). However, Argentina and Uruguay have turned more procyclical, a finding robust to the exclusion of the debt crisis period in both countries.¹¹

Rolling-window estimation of the fiscal stance in Latin America

(Estimation of the beta coefficient of fiscal stance in 5-year periods)

Figure 4

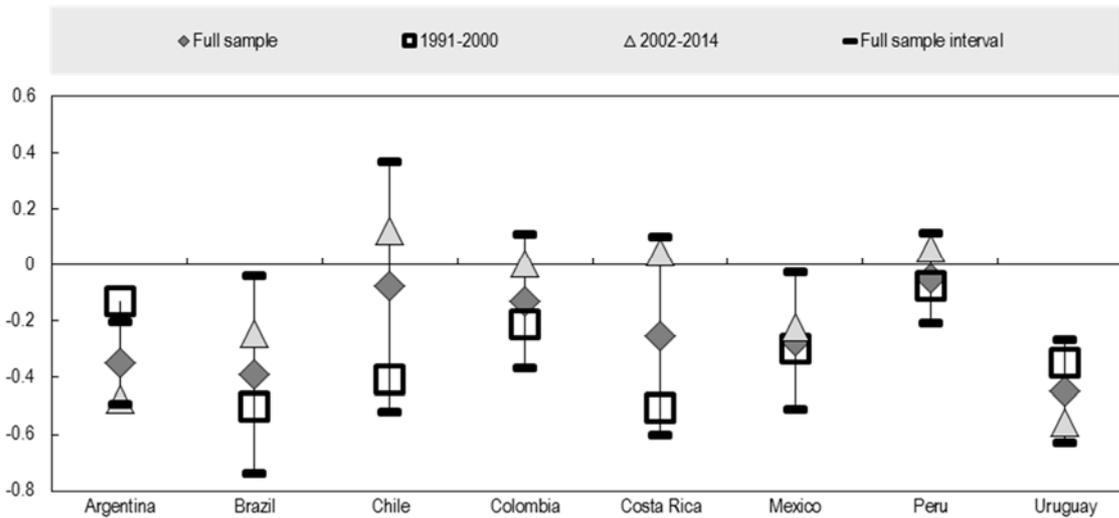


Source: Authors' calculations.

Estimation of the fiscal stance in Latin America by country

(Estimation of the beta coefficient of fiscal stance)

Figure 5



Source: Authors' calculations.

¹¹ In order to further illustrate this finding, Figure A1, in the Appendix, plots the evolution over time, on a rolling regression basis, of the fiscal stance in each country. We find that, from the late nineties, the fiscal response to the cycle has improved gradually in Brazil, Costa Rica and Mexico, while the improvement in Colombia and Peru is mostly driven by the countercyclical response to the crisis. Special caution applies, due to the limited size of the sample.

3. Financing conditions and the fiscal stance in Latin America

The previous evidence consistently supports the idea that discretionary fiscal policy has been procyclical in Latin America during the period under study, but also points to an improvement towards less destabilising policy stances in the aftermath of the crisis. Given that the worsening of the financing conditions in 2008-2009 was less acute and less persistent than in past episodes, it might be the case that this resilience explained the more stabilising role of fiscal policy in recent years, as much as sudden stops explained the previous procyclicality.

This section tries to shed some light on the extent to which changes in the financing conditions (ΔFC) of the sovereign impinge on the fiscal policy stance. If financing conditions become tighter, there may be no scope for running an expansionary fiscal policy, leading to larger deficits at that time, including a procyclical policy stance. However, if financing conditions do not constrain public finance in periods of economic downturns, the government could increase its debt in a recession and the fiscal policy could have its classical Keynesian stabilising effect. The effect during expansions works exactly in the opposite way. If financing conditions are loose during expansions, countries will be able to expand expenditure, resulting in a perceived procyclicality.¹²

3.1 Alternative measures of financing conditions

An important question is how to gauge financing conditions and their evolution. A first, obvious approximation is the change in the spreads on external sovereign debt. In this case, in the absence of exchange rate fluctuations, market interest rates take into account present and future sovereign risk. As a result, spreads act broadly as a proxy for the perceived future capacity of the country to repay. This feature makes spreads a useful variable to represent the future perception of the country's external financing conditions. Spreads are taken when available from JPMorgan EMBI.¹³

A limitation of the spreads (or more precisely, the change in the spreads) is that they dismiss the actual change in the overall financing costs, since they do not take into account – at least directly – the fiscal burden of the country or how it evolves in response to a change in financing costs. An alternative indicator of how the evolution of financing conditions affects fiscal performance may be the actual change in the debt service of the country, which conveys the level of debt and its cost. In this line, we follow Alberola and Montero (2006) in order to measure the financing situation of the public sector, focusing on the actual change in financing costs. A modified version of this indicator can blend market perceptions with actual changes in financing costs.

¹² This effect may be counteracted if some countries develop stabilising funds that are usually closely related to fiscal rules, because the proceeds of these funds may be used to stabilise the economy from the external environment.

¹³ We considered using the GB-EMBI, but the lower availability of data presents a constraint for the analysis. For the sake of completeness, we expand the dataset using the Inter-American Development Bank's HIDD database for Colombia (1996-1998), Uruguay (1996-2000) and Costa Rica (1999-2006). In the case of Costa Rica, in the period 2007-2011 we also used the spread in a long-term US dollar bond, taken from JPMorgan Markets.

The indicator is built as follows. We compute the primary balance which would render the debt stable at a given point in time (a primary balance below that estimate would make the debt grow). In particular, given the growth of the economy (g), the debt in the previous period (d_{t-1}) and the cost of the debt, measured as the total interest paid by the government divided by the debt in the previous period (r), we can compute the *threshold primary balance* as:

$$td_t = \frac{r-g}{1+g} d_{t-1} \quad (5)$$

This threshold balance reflects the spikes in the costs of financing (reflected in r), but it also controls for the fiscal burden that they imply, since the increase in the threshold primary balance is proportional to the size of debt in the previous year. Finally, this expression conveys the impact of economic conditions through g , which alleviates the financing burden in good times and worsens it during economic downturns.

Note that the changes in financing costs obtained in this way are derived *ex post* (by dividing the interest payments by total debt) and may miss some “action” in the markets which is more readily reflected in the spreads. Therefore, we also compute a market-based version of expression (5), by substituting the implied interest rate r by its market counterpart measured as the observed spread plus the real interest on the 10-year US reference bond (nominal rate minus observed US CPI inflation).

Market-based and implied interest rates are highly correlated (see Appendix 2, Figure A2, coefficient of correlation: 0.4), but the market-based variable is usually higher and more volatile (see Appendix 2, Table A2). This behaviour is corroborated by the time-series analysis of the change of market-based and implied threshold balances (Figure 6). The implied threshold balance reacts slowly when financing conditions change. This could reflect lower costs of internal financing, some presence of financing from official creditors or some degree of substitution between different sources of financing. However, both variables are very correlated by construction (coefficient of correlation: 0.9).

Finally, we also define the *debt dynamics gap* (dd), as the difference between the primary balance and the threshold balance in the previous period, approximately the decrease in debt.

$$dd_t = pb_{t-1} - tb_{t-1} \quad (6)$$

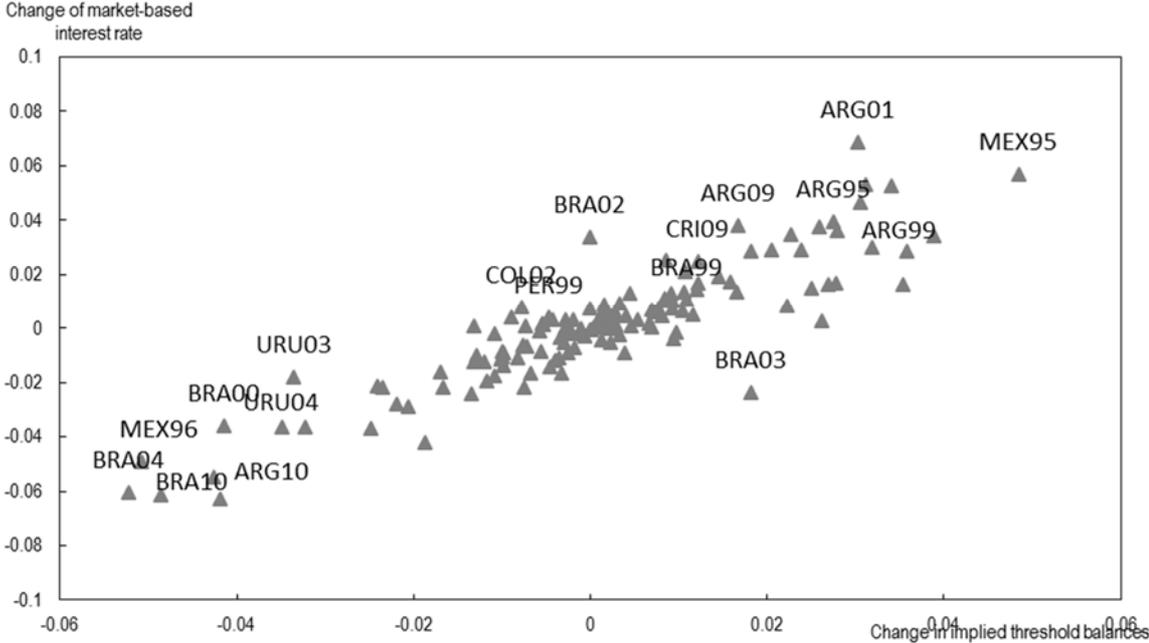
The rationale for the inclusion of this term in an estimation of the fiscal stance is that the trajectory of the debt can also affect the fiscal stance, on top of the evolution of costs they face, and is a convenient complement to the financing cost to assess the constraints the government faces.

Figure 7 shows the evolution of the mean aggregate of the financial variables, together with the structural primary balance and the output gap. After the effects of the crisis in 1998 and the debt crises of Argentina and Uruguay in 2001 and 2002, the region faced tight financing conditions that were visible until 2003. From then on, the region entered a period of fast decreasing debt (from 2004 to 2009), based on significant fiscal surpluses during the expansion period that started in 2003. This period stops with the countercyclical reaction to the economic crisis in 2009. The rebound in 2010 assured loose financing conditions, but they did not come with a procyclical response. In 2011 and 2012, some countries experienced fiscal savings together with decreasing debt and positive output gaps for the first time in our sample (ie “countercyclicity also in good times”). But note that in the last two years,

2013 and 2014, the positive output gaps coincide with expansionary fiscal impulses, in spite of worsening financing conditions (in 2014) – that is, a return to procyclicality, with non-binding impact of deteriorating financing conditions.

Changes in market and implied threshold balances in selected economies in Latin America, 1990–2014

Figure 6

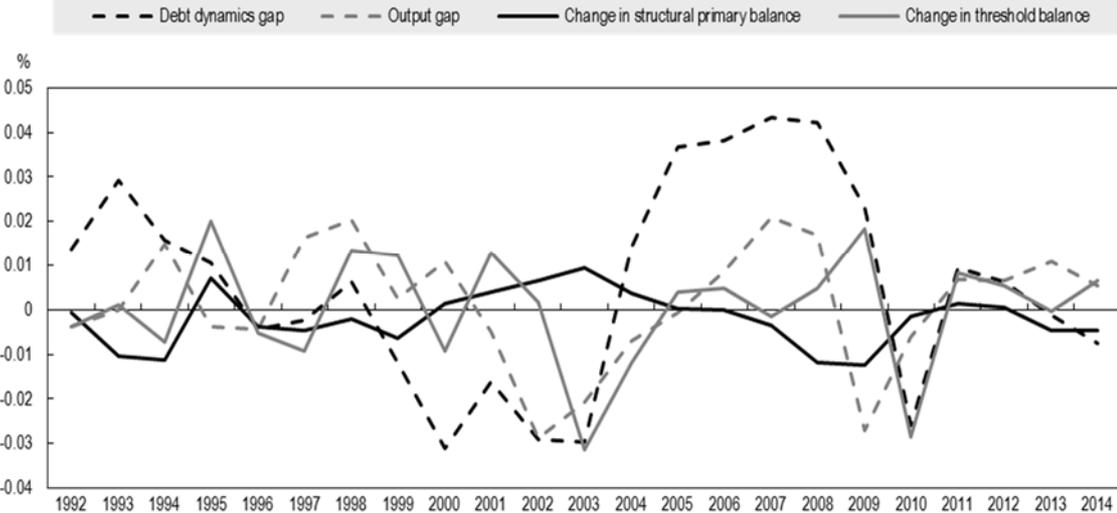


Note: Argentina is excluded in the years 2002–2006.

Source: Authors' calculations.

A snapshot of financing conditions, output gaps and the fiscal stance in Latin America

Figure 7



Source: Authors' calculations.

3.2 Explaining the fiscal stance with financing conditions: empirical approach

Our empirical framework to study the influence of financing conditions uses the following regression:

$$\Delta b^*_{it} = \mu_i + \delta \Delta FC_{it} + \gamma dd_{it} + \beta GAP_{it} + u_{it} \quad (7)$$

The impact can be assessed by regressing the changes of the structural primary balance (Δb^*_{it}) on the changes in the alternative variables reflecting financing conditions (ΔFC_{it}). A positive δ indicates that governments react by restraining fiscal policy to a worsening in financing conditions, reflected as an increasing spread or a higher threshold balance. The reaction of fiscal policy is also expected to depend on the dynamics of public debt (dd_{it}). When this term is positive, debt is decreasing, alleviating the fiscal position. Therefore, we expect γ to be negative and the value of the coefficient on financing conditions (δ) to increase.

We include the output gap (GAP) in the regression to assess the fiscal policy stance after controlling for the financing and debt conditions. If, as we expect, they influence the fiscal stance, the coefficient of the output gap should lose relevance.

With regard to the econometrics, we estimate equation (7) using a fixed effects estimator to take into account the possible omitted variable bias coming from the presence of unobserved country heterogeneity. Moreover, there are several sources of endogeneity. In particular, the financing costs included in the model could be affected by the fiscal stance through two channels. First, the real interest rate could be influenced by the announced fiscal policy. Second, the fiscal stance can affect the growth rate, and thus the threshold balances.¹⁴ Against this background, the fixed effects estimator would be consistent, but only under the strict exogeneity of the regressors, which could not be the case.

In order to take into account the possible endogeneity between the financial variables and the fiscal impulse, we also use an instrumental variables (IV) estimator. We chose several instruments, including suitable lags of the independent variables.¹⁵

3.3 Explaining the fiscal stance with financing conditions: main results

The results of the estimation of equation (7) using the fixed effects estimator are presented in Table 2. Columns 1, 4 and 7 present the results of the regression including the different gauges of changes in financing conditions (ΔFC_{it}) only: the change in spreads ($\Delta spread$), in the implied threshold balance (Δtb), and in the

¹⁴ Moreover, we are in a context in which the number of countries (N), is small relative to T . This feature precludes us from using a GMM estimator. This class of estimators improves efficiency when N is large with respect to T . Against the background presented in this section, the number of instruments will increase as T grows, and it will rapidly catch up with the number of countries, N , resulting in a problem of overfitting the data and loss of power of the standard tests for the validity of the instruments.

¹⁵ The limited number of countries in our dataset means it is important to be careful with the number of instruments. Too many instruments would overfit the data, with the result being an estimator very similar to the OLS estimator. However, too few instruments will reduce the degrees of freedom of our estimation. In this context, we try to limit the number of instruments while keeping it greater than the number of regressors. Moreover, while the estimates of the instrumental variables approach are asymptotically valid, we should be careful with their small-sample properties.

market-based threshold balance ($\Delta tb\text{-market}$), as the only independent variables. All these variables have the expected sign, but they are not significant on a stand-alone basis. If we include the debt dynamics (see Columns 2, 5 and 8), the (lagged) debt dynamics are always significant. In contrast, while the two variables reflecting threshold balances become significant, governments do not seem to react to changes in the spread (Column 2). These results confirm the solid relationship between financing conditions and the fiscal impulse. Moreover, this can be taken as evidence that countries adjust their fiscal stance to changes in sustainability conditions, but to a greater extent when the degree of sustainability of debt becomes a genuine concern. Columns 3, 6 and 9 include the output gap to test whether this result affects the cyclical reaction of fiscal policy. Indeed, the coefficient for the output gap is no longer significant. Moreover, the implied threshold balance remains highly significant, while the market-based threshold balance is no longer significant, and the size of the effect is less than half of the effect of its implied counterpart.

Financing conditions' effects on fiscal policy in Latin America (I)

(Panel data estimation, fixed effects)

Table 2

Dependent variable: $D(SP\hat{B})$ = change in structural primary balance									
<i>Fixed effects estimation</i>									
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
GAP			-0.112 [0.063]*			-0.083 [0.058]			-0.092 [0.065]
D(Tb)				0.078 [0.061]	0.196 [0.059]***	0.178 [0.06]***			
Dd		-0.154 [0.038]***	-0.129 [0.04]***		-0.218 [0.038]***	-0.193 [0.041]***		-0.167 [0.039]***	-0.144 [0.042]***
D(spread)	0.071 [0.226]	0.185 [0.207]	0.174 [0.205]						
D(Tb-spread-based)							0.027 [0.055]	0.089 [0.052]*	0.071 [0.053]
R2	0.000	0.112	0.133	0.01	0.181	0.191	0.002	0.127	0.140
Observations	140	139	139	171	171	171	140	139	139
No. of countries	8	8	8	8	8	8	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1% respectively

Outliers dropped: Argentina 2002-2006.

Change in spread in /0.01

Source: Authors' calculations

If the causation was the reverse, that is, if the fiscal stance determined financing conditions, we would find the opposite sign: expansionary fiscal behaviour would be associated with a worsening of financial conditions. This is not an issue here. In any case, for the sake of robustness, Table 3 presents the results of the instrumental variables approach, using the implied threshold balance as explanatory variable. We find that, robustly with previous results, the fiscal stance is neutral if we control for the endogenous impact of financing conditions. Both remain significant and with an effect similar in size to the previous estimation, while the behaviour of the instruments is correct as measured by the standard tests. Therefore, we can conclude that financing conditions can explain the fiscal stance in our sample, in line with the findings in Alberola and Montero (2006).¹⁶

¹⁶ We repeated this estimation with the market-based variables (available upon request). While the size and sign of the effects were similar to the ones presented in Table 2, the change in the market-based threshold balance and the change in the spread were not significant when taking into account the endogeneity. We interpret these results as evidence of a superior performance to explain fiscal impulses of the implied threshold balance over the market-based measures in our sample. This result could be driven by the high volatility of the market-based variables. Against this background, the smoother evolution of implied interest rates may be better entangled with the nominal rigidities of

Financing conditions' effects on fiscal policy in Latin America (II)

(Panel data estimation, 2SLS estimation with fixed effects)

Table 3

Dependent variable: D(SPB) = change in structural primary balance		
<i>2SLS estimation with fixed-effects</i>		
	(1)	(2)
GAP		-0.029 [0.083]
D(Tb)	0.173 [0.08]**	0.166 [0.079]**
Dd	-0.339 [0.061]***	-0.323 [0.083]***
Hansen test (p-value)	0.657	0.557
Observations	163	163
No. of countries	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.
Instrumented with CTB (-2), PB(-2)-CTB(-2), GAP (-1) and SPB (-2).
Outliers dropped: Argentina 2002-2006.

Source: Authors' calculations

4. The role of fiscal rules: do they matter?

In this section we assess the impact that the fiscal rules implemented by Latin American economies have had on their fiscal stance. This requires not only considering their existence, but also some of their key features, such as their level of coverage, formal enforcements, legal basis and supporting procedures. Finally, an empirical approach, based on the previous section, will be applied to properly assess the relation between these rules in the fiscal stance.

4.1 Tabulating fiscal rules: main characteristics

A first, straightforward way to evaluate the impact of fiscal rules is to include them as a dummy variable (1 = with fiscal rule; 0 = without fiscal rule) in equation 7, interacting with the different parameters. However, the implementation and use of fiscal rules is not homogeneous across countries and their characteristics may vary. Countries may exhibit differences in the scope of the application of the fiscal rule. For instance, in some countries the coverage of the rules may only apply to the central government (Colombia), while in other cases to the general government (Brazil). Furthermore, countries also put in place different types of mechanisms for implementing fiscal rules, including formal enforcement procedures (Mexico) or monitoring mechanisms outside of the government (Costa Rica). In addition, the legal basis of the fiscal rules may vary (in the case of Chile, the budget balance rule was only a political commitment between 2001 and 2005, and evolved into a statutory basis in 2006).

the fiscal variables that may not react as strongly as a market-based variable would suggest. In what follows, we favour the implied threshold balance as a reference for the financing costs, and we stick to it in the remainder of the paper.

Accordingly, the analysis opts for “fiscal indexes” to address the heterogeneity of fiscal rules in the region.

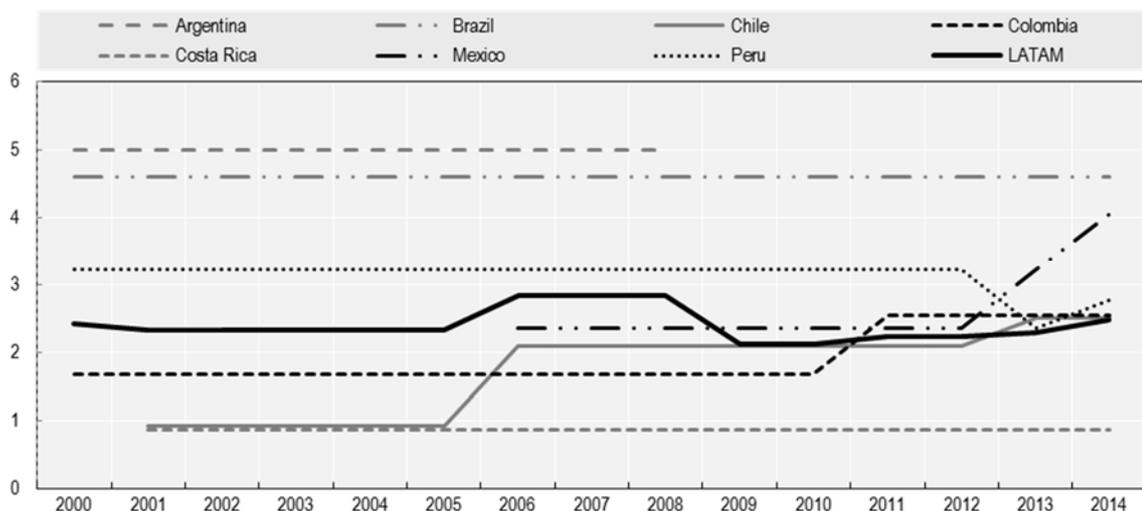
Constructing a simple fiscal index

We construct a fiscal index based on the rules’ key characteristics, using the methodology proposed by Budina et al (2012) and the IMF *Fiscal Rules Dataset* (1985-2013). The fiscal index consists of the unweighted sum (standardised to vary from 0 to 5) of four sub-indexes that describe key characteristics: coverage, formal enforcements, legal basis and supporting procedures (also varying from 0 to 5).¹⁷

Despite the fact that Argentina stopped using fiscal rules in 2008, the overall index of the region has slightly increased since 2000 (Figure 8). This is due to the fact that more countries started using fiscal rules (eg Mexico in 2006), some countries increased the number of rules they use (Colombia, the approval of the budget balance rule), or changed the configuration of the rule (Chile implemented the fiscal responsibility law in 2006 and consequently changed the legal basis of the rule).

A fiscal rules index in Latin America

Figure 8



Note: The index for Latin America (LATAM) is the result of a simple average of Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador and Mexico.

Source: Authors’ calculations based on IMF Fiscal Rules Dataset 2013.

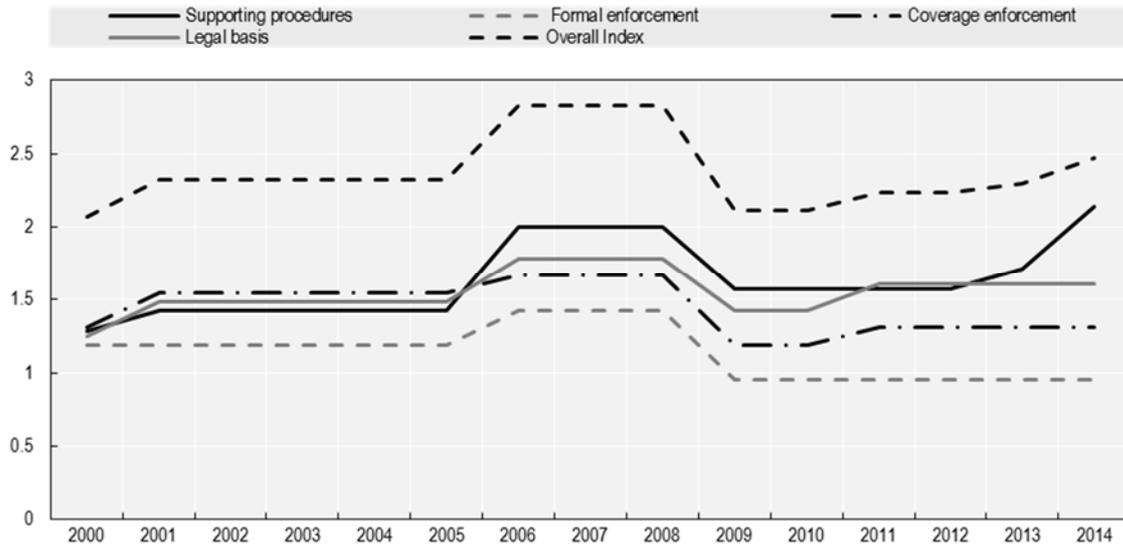
The evolution of the region’s sub-indexes has also been positive in most cases (Figure 9). The use of supporting procedures or a stronger legal basis for these rules has increased in the last couple of decades, while coverage enforcement has remained relatively stable and formal enforcement mechanisms have decreased

¹⁷ Each sub-index consists of the sum of several key indicators (that range from 1 if the indicator exists to 0 if it does not). For instance, the sub-index for supporting procedures is the sum of three indicators that account for the existence of multiyear expenditure ceilings, fiscal responsibility laws and independent fiscal bodies. The formal enforcement sub-index is a sum of the existence of formal enforcement procedures and the monitoring of compliance outside government. In the case of the legal basis sub-index, a sum is performed (values are standardised to range from 0 to 1) to take into account if the rule is based on a political commitment, a coalition agreement, a statutory law or the constitution. For the coverage sub-index, a similar methodology is performed, taking into account if the rule covers only the central government or the general government.

(mainly due to Argentina's scrapping of these rules). Overall, the coverage of fiscal rules (both in numbers and quality) has increased in the past decade.

Fiscal rule sub-indexes in Latin America

Figure 9



Source: Authors' calculations based on IMF Fiscal Rules Dataset 2013.

4.2 Fiscal rules, financing conditions and fiscal stance: main results

In order to formally assess the role that fiscal rules have had on the fiscal stance, we extend the results from the previous section and consider the following specification:

$$\Delta b^*_{it} = \mu_i + \delta \Delta t b_{it} + \gamma d d_{it} + \beta G A P_{it} + \eta F R_{it} + \vartheta (F R_{it} * G A P_{it}) + u_{it}, \quad (8)$$

in which we have added to the previous framework a variable $F R_{it}$, related to the existence of a fiscal rule in country i at time t . This specification is flexible enough so that $F R_{it}$ can represent a fiscal rule dummy, the value of the index or of one of its sub-indexes presented above. This variable is introduced combined with the gap, in order to take into account that most fiscal rules affect fiscal policy as a function of the cycle position of the economy. We also include the fiscal rule with no interaction, to test if the presence of fiscal rules makes countries save more independently of the cycle position.

The main caveat of the estimation of the effect of fiscal rules on the fiscal stance is the problem of reverse causality. Fiscal rules may not be an instrument to discipline governments, but the result of the preferences of the government (and society) for a more regulated fiscal environment. Or they might even be a signal to financial markets. Therefore, the model estimated under the traditional OLS framework could be biased given the endogenous nature of the fiscal rules. In order to address this potential problem, we also instrument our fiscal rule indicator with institutional variables, mainly the durability of a regime, using the *Polity IV Dataset*.¹⁸ The logic

¹⁸ Data obtained from Polity IV Project (<http://www.systemicpeace.org/polity/polity4.htm>).

behind the use of this instrument is the possibility of capturing the historical pattern of durable institutions in a country.¹⁹ Therefore, the intuition is that durable regimes will influence future fiscal decisions through the implementation of fiscal institutions, namely fiscal rules, to ensure the continuation of stability through balanced fiscal balances. In order to use this, we construct a dummy variable that takes value 1 when a country has a regime durability of 20 years or more, and 0 otherwise. The results are robust to other thresholds in durability.

The results of the estimation of fiscal rules taking into account only the existence of a fiscal rule in a country at time t are found in Table 4. In Column 1 we report the simple within-group OLS estimation of the structural primary balance on the gap and the fiscal rules. We find that both effects are significant and with very similar parameter values. Therefore, countries without fiscal rules behave procyclically, while discretionary fiscal policy in countries that have introduced a fiscal rule is neutral. The difference between them is significant, an indication of the importance of the presence of fiscal rules to predict the cyclical behaviour of the fiscal policy. Column 2 reports the within-group OLS estimation including the financial variables. We find that financial variables are still significant and with the predicted signs, while the output gap coefficient for a country without fiscal rules is also negative and significant. However, now the presence of fiscal rules is not only significant to explain the different cyclical behaviour of fiscal policy, but the interaction coefficient is greater than the coefficient of the output gap, indicating a significant countercyclical fiscal policy. In none of the cases is the fiscal rule *per se* significant, rejecting the hypothesis that they incorporate pro-savings behaviour irrespective of the economic cycle.

In Table 4, Column 3 we go beyond the mere existence of fiscal rules including the “fiscal rule index”. Results indicate that the overall index with and without interactions is not significant. Nevertheless, in Column 4, with the inclusion of financing conditions, the interaction coefficient is significant and with a positive sign. In other words, countries that have introduced a fiscal rule have a more stabilising fiscal policy. Similarly to the previous results, the output gap and the financing conditions follow the expected signs and are still significant. The interaction coefficient of the overall index is smaller than the output gap when the value of the index is lower than 3 (which is the case in the majority of the countries), which would account for a more neutral discretionary fiscal policy, rather than a countercyclical fiscal policy. Again, the overall index without interactions is not significant.

In Table 5 we report the results using the IV approach. In Column 1 we instrument the fiscal rule dummy variable using the years of durability of the regime as instrument,²⁰ and adding a dummy variable reflecting the durability of governments (to add some degree of non-linearity), while treating the financial variables as controls. The effects of the financing conditions are similar and still significant as before. However, the effect from fiscal rules is not significant. Moreover, the

¹⁹ This is a common approach in estimating the determinants of growth, for example, in order to calculate the importance of participation in international trade (Rose (2004)). As Acemoglu and Robinson (2006) put it, institutions are often an incremental process: “Rational actors also care about the future. This is where political institutions, which are durable and consequently have the capacity to influence political actions and political equilibria in the future, come in.”

²⁰ In order to test the validity of the instrument, we also compute a logit regression with the fiscal rule dummy as a dependent variable and the durability of the regime as regressor. The instrument turns out to be significant at the 1% level. Also, we compute the standard tests for weak identification, the Anderson-Rubin test and the Hansen test for endogeneity. Both lead to rejections of the weak instruments hypothesis and the joint endogeneity of the instruments, respectively.

difference in the size and precision of the estimations of the coefficients of the fiscal rules in Table 4 and Table 5 should call into question the stability of the parameters. Nevertheless, in Column 2, with the introduction of suitable lags, we find that the effect of fiscal rules is significant, and since Δtb is only significant at the 90% level of confidence, it suggests that the presence of fiscal rules may induce some endogenous behaviour of financial variables, for example, because of the effect of the presence of fiscal rules on the interest rate of the country's debt.

Fiscal rules, financing conditions and fiscal policy in Latin America

(Panel data estimation, fixed effects)

Table 4

Dependent variable: D(SPB) = change in structural primary balance				
<i>Fixed effects</i>				
	(1)	(2)	(3)	(4)
GAP	-0.294 [0.066]***	-0.166 [0.066]**	-0.267 [0.062]**	-0.132 [0.064]**
D(Tb)		0.189 [0.06]***		0.186 [0.06]***
Dd		-0.208 [0.041]***		-0.197 [0.041]***
FISCAL RULE	0 [0.002]	0.001 [0.002]		
GAP*FISCAL RULES	0.245 [0.121]**	0.293 [0.112]**		
OVERALL INDEX			0.00 [0.001]	0.00 [0.001]
GAP*OVERALL INDEX			0.062 [0.041]	0.065 [0.038]*
R2	0.106	0.228	0.096	0.207
Observations	182	171	171	171
No. of countries	8	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.
Outliers dropped: Argentina 2002-2006

Source: Authors' calculations

Fiscal rules, financing conditions and fiscal policy in Latin America

(Panel data estimation, instrumental variables)

Table 5

Dependent variable: D(SPB) = change in structural primary balance		
<i>2SLS</i>		
	-1	-2
GAP	-0.280 [0.14]**	-0.287 [0.15]*
D(Tb)	0.200 [0.065]***	0.169 [0.089]*
Dd	-0.225 [0.054]***	-0.319 [0.071]***
GAP*FISCAL RULES	0.682 [0.47]	0.757 [0.414]*
Hansen J test (p-value)	0.131	0.343
Kleibergen-Paap underidentification test	0.032	0.031
Observations	170	162
No. of countries	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.
Outliers dropped: Argentina 2002-2006.
In (1) instruments are Durability -dummy and Durability -dummy (t-1).
In (2) instruments are Durability -dummy and Durability -dummy (t-1), PB (-2)-CTB (-2), GAP (-1) and SPB (-2).

Source: Authors' calculations

5. Sensitivity analysis

A set of sensitivity checks of the results is advised, given all the caveats expressed above: i) using changes to the output gap instead of output gap levels; ii) including past debt levels as an alternative gauge of financing conditions; iii) considering asymmetries in the fiscal response depending on the sign of the output gap; and iv) getting deeper into the effects of different features of the fiscal rules and “second generation” sub-indexes.

In Table 6, Column 1, we present the response of the fiscal impulse to changes in the output gap. The estimated response is robust to the one presented in Section 2. We find a procyclical fiscal policy on average, while the degree of procyclicality has diminished in the last part of the sample. However, the degree of procyclicality under this specification is non-significant in aggregate. We also test for sustainability concerns in a simpler way, using past debt levels as a regressor (Column 2). Under this specification, debt levels are not significant, which reinforces the idea that the evolution of financing conditions, derived from a debt sustainability analysis, is the main force driving procyclicality in the region, rather than just the level of debt.

Fiscal rules, financing conditions and fiscal policy in Latin America –sensitivity tests

(Panel data estimation, fixed effects)

Table 6

Dependent variable: $D(\text{SPB})$ = change in structural primary balance				
<i>Fixed-effects estimation</i>				
	(1)	(2)	(3)	(4)
GAP		-0.218 [0.058]***	-0.07 [0.080]	-0.015 [0.060]
D(Tb)			0.177 [0.060]***	0.205 [0.058]***
Dd			-0.193 [0.042]***	-0.21 [0.041]***
Δ GAP	-0.063 [0.048]			
Debt (t-1)		0.003 [0.009]		
GAP*POSITIVE GAP			-0.034 [0.136]	
GAP*POSITIVE GAP*FISCAL RULES				0.117 [0.160]
GAP*NEGATIVE GAP*FISCAL RULES				0.332 [0.099]***
R2	0.010	0.082	0.020	0.034
Observations	182	179	171	171
No. of countries	8	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.

Outliers dropped: Argentina 2002-2006.

Source: Authors' calculations

In the next columns we explore possible asymmetries in the reaction of fiscal policy and the impact of fiscal rules. We include in the three regressions the financing conditions variables. In Column 3, we test whether countries have been more procyclical during expansions than during recessions, adding an interaction with a dummy taking value 1 when the output gap is positive. While there is some evidence

supporting this idea, and the coefficient of the interaction of the output gap and the cyclical position is negative, it is not significant. Finally, in Column 4 we show the results of multiplying the dummy variable explained in Column 3 with the dummy denoting the presence of fiscal rules, in order to test whether fiscal policies governed by fiscal rules have been more procyclical in booms than in busts. However, this specification assumes that, without fiscal rules, countries behave equally regardless of their cyclical position. We find that fiscal rules are more effective when the output gap is negative, suggesting that they help to act in the bad times, although this result should be analysed in further research.

As mentioned before, fiscal rules are designed to achieve different objectives. Expenditure rules put ceilings on one side of the government balance, debt rules look at the long-term sustainability, and budget balance rules aim to control the year-by-year evolution of the fiscal balance. Finally, structural balance rules try to accommodate the fiscal balance to the economic cycle. We test whether different types of rules have different impacts on the fiscal stance of the government, as expected according to their design. However, design may be irrelevant if the introduction of the fiscal rule is just a confirmation of a more restrained fiscal policy. We introduce the different types of rules as independent variables in the fixed effects estimator studied before, controlling for the impact of financing conditions (Table 7). We find that budget balance rules and structural rules are correlated with a more countercyclical fiscal stance. Expenditure rules and debt rules look irrelevant. Moreover, we find that none of the rules taken in isolation affects the fiscal stance, as shown by the non-significance of the effect of the dummy variable (see Bova, Carcenac and Guerguil (2014) for similar results for a wider sample of emerging economies).

Types of fiscal rules, financing conditions and fiscal policy in Latin America

(Panel data estimation, fixed effects)

Table 7

Dependent variable: $D(SPB)$ = change in structural primary balance				
<i>Fixed effects</i>				
	Expenditure rule	Budget balance rule	Debt rule	Structural rule
GAP	-0.107 [0.061]	-0.154 [0.062]**	-0.080 [0.059]	-0.103 [0.057]*
GAP*FISCAL RULES	0.205 [0.149]	0.316 [0.119]***	-0.134 [0.278]	0.466 [0.217]**
FISCAL RULE	0.002 [0.003]	0.001 [0.002]	-0.003 [0.008]	0.003 [0.004]
R2	0.205	0.229	0.185	0.219
Observations	171	171	161	171
No. of countries	8	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.
Outliers dropped: Argentina 2002-2006.
Financing conditions included in all regressions.

Source: Authors' calculations

Table 8 shows the effects of the different fiscal rule sub-indexes, summarised in the index used in Section 4. The only sub-index that is non-significant is the formal enforcement of the rule. In other words, surprisingly enough, the existence of formal enforcement procedures plays no role as an explanatory variable of the countercyclicality of the countries' fiscal policy. On the contrary, the coverage enforcement, legal basis and supporting procedures sub-index do seem to play a role.

In the case of coverage enforcement, countries with a fiscal rule with a wider coverage (general government vs central government) tend to behave more countercyclically. Similarly, the supporting procedures sub-index shows that having an independent body monitoring implementation (or suggests the proper assumptions) will behave similarly to the coverage enforcement sub-index (as in Bova, Carcenac and Guerguil (2014)). Table 8 shows that the most important aspects of a rule to prevent countries from behaving procyclically are the stronger legal basis of a rule and the supporting procedures. However, again, these results should be taken with caution. For majority of the economies under study, the legal basis for the fiscal rules is statutory (and not constitutional, a legal treaty or a political agreement) and has not varied since 2000 (with the exception of Chile). As a result, most of the variation of the index comes from the introduction of a new fiscal rule rather than a change in the legal basis, reflecting a similar influence as the case where we only take into account the existence of a fiscal rule (Table 4).²¹

Fiscal rule sub-indexes, financing conditions and fiscal policy in Latin America

(Panel data estimation, fixed effects)

Table 8

Dependent variable: D(SPB) = change in structural primary balance	SECOND GENERATION INDEX			
	Supporting procedures	Formal enforcement	Coverage	Legal basis
<i>Fixed effects</i>				
GAP	-0.141 [0.063]**	-0.097 [0.062]	-0.126 [0.063]**	-0.149 [0.065]**
D(Tb)	0.186 [0.060]***	0.180 [0.061]***	0.186 [0.061]***	0.188 [0.060]***
Dd	-0.202 [0.041]***	-0.192 [0.041]***	-0.195 [0.041]***	-0.199 [0.041]***
GAP*Fiscal rules	0.114 [0.05]**	0.034 [0.055]	0.098 [0.058]*	0.138 [0.061]**
R2	0.216	0.193	0.206	0.215
Observations	171	171	171	161
No. of countries	8	8	8	8

Robust standard errors in brackets. *, **, *** denote statistical significance at 10%, 5% and 1%, respectively.
Outliers dropped: Argentina 2002-2006.
Financing conditions included in all regressions.

Source: Authors' calculations

6. A look at the evolution of the fiscal stance: the global picture

In this paper we have presented strong evidence of the link between the fiscal stance and both financing conditions and fiscal rules in Latin America. This section takes stock and assesses the evolution of these determinants.

We find that financing conditions are key to characterising the cyclical response of fiscal policy. Figure 10 plots the evolution of the fiscal stance taking into account financing conditions (black line and confidence bands), compared to the basic regression between output gap and changes in the structural primary balance (grey

²¹ In almost all of the cases, the countries under study show a similar legal basis, ie statutory law. Chile is the only country that has experienced a change in the legal basis, when it went from a political commitment to a statutory law in 2006.

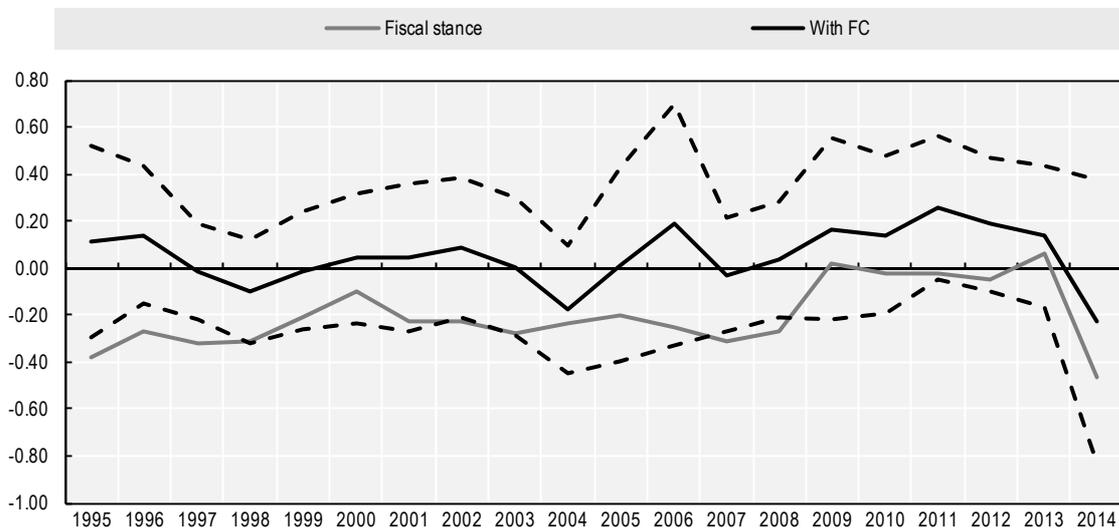
line, as in Figure 4), on a rolling-window basis of five years. The gap between both lines indicates the importance of financing conditions to the procyclicality of fiscal policy. Around the global financial crisis, a brief period of countercyclical fiscal policy is observed. The strong period of growth after the crisis, reflected in positive output gaps, was accompanied, as usual, by loose financing conditions and decreasing debt, but the temptation to expand fiscal policy was not mitigated. The return of the black line – incorporating financing conditions – to negative territory and the narrowing of the gap between both lines at the end of the sample, indicate that in this recent period financing conditions were not behind the procyclical stance; as noted in Figure 7, fiscal policy maintained an expansionary stance in the last two years with a positive output gap, in spite of the deterioration of financing conditions. The widening of the confidence intervals, however, points to the uncertainty around these estimates.

Fiscal rules, on the other hand, became pervasive during the period. Countries with fiscal rules were able to mitigate the impact of the financial crisis through fiscal expansions (a more countercyclical stance). Similarly to Figure 10, we compare the results of the fiscal stance controlling by financing conditions, differentiating between countries with and without fiscal rules (Figure 11). The black dotted line shows the stance (controlling for financing conditions) for countries without fiscal rules, while the grey dotted line shows the effect of countries with fiscal rules. Countries with fiscal rules were able to be countercyclical – conditional on financing conditions – while those without them were continuously procyclical.

Fiscal stance controlling for financing conditions in Latin America

(Rolling-window estimation; beta-coefficient in 5-year periods)

Figure 10



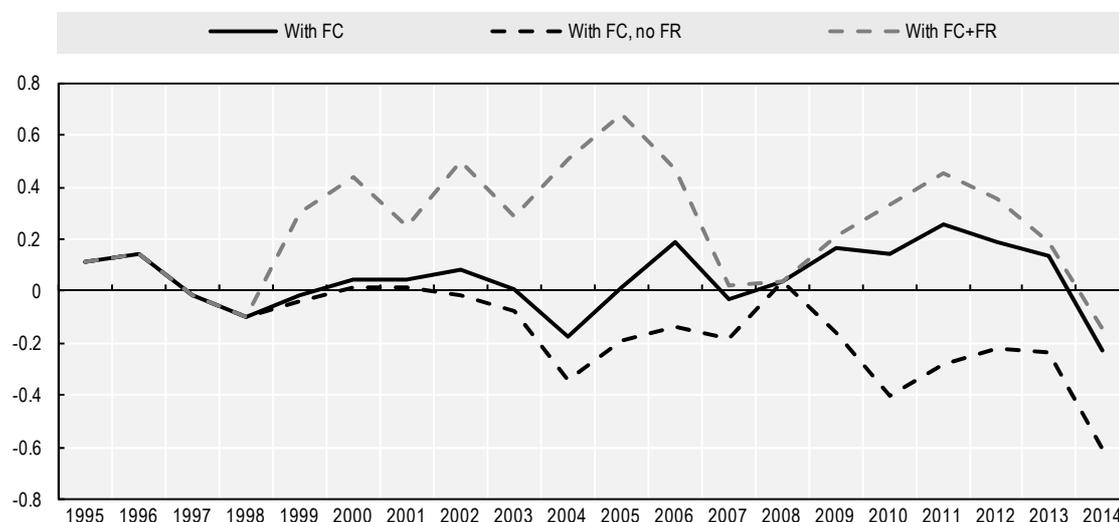
Source: Authors' calculations.

However, in the last few years, the countercyclicality of fiscal rules has faded, as countries with fiscal rules have also run procyclical fiscal policies (although less intensively than those countries without them). In other words, the recent behaviour shows that "graduation" to fiscal countercyclicality for economies using fiscal rules is not a given. This conclusion should be nuanced by the very small number of countries remaining without fiscal rules in the last part of the sample.

Fiscal stance controlling for financing conditions and fiscal rules in Latin America

(Rolling-window estimation; beta-coefficient in 5-year periods)

Figure 11



Source: Authors' calculations.

7. Conclusions

This paper has reviewed the fiscal policy stance in Latin America and two possible determinants: financing conditions and fiscal rules.

Fiscal policy, traditionally procyclical in Latin America, became less so in the aftermath of the crisis. The results are heavily influenced by the strong countercyclical behaviour during the crisis in the year 2009. However, the progress towards more stabilising fiscal policy has reversed in recent years. Indeed, positive output gaps have in the last few years been accompanied by fiscal expansions and, even more recently, fiscal consolidation is being implemented at a time of faltering growth.

Overall, financing conditions turn out to be a key determinant of the fiscal policy stance. Worsening financing conditions, which tend to coincide with difficult economic times, constrain fiscal policy. Favourable financing conditions, more prominent in good times, favour fiscal profligacy. The outcome, quite robust empirically, is fiscal procyclicality, determined by changing financing conditions.

On the institutional front, most countries in Latin America have strengthened their fiscal frameworks through the use, among others, of fiscal rules. The relevance of commodities and commodity-related public firms for fiscal revenues in these countries is an additional challenge for the implementation and efficacy of fiscal rules. However, our results are robust in showing that countries with fiscal rules have behaved less procyclically during the last two decades. Actually, for certain fiscal rule specifications the estimations cannot reject that they have actually implemented countercyclical fiscal policies during certain periods, specifically as a reaction to the financial crisis. Also after the crisis, they show relatively better performance than

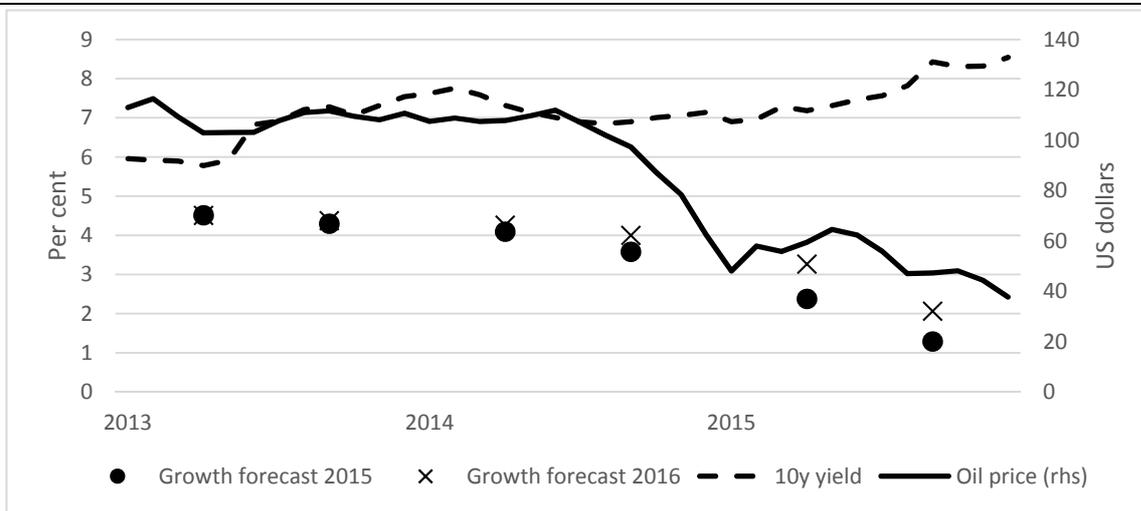
countries without rules. Among these countries, and very tentatively, countries with fiscal rules with a wider coverage (general government vs central government), and with supporting procedures (eg an independent body which monitors implementation or suggests the appropriate set of assumptions) outperform the others in terms of stabilisation. Similarly, budget balance rules and structural rules are correlated with a more countercyclical fiscal stance.

All empirical work of this kind has to be taken with caution. While endogeneity or reverse causation is not an issue in the case of financing conditions determining the fiscal stance, the adoption of fiscal rules may be a consequence rather than a cause of more fiscal good practices and discipline. Also, more research and evidence are needed to reach a determination of the “graduation” of fiscal policy in Latin America – at least for some countries – as recently expressed by the IDB (Powell (2015)) and the IMF (Celasun et al. (2015)). Some progress was observed around the crisis, but more recent behaviour would indicate that greater caution should be taken before reaching a final verdict.

The fall in commodity prices and lower growth prospects now constrain fiscal policy in much of Latin America (see figure 12). Lower commodity prices reduce tax revenues. Output gaps are or will probably enter into negative territory and financing conditions are tightening due to the start of the anticipated start of the lift-off, the weaker prospects for growth in the region and the reduced appetite for risk. The significant increase in average yield on government bonds combined with lower growth has aggravated debt dynamics. Under such circumstances, fiscal positions will need to be improved even during the downturn, thus entrenching their procyclical bias going forward.

Growth expectations, long term bond yields and oil prices in Latin America

Figure 12



Monthly averages. For growth rates and bond yields, mean of Brazil, Chile, Colombia, Mexico and Peru

Source: Bloomberg, IMF, World Economic Outlook April 2013 – September 2015.

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Appendix 1

Fiscal rules in Latin America

Fiscal rules have become a frequently used policy tool in Latin America in the last two decades (in the 1990's, only OECD economies applied them), as described in Table A1. This proliferation was led by Argentina (until 2009), Brazil, Colombia and Peru in 2000, Chile and Costa Rica in 2001, and Mexico in 2006. After the 2009 crisis, more economies from the region started using fiscal rules: Panama (which had already implemented them for two years between 2002 and 2003), Jamaica and Ecuador. The economies from the region that have applied these rules have largely preferred those that entail budget balance (all except Brazil), and in most cases have complemented them with a second rule, normally an expenditure or a debt rule. A particular case is Ecuador, which has used three different fiscal rules in the last 20 years, although currently it is using only one, the expenditure rule. Along with Ecuador, Chile currently uses a single rule, the budget balance rule. In the majority of the cases there are clear mechanisms in case of non-compliance with the rule. For example, according to the OECD/IADB (2014)²² if Chile, Colombia or Peru fails to follow the budget balance rule, they must present a proposal to the legislative power with corrective measures. In the case of the expenditure rule for Brazil or Colombia, if the rule is not followed, it is up to the authorities to undertake measures.

Number of countries using fiscal rule

Table A1

Fiscal rule	Expenditure rule	Revenue rule	Budget balance rule	Debt rule
Country				
Argentina	2000-2008		2000-2008	
Brazil	2000-2014			2000-2014
Chile			2001-2014	
Colombia	2000-2014		2011-2014	
Costa Rica			2001-2014	
Ecuador	2010-2014		2003-2009	2003-2009
Jamaica			2010-2014	2010-2014
Mexico	2013-2014		2006-2014	
Panama			2002-2003, 2009-2014	2002-2003, 2009-2014
Peru	2000-2014		2000-2014	

Source: IMF Fiscal Rules Dataset 2013

For the classification of the fiscal rules, we follow the work done by Budina et al. (2012), who categorise them into four categories: expenditure rules, revenue rules, budget balance rules and debt rules.

²² In general, the results are quite similar except for the case of Argentina, which according to the report uses an expenditure rule and a budget balance rule. Similarly, Chile and Ecuador use an expenditure rule and a debt rule, respectively. Finally, in the case of Brazil, the data presented in the report is the same as that used in the empirical analysis, with the exception of the legal basis. According to this source, the Brazil rule is written in the constitution, in contrast to the IMF *Fiscal Rules Dataset*, where it is only a statutory law.

Debt rules: set a clear limit or target for public debt in percent of GDP. For example, in the case of Panama, complemented with a budget balance rule, the target was to reduce the debt-to-GDP ratio to 40% by 2014.

Budget balance rules: require the government to balance revenue and expenditure. In some cases, the rule can refer to overall balance, structural balance or balance over the cycle. For example, Colombia uses a budget balance rule that is focused on reducing structural deficits for the central government. The objective is to reduce structural deficits to 2.3% of GDP in 2014 and to less than 1% from 2022 onwards. In the medium term, an independent advisory commission will set the correspondent targets. The rule establishes possible action (fiscal expansion) in the case of economic downturn and an escape clause in case of extraordinary events.

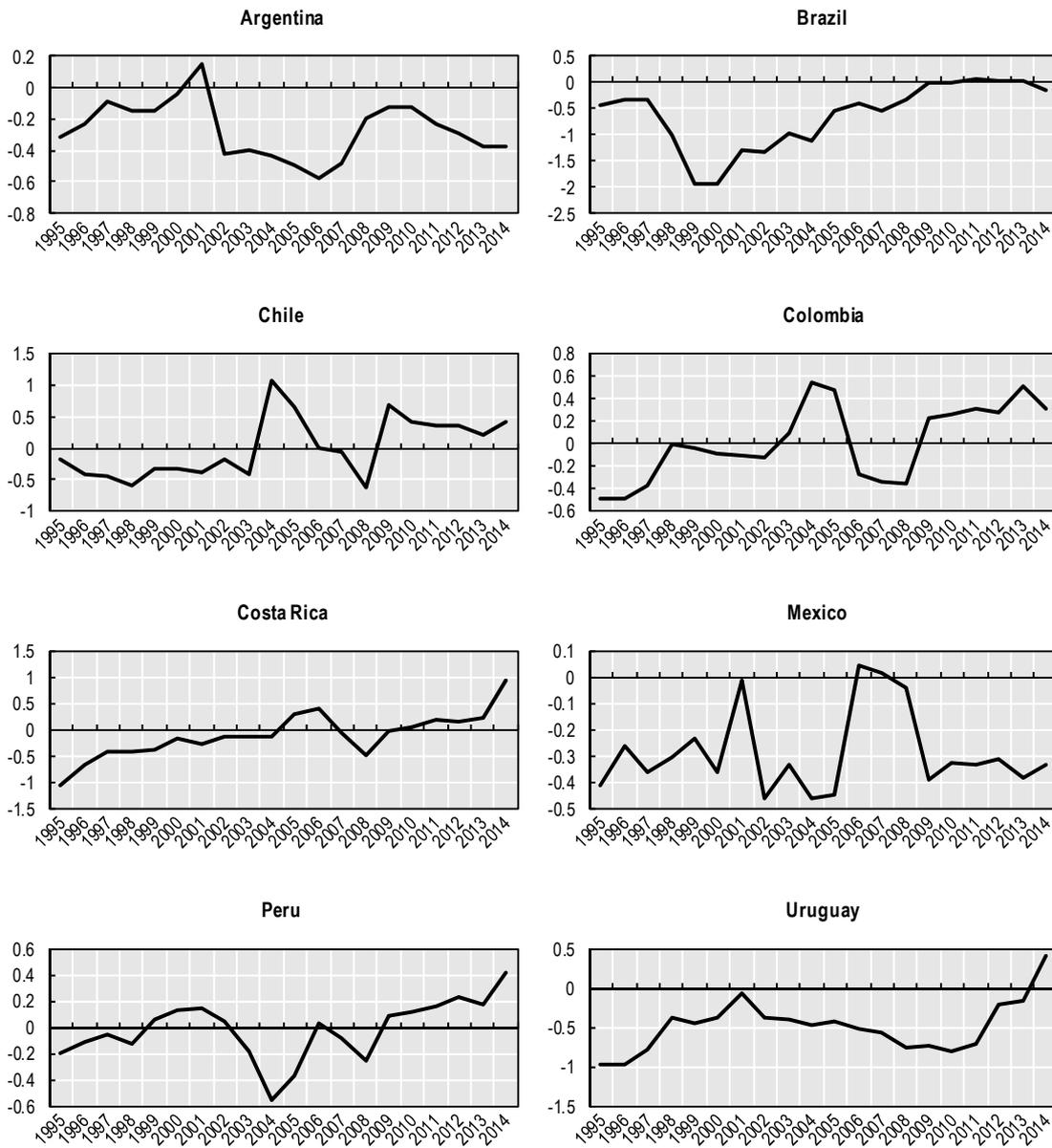
Expenditure rules: set limits on total, primary or current spending. For example, for Argentina (2000-2008) primary expenditure could grow more than nominal GDP or at most stay constant in periods of negative nominal GDP growth.

Revenue rules: floors on revenues. At the moment, no Latin American economy applies this fiscal rule. Nevertheless, it is still used by some OECD economies. For example, in Belgium, the growth of real primary expenditure for the central government must be 0 or less.

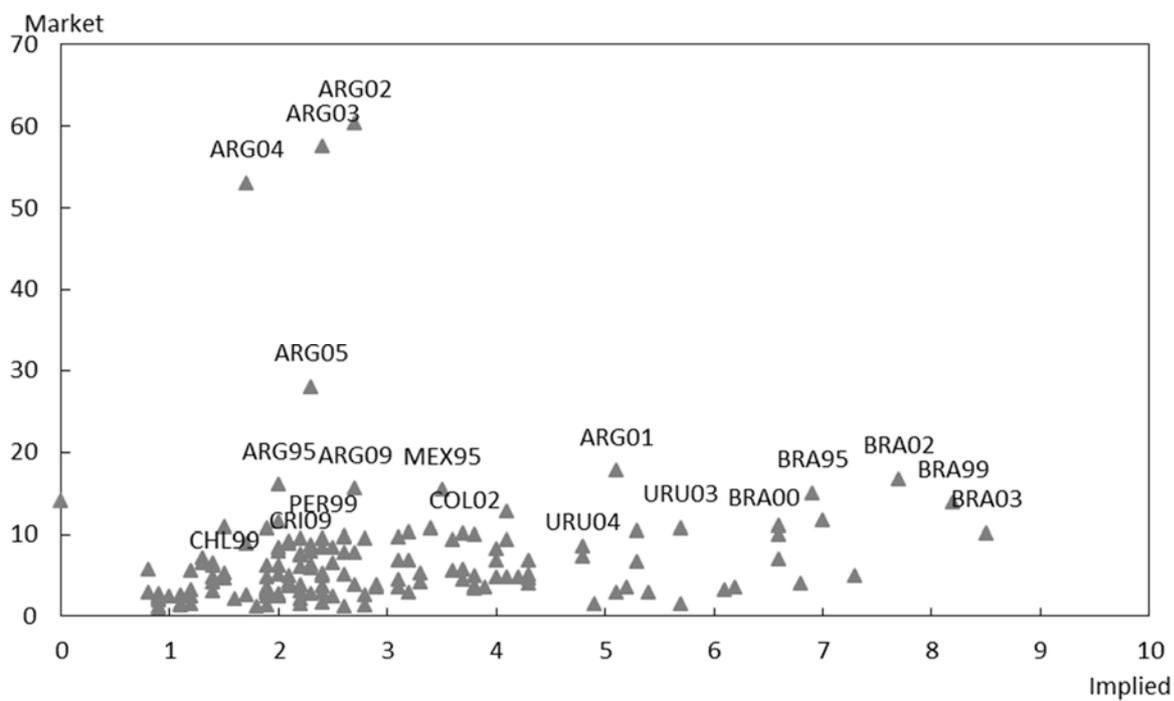
Appendix 2

Rolling window of fiscal stance by country (beta-coefficient in 5-year periods)

Figure A1



Source: Authors' calculations



Source: Authors' calculations.

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