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**TEMPORAL AGGREGATION IN
POLITICAL BUDGET CYCLES**

Jorge M. Streb y Daniel Lema

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Temporal aggregation in political budget cycles

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Abstract: While existing cross-country studies on political budget cycles rely on annual data, we build a panel with quarterly and monthly data from Latin American and OECD countries over the 1980-2005 period. Disaggregated data allow to center the electoral year more precisely, and show the effects are concentrated in a three-quarter window around elections. Cycles are statistically significant only in Latin America, but the pattern is similar to OECD countries: the budget surplus/GDP ratio falls in the election period and rises in the post-election period. In line with the logic of rational opportunistic manipulation, these effects cancel out.

JEL classification codes: D72, D78, H60

Key words: temporal aggregation, electoral window, pre- and post-electoral effects, political budget cycles, rational opportunistic cycles

I. Introduction

While Latin America is often associated to populism, we explore here whether democratic governments in the region fit a pattern of rational opportunistic manipulation (Nordhaus 1975). Increasing the budget deficit in electoral years without concern for future consequences can be described as populism. Rational opportunistic manipulation implies instead that the government will correct the budget deficit after elections to avoid adverse long-term consequences.

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Nordhaus (1975), in his analysis of political business cycles, has a framework where the policy stimulus applied before elections is reversed afterwards.¹ When Tufte (1978) and Frey and Schneider (1978a,b) extend the discussion to political budget cycles (PBCs), they solely focus on the pre-electoral manipulation of fiscal policy instruments. This approach has dominated the literature on PBCs, where most of the recent and representative cross-country studies exclusively concentrate on expansive fiscal policies in the election year, e.g., Brender and Drazen (2005) and Shi and Svensson (2006).

On the side of monetary policy, however, the Nordhaus (1975) framework implies that the corrective measures applied after elections prevent long-run consequences for inflation, which differs from a policy where inflation is permanently increased. What corresponds to this on the side of fiscal policy is a contractive fiscal policy after elections, to not leave a permanent impact on public debt due to the expansive fiscal policy before elections.

A series of papers indeed take this second approach. Ames (1987) studies post-electoral effects systematically, finding that government expenditures in Latin America not only rise the year of elections, but also fall afterwards. Persson and Tabellini (2003), for a wide panel of countries, and Alt and Lassen (2006a), for OECD countries, also detect fiscal contractions the year after elections. Schuknecht (1996), in a study of 35 developing countries, posits that the fiscal expansion in electoral years is corrected the post-electoral year, a restriction that Streb, Lema and Torrens (2009) are not able to reject for the Brender and Drazen (2005) dataset. However, a drawback of the studies with

¹ Policy manipulation leads to lower unemployment as elections approach, increasing inflation in the process; after elections the victor raises unemployment to combat inflation (Nordhaus 1975, p. 184).

cross-country panels is the use of annual data, which leads to imprecise estimates of the pre- and post-electoral effects.

What are the consequences of temporal aggregation? As Akhmedov and Zhuravskaya (2004) point out in their study of Russia using monthly data, if the sign of policies is reversed after elections, low frequency data may mask PBCs because the effects cancel out. Furthermore, since elections take place between January and December, annual data do not allow to identify the electoral year well. To get around this problem, instead of the rule of the year sometimes the rule of the semester is used, by which the previous year is counted as the election year when elections are before July (Barberia and Avelino 2009). More complicated schemes have also been proposed (Schuknecht 1996).

Our contribution is to tackle the effects of temporal aggregation on political budget cycles directly. We go beyond annual data, using quarterly and monthly data to center the electoral year more precisely, with a cross-country panel that covers both Latin America and the OECD over the 1980-2005 period. Since quarterly and monthly GDP data are not available, we use higher frequency data on imports to distribute annual GDP figures within the year.

Another open question is whether a one-year window around elections is not too wide, so we look within this electoral window to detect which quarters have significant electoral effects. Monthly data additionally allow to distinguish between the period up to elections, the start of the new term in office, and the interlude (if any) between elections and the inauguration of the new administration.

Following the literature on aggregate PBCs, we concentrate on the budget surplus because it is often the most sensitive indicator of aggregate cycles. This is in part due to

the fact that it captures both the surge of expenditures and the fall in taxes before elections already discussed by Tufte (1978) and Frey and Schneider (1978a). It might also be due to a smaller level of noise in the budget surplus series.

Section II describes the dataset and econometric specification. Section III presents the results for the budget surplus. Section IV turns to the behavior of revenues and expenditures. Section V discusses the implications.

II. Data and econometric specification

To compare democracies from developing and developed regions, we collect data from 46 Latin American and OECD countries. We focus on 30 countries for which data are available on a monthly, quarterly and annual basis –17 from Latin America and 13 from the OECD. We additionally look at 39 countries for which only quarterly and annual data is available –19 from Latin America and 20 from the OECD. Appendix A reports the complete list of countries.

A. Behavior of the budget surplus around the election year

Figure 1 provides a preliminary picture of the behavior of the budget surplus around the election year (year 0). There are elections on average every 4.2 years (4.5 years in Latin America, and 4 years in the OECD), so years -2 and 2 both roughly correspond to the same point in the electoral calendar. These are non-electoral years, except in a few presidential countries where there are mid-term legislative elections then (Argentina,

Dominican Republic, and the United States, as well as Chile for two legislative elections).

With annual data the electoral year is the year where elections take place, whereas with quarterly and monthly data the election year is given by the four quarters that end the election quarter, and by the twelve months that end the election month. The data from the 30 countries is averaged around all elections with complete data in the window at both annual, quarterly and monthly frequencies (namely, 85 elections –of which 45 in Latin America).

<please see Figure 1>

The annual data show that the budget surplus in these 30 countries deteriorates before elections and improves thereafter; once we discriminate by regions, only Latin America shows a distinct cycle, unlike the OECD. The behavior changes when we center the electoral year more precisely with quarterly and especially monthly data, since the patterns in both regions become more alike; the main difference is that PBCs are more pronounced in Latin America than in the OECD. Moreover, with quarterly and especially monthly data, years -2 and 2 show similar levels of budget surplus, as we would have expected since both roughly correspond to the same moment in the electoral calendar.

B. Variables in dataset

Table 1 has the definition and sources of the variables we use in our econometric estimates. The fiscal and GDP data are from the IMF's *International Financial Statistics*,

while the population figures are from the World Bank's *World Development Indicators*. The information on democratic periods is from the Polity IV Project. The electoral calendar for the 1994-2004 period comes from the Center on Democratic Performance at Binghamton University, SUNY, complemented for earlier years by the D. Nohlen (coord.) et al. *Enciclopedia electoral de América Latina y el Caribe* (Instituto Interamericano de Derechos Humanos, San José, Costa Rica, 1993) and the Lijphart Elections Archive, and for the recent period by several other sources. The terms in office for the 1988-2005 period are from the Centro de Investigación de Relaciones Internacionales y Desarrollo, Fundación CIDOP, complemented for earlier years by various sources.

<please see Table 1>

To construct the ratio of fiscal variables to GDP on a quarterly and monthly basis, we distribute annual nominal GDP using quarterly and monthly import series as described in Appendix B. We do this with real GDP as well, to have quarterly and monthly growth figures.

C. Econometric specification

Following the previous empirical literature on PBCs, the relation between a given fiscal variable y in country i and year t ($y_{i,t}$) and the electoral cycle can be described as follows:

$$y_{i,t} = \sum_{j=1}^k \beta_j y_{i,t-j} + \sum_{j=1}^m \gamma_j x_{j,i,t} + \delta E_{i,t} + \sum_{j=1}^n \lambda_j t_{j,t} + \mu_i + \varepsilon_{i,t} \quad , \quad (1)$$

where $x_{i,t}$ is a vector of m controls, $E_{i,t}$ is a dummy election variable, $t_{j,t}$ is a set of time effects, μ_i is a specific country effect, and the term $\varepsilon_{i,t}$ is a random error that is assumed independent and identically distributed. This specification is a dynamic panel model, where the dependent variable is a function of its own lagged levels and a set of independent variables. Estimates are run with STATA 10 using fixed effects (FE).²

To determine the number of lags of the dependent variable, we take into account an F test (Appendix C). As in Shi and Svensson (2006), we control for the log of real GDP per capita and the growth rate of GDP; we additionally control for time effects and, in the quarterly and monthly specifications, for seasonality.

Opportunistic cycles are typically linked to expansions in electoral years, with a dummy variable that equals 1 in election years and 0 otherwise; we call this dummy *ele(0)*. Post-electoral effects can be captured with its lead, *ele(1)*. We test the restriction that the effects cancel out, i.e., that the coefficients of *ele(0)* and *ele(1)* are equal in absolute value and have opposite signs, leading to a *pbc* dummy that equals 1 in electoral years, -1 in post-electoral years, and 0 otherwise (Schuknecht 1996 introduces this

² When the dependent variable is a function of its own lagged levels, the error term will be correlated with the lagged dependent variable. For panels with small T (number of periods) compared to N (number of countries), the Generalized Method of Moments (GMM) designed for dynamic models by Arellano and Bond (1991) is preferable. This is the case of annual data, even though the set of observations available is smaller since GMM makes use of the lagged values of the variables as instruments (when GMM is used, the estimates of *pbc* with annual data are similar to those reported in the text). When T is larger than N, as is the case with quarterly and monthly data, fixed effects (FE) works well. This is because the bias in the FE estimator depends on the reciprocal of T; provided T is sufficiently large, the FE estimator of the coefficients will be consistent. The Hausman test that compares the results of using fixed effects (FE) and random effects (RE) estimators leads to mixed results: in several estimates, the null hypothesis that the extra orthogonality conditions imposed by the RE estimator are valid is rejected; in others, it is not. If the

variable). When there are run-off elections, we count the second election as the moment of elections, so both electoral rounds fall within the election year.

III. Electoral cycles in the budget surplus

Our aim is to characterize the behavior of “unconditional” political budget cycles – without controlling for informational or institutional variables– to focus on the effects of temporal aggregation. We do control for the growth rate of real GDP, to capture the effects of the business cycle on the budget surplus.

A. Centering the electoral year

In contrast to previous cross-country panel studies of aggregate fiscal cycles that rely on annual data, our panel allows to center the electoral year more precisely. Table 2 shows the evidence on PBCs in a 30-country sample for which disaggregated quarterly and monthly data are available.

<please see Table 2>

With the annual data on the budget surplus in column (1), only the post-electoral effect is significant. The restriction that pre- and post-electoral effects are of equal magnitude

regressors are uncorrelated with the error term, the FE estimator is consistent, albeit inefficient. To follow a uniform criteria, we always use the FE estimator.

and opposite sign is not rejected, mainly because pre-electoral effects are insignificant.³ With the quarterly data in column (3), the pre-electoral effects become statistically significant. Moreover, the effects are almost nearly symmetrical, and *pb* is significant at the 1% level in column (4). The coefficients estimated with monthly data in columns (5) and (6) resemble those of columns (3) and (4).⁴

B. Within the one-year electoral window

Is a one-year electoral window appropriate? We examine this first with quarterly data, where the election year is given by the four quarters that end in the election quarter. For the 30-country sample, columns (1)-(3) of Table 3 show there are significant effects for a three-quarter window, because of Latin America; the effects are not significant in the OECD. For the 39-country sample, columns (4)-(6) show similar coefficients, but there is a significant expansion in the election quarter in the OECD (column 6).

<please see Table 3>

³ This is similar to the results in Streb, Lema and Torrens (2009) using the Brender and Drazen (2005) panel, which has annual observations for 68 democracies over the 1960-2001 period.

⁴ When the estimates are restricted by region, PBCs are significant in Latin America but not in the OECD. The coefficients of *pb* for $f = a, q, m$ are -0.9098^{**} , -0.6681^{***} and -0.5157^{***} for Latin America and -0.0688 , -0.1549 and -0.2080 for the OECD, where ** denotes the coefficient is significant at the 5% level, and *** , at the 1% level.

Table 4 shows the results for the 39-country sample restricted to a three-quarter window. The behavior of Latin America and the OECD is qualitatively similar, but *pb* is only statistically significant within Latin America:⁵

<please see Table 4>

Within this three-quarter window, the F-tests reject the equality of the pre-electoral coefficients for the total and the OECD, and the equality of the post-electoral coefficients for the total and Latin America. To understand this better, we explore the patterns using monthly data.

C. The interlude between elections and the new term in office

To smooth the electoral behavior, the monthly dummies are combined by quarter. We first look at a window around the electoral year, which with monthly data is the year that ends the month of elections. Monthly data also allow to distinguish between the month of elections and the month the new term in office starts. The post-electoral year can be replaced by the “first year in office”; if the month of elections and inauguration of the new term in office coincide, both monthly dummies take value 1 that month.

If the inauguration of the new administration coincides with the month of elections, as is often the case in parliamentary countries, or if it takes place the following month, there

⁵ In the 39-country sample, a narrower two-quarter window leads to find significant PBCs in both regions: the coefficient of *pb* for the OECD is -0.7143** compared to -0.7431** for Latin America (i.e., both are significant at the 5% level). The electoral impacts in Latin America are stronger because they accumulate

is no intermediate period between both dates. The period between these two dates lasts, on average, 0.7 months in the overall group (1.3 months in Latin America and 0.2 months in the OECD). If this period lasts more than a month, we can isolate an interlude. For example, if elections are in November and the new administration takes office in January, there is an interlude of one month: December.

As to the behavior within the one-year electoral window, columns (1)-(3) of Table 5 show there are significant effects for the total in the four-quarter window around elections; a four-quarter window is also relevant for Latin America, while election effects are not significant in the OECD. Once we isolate the interlude, in columns (4)-(6), the electoral effects are only significant in a three-quarter window around the interlude, a pattern similar to that found with the quarterly data.

<please see Table 5>

Monthly data allow to test if it is correct to group the months by quarters. The answer is yes, once we allow for an interlude. Table 6 shows that with the interlude, the only exception for the total is the quarter of elections, which can be explained by the highly significant fiscal expansions the month of elections and the month before, in contrast to the feeble and non-significant expansion two months before. Since all the signs within the electoral quarter are negative, aggregation by quarters around the interlude between elections and the new term in office provides a good approximation (similar remarks apply to the OECD in that quarter).

over three, or even four, quarters: with a one-year window, the coefficient of *pb*c for Latin America is -0.6665*** (significant at the 1% level).

<please see Table 6>

The F-tests in Table 5 reject the equality of the four quarterly pre-electoral dummies, as well as the four post-electoral dummies, for the total and Latin America (columns 1 and 2). Once we allow for the interlude, the tests still reject the equality of the four pre-electoral dummies (columns 4 and 5), because the electoral coefficients in quarter $t = -3$, are not significant. Table 7 shows that with a three-quarter window around the interlude, the F-tests no longer reject the equality of the three pre-electoral dummies, and the cycle can be summarized by the *pbw_3qw* variable:

<please see Table 7>

Monthly data confirm that PBCs comprise a three-quarter window around the interlude, where the significance of the overall behavior is driven by Latin America. With the reduced sample we are not able to detect significant electoral effects in the OECD, except for the electoral month, that has a significantly negative effect captured by the variable *overlap*, which equals 1 when the month of elections and the start of the new term in office coincide.

IV. Electoral cycles in revenues and expenditures

The behavior of the budget surplus may be explained either by expenditure hikes, or by tax cuts before elections, that are reversed afterwards. However, Shi and Svensson (2006) and Alt and Lassen (2006b) model electoral cycles in expenditure as the source of aggregate PBCs in the budget surplus, which makes sense if the executive has more discretion on that side of the budget. In their cross-country empirical analysis, Brender and Drazen (2005) detect significant expenditure hikes, but not tax cuts, in new democracies during election years.

Table 8 shows the behavior of revenues and expenditures, in terms of GDP, for the 30-country sample. Though the evidence is weaker than for the budget surplus in Table 3, monthly data reveal significant PBCs not only in expenditures but also in revenues.⁶

<please see Table 8>

Table 9 shows that when quarterly data is used to build a three-quarter window around elections as in Table 4, PBCs in revenues are significant in Latin America, and PBCs in expenditures are significant in the total and the OECD (note that expenditures in Latin America have a qualitatively similar behavior).

<please see Table 9>

⁶ Within regions, it is possible to detect significant coefficients for the *pb*c variable in Latin America, but not in the OECD. For revenues, the coefficients of *pb*c for $f = a, q, m$ are $-0.1610, -0.4291^{***}$ and -0.3302^{**} for Latin America and $-0.3266, 0.4619$ and 0.0221 for the OECD; for expenditures, the coefficients are $0.7628^{**}, 0.3396^*$ and 0.1992 for Latin America and $-0.3388, 0.6758$ and 0.2447 for the OECD. Note that $**$ denotes coefficient is significant at the 5% level, and $***$, at the 1% level.

Table 10 shows that when monthly data is used to build a three-quarter window around the interlude as in Table 7, PBCs in revenues are significant in the total and in Latin America (in the OECD, there is a significant drop only the month of the elections, which almost always overlaps with the start of the new term in office), and PBCs in expenditures are significant in the total.

<please see Table 10>

V. Implications and final remarks

Temporal aggregation matters in aggregate PBCs: while only post-electoral effects are significant with annual data, quarterly and monthly data from 30 countries reveal significant pre- and post-electoral effects. Going inside the one-year electoral window, quarterly data show significant effects within a three-quarter window around the election quarter, and monthly data point to a three-quarter electoral window around the interlude between elections and the new term in office. These effects are of opposite signs and similar magnitudes, so centering the electoral year more precisely confirms the characterization of PBCs as pre-electoral fiscal expansions that cancel out with the post-electoral contractions, as hypothesized in Schuknecht (1996). Hence, PBCs have no long-run effect on public debt. The fall in the budget surplus before elections is due both to larger expenditures and smaller revenues, a pattern reversed after elections.

Our results have a bearing on the theoretical literature on PBCs under asymmetric information when the executive can exercise full discretion over fiscal policy. In Rogoff

(1990), PBCs have no impact on debt, as here. Contrary to our findings, in Rogoff aggregate expenditures fall before elections, because tax cuts and expenditure hikes on public consumption are financed using funds for public investment. On the other hand, the evidence on the budget surplus is consistent with the models in Shi and Svensson (2006) and Alt and Lassen (2006b), where the reduction before elections cancels out with the adjustment after elections, implying a null net effect on public debt. Unlike our evidence on tax manipulation, in these models cycles are exclusively driven by expenditure hikes before elections and expenditure cuts afterwards.⁷

The evidence shows that the patterns of both regions are qualitatively similar, but PBCs are consistently significant only in Latin America –a developing region with new democracies, not in OECD countries –a developed region with established democracies. Brender and Drazen (2005) and Shi and Svensson (2006) associate PBCs to developing countries and new democracies, but as in the bulk of the literature they overlook the significant post-electoral contractions in the data. Remmer (1993) already stresses, with evidence mainly from the 1980s, that in Latin America reforms and adjustments were enacted after elections. This pattern is consistent with Nordhaus-type policies of rational opportunistic manipulation, where the economy is stimulated before elections and adjustment is implemented afterwards. These short-run opportunistic “go-stop” policies stand in stark contrast to experiences where the government stimulates the economy until

⁷ For the OECD, the weak evidence of PBCs we detect is indeed driven by expenditure cycles (Tables 9 and 10), as modeled by Shi and Svensson (2006) and Alt and Lassen (2006b). Streb and Torrens (2009) capture the pre-electoral manipulation of both taxes and expenditures, but all the adjustment after elections falls on higher revenues. In all these models, even if PBCs do not increase in equilibrium the chances of winning elections, incumbents may be trapped in them because of credibility problems caused by discretionary power under asymmetric information (Lohmann 1998 models this for monetary policy).

it runs out of resources and access to finance (see Remmer 1993), which can more aptly be called populist “go-go-go” policies.

Extensions of this study on rational opportunistic manipulation include conditioning cycles on the degree of asymmetric information (Brender and Drazen 2005, Shi and Svensson 2005, Alt and Lassen 2006b) and on checks and balances to the discretionary power of the executive (Streb and Torrens 2009). These factors can help explain the differences between the behavior of Latin America, where there are strong political budget cycles, and the OECD, where political budget cycles are mild.⁸

Appendix

A. List of countries

<Please see Table A1>

B. Distribution of annual GDP at quarterly and monthly frequencies

Quarterly GDP data is available for only a few countries during short periods in the *International Financial Statistics* (IFS) of the IMF, so we disaggregate annual GDP data at quarterly and monthly frequencies using import data.

⁸ Using annual data, Persson and Tabellini (2003, chapter 8) find PBCs in the countries with the best democratic institutions (polity index of 9 or 10 in the Polity IV dataset); Alt and Lassen (2006a) find cycles in the OECD, conditional on low fiscal transparency (they also have a few robustness estimates using quarterly figures); and Streb, Lema and Torrens (2009) find cycles in established OECD democracies, conditional on low effective checks and balances. All these studies control for both pre- and post-electoral effects.

Real GDP and imports in constant dollars are I(1) series, while their first differences are I(0). In general, the residuals of the unrestricted regression in levels of real GDP against real imports follow a random walk, but when the first differences of these variables are used the null of a random walk can be rejected according to the Augmented Dickey-Fuller (ADF) tests in Table A2.

<Please see Table A2>

Hence, we follow the approach proposed by Fernández (1980) when the residuals of the regressions in levels are non-stationary, but the first differences are stationary. The methodology is to apply the distribution technique of Denton (1971) to construct a high frequency series from a low frequency series, which is solved by minimizing a quadratic loss function in the squared differences between the first differences of the series to be estimated and the first differences of the high frequency series, subject to the constraint that the sum of the variations of the estimated high-frequency series must add up to the actual annual variation. To distribute yearly real GDP on a monthly basis, Table A3 reports the coefficients of the restricted regressions of real GDP against imports in dollars, deflated by the US CPI. The procedure to distribute yearly real GDP on a quarterly basis is similar.

<Please see Table A3>

Nominal GDP is first deflated by the CPI and then distributed using imports in dollars (deflated by the US CPI). The use of the CPI to deflate the nominal GDP series is dictated by its availability both on a quarterly and monthly basis. With our monthly and quarterly estimates of real GDP, the CPI is used to construct the nominal GDP series. Since the annual sum of the estimates of nominal GDP differ from the original series, we apply a correction factor using the ratio between the estimated nominal GDP and the nominal GDP reported by the IFS to divide the estimated series. This correction factor insures that the annual sum of the estimated series adds up to the actual annual figure; to make sure there are no jumps in the series, we reviewed the annual correction factors, finding them practically constant for each country.

C. Determination of number of lags for the dependent variable

To choose the number of lags, we pick the lags that maximize the value of the F statistic. Table A4 shows the statistics for the budget surplus/GDP ratio at annual, quarterly and monthly frequencies. The Akaike information criteria points to a sharp fall at that same number of lags, but the statistic continues to decline slowly as the number of lags keep on increasing.

<Please see Table A4>

The F statistics suggest one lag for annual data, and four lags for quarterly data. In the case of monthly data, the F statistic suggest thirteen lags for the OECD, but for Latin

America and the total sample it suggests twelve months. We use twelve monthly lags to follow a uniform criterion; this is also consistent with the four quarterly lags, and one annual lag, suggested by the more aggregated data.

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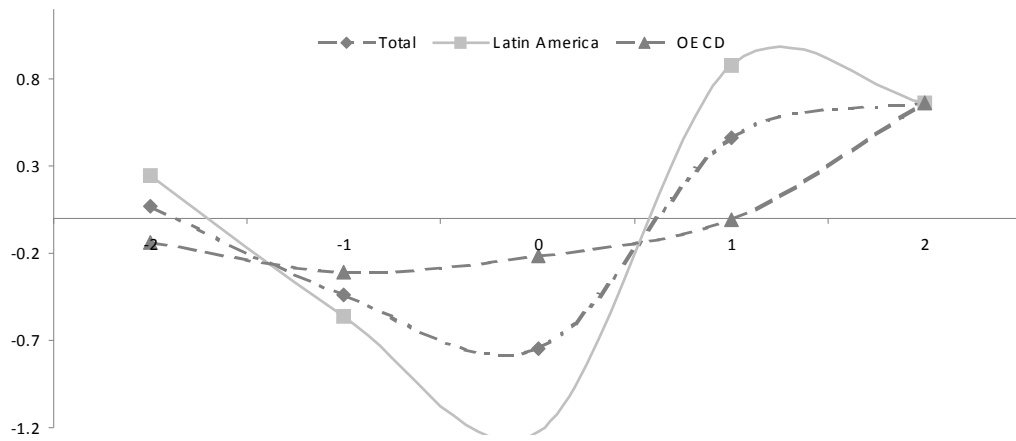
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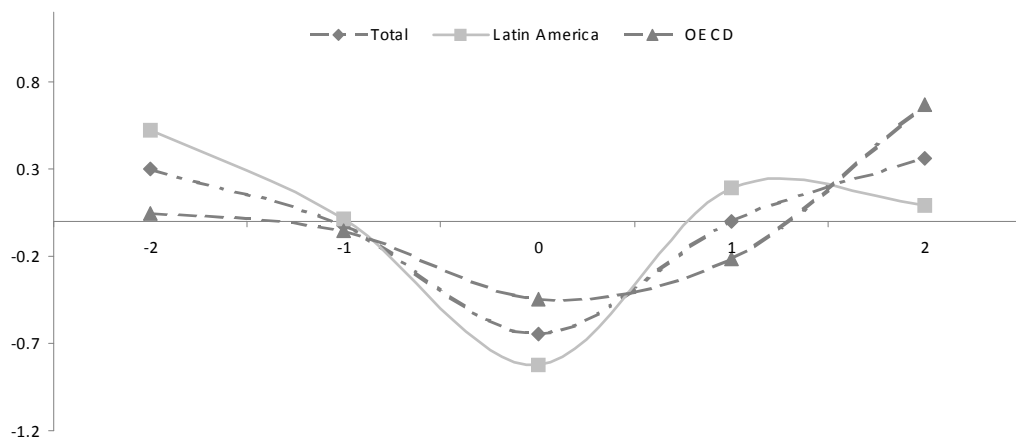
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Figure 1. Budget surplus around election year

A. Annual data



B. Quarterly data



C. Monthly data

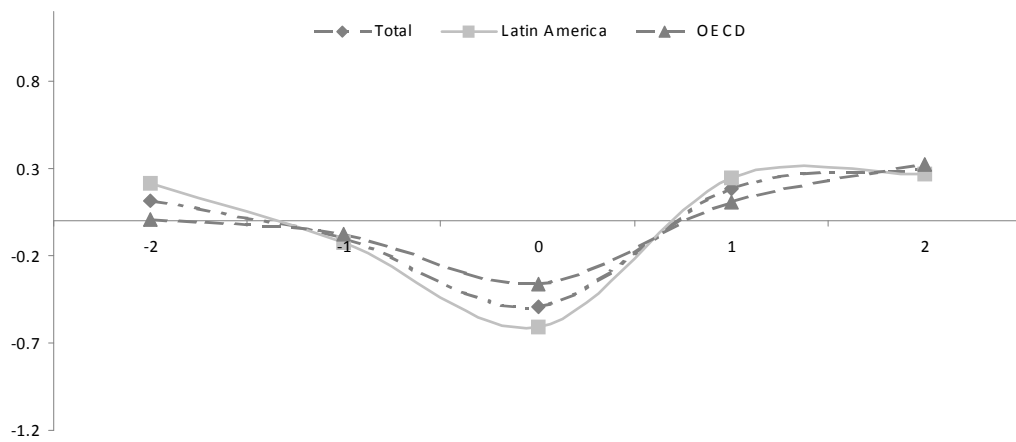


Table 1. Definition of variables

Variable	Description	Source
<i>f</i>	Data frequency, where <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i> (annual, quarterly, monthly)	
<i>expenditure_f</i>	Total government expenditures, <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	IFS
<i>revenue_f</i>	Total government revenues and grants, <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	IFS
<i>surplus_f</i>	Budget surplus, <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	IFS
<i>gdp_a</i>	Nominal GDP, annual frequency	IFS
<i>expenditure_gdp_f</i>	<i>expenditure_f</i> as a percentage of <i>gdp_f</i> , <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>revenue_gdp_f</i>	<i>revenue_f</i> as a percentage of <i>gdp_f</i> , <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>surplus_gdp_f</i>	<i>surplus_f</i> as a percentage of <i>gdp_f</i> , <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>y_f(-t)</i>	Dependent variable <i>y</i> lagged <i>t</i> periods, <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>n_a</i>	Population, annual frequency	WDI
<i>rgdp_a</i>	Real GDP, annual frequency	IFS
<i>ln(rgdp_per_capita)_f</i>	Natural log of real GDP per capita (2003 dollars), <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>rgdp_growth_f</i>	Growth rate of real GDP, <i>f</i> = <i>a</i> , <i>q</i> , <i>m</i>	AU
<i>quinqueni1</i>	Dummy equals 1 in 1980-1984 period, 0 otherwise	AU
<i>quinqueni2</i>	Dummy equals 1 in 1985-1989 period, 0 otherwise	AU
<i>quinqueni3</i>	Dummy equals 1 in 1990-1994 period, 0 otherwise	AU
<i>quinqueni4</i>	Dummy equals 1 in 1995-1999 period, 0 otherwise	AU
<i>quarter(t)</i>	Dummy equals 1 in quarter <i>t</i> , 0 otherwise, <i>t</i> =1, 2, 3	AU
<i>month(t)</i>	Dummy equals 1 in month <i>t</i> , 0 otherwise, <i>t</i> =1, 2,...,11	AU
<i>date_election</i>	Date of presidential election or, in parliamentary countries, of general election (month and year)	SUNY & others
<i>date_term</i>	Date term in office starts (month and year)	CIDOP & others
<i>ele(0)</i>	Dummy equals 1 in election year, 0 otherwise	AU
<i>ele(1)</i>	Dummy equals 1 in post-election year, 0 otherwise	AU
<i>pb1</i>	Dummy equals 1 in election year, -1 in post-election year, 0 otherwise	AU
<i>ele_quarter(t)</i>	Dummy equals 1 <i>t</i> quarters after election quarter (if negative, <i>t</i> quarters before election quarter), 0 otherwise	AU
<i>term_quarter(t)</i>	Dummy equals 1 <i>t</i> quarters after term in office starts, 0 otherwise	AU
<i>ele_3qw(0)</i>	Dummy equals 1 in 3 quarters up to elections, 0 otherwise	AU
<i>ele_3qw(1)</i>	Dummy equals 1 in 3 quarters after elections, 0 otherwise	AU
<i>pb1_3qw</i>	Dummy equals 1 in 3 quarters up to election, -1 in 3 quarters after elections, 0 otherwise	AU
<i>ele_month(t)</i>	Dummy equals 1 <i>t</i> months after election month (if negative, <i>t</i> months before election month), 0 otherwise	AU
<i>term_month(t)</i>	Dummy equals 1 <i>t</i> months after term in office starts, 0 otherwise	AU
<i>overlap</i>	Dummy equals 1 when <i>ele_month(0)</i> = <i>term_month(0)</i> =1	AU
<i>interlude</i>	Dummy equals 1 in months between election and beginning of new term in office (if any), 0 otherwise	AU
<i>demo</i>	Dummy equals 1 if Democracy Index>0	Polity

Notes: IFS refers to the IMF *International Financial Statistics*; AU to variables constructed by the authors; WDI to the World Bank *World Development Indicators*; SUNY to the Center on Democratic Performance, Binghamton University, SUNY; CIDOP to Centro de Investigación de Relaciones Internacionales y Desarrollo, Fundación CIDOP; and Polity to the Polity IV Project.

Table 2. Annual electoral window for budget surplus/GDP ratio, 1980-2005

Data frequency <i>f</i>	Annual (<i>surplus_gdp_a</i>)		Quarterly (<i>surplus_gdp_q</i>)		Monthly (<i>surplus_gdp_m</i>)	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>surplus_gdp_f</i> (-1)	0.5631*** (0.0621)	0.5586*** (0.0618)	0.0093 (0.0388)	0.0098 (0.0384)	-0.0029 (0.0203)	-0.0028 (0.0203)
<i>ln(rgdp_per_capita)_f</i>	-1.2226 (2.4649)	-1.2559 (2.4828)	0.1489 (1.0397)	0.1418 (1.0342)	0.6737 (0.8931)	0.6738 (0.8944)
<i>rgdp_growth_f</i>	0.1026** (0.0424)	0.1035** (0.0434)	0.1056** (0.0457)	0.1059** (0.0456)	-0.0424 (0.0471)	-0.0424 (0.0471)
<i>ele</i> (0)	-0.3264 (0.2054)		-0.5589** (0.2129)		-0.4382** (0.1890)	
<i>ele</i> (1)	0.7406** (0.3275)		0.4013*** (0.1437)		0.4036** (0.1920)	
<i>pb</i> <i>c</i>		-0.5165** (0.1936)		-0.4661*** (0.1166)		-0.4087*** (0.1304)
<i>constant</i>	9.4322 (21.0254)	9.8092 (21.2160)	-2.587 (7.2262)	-2.5701 (7.1780)	-7.0971 (5.2194)	-7.1063 (5.2095)
Observations	627	627	2311	2311	6625	6625
Countries	30	30	30	30	30	30
R-squared	0.393	0.391	0.391	0.391	0.288	0.288
p-value F test						
<i>ele</i> (0)=- <i>ele</i> (1)	0.291		0.568		0.897	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: one for annual data, four for quarterly data, and twelve for monthly data. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. In the quarterly data, we control for seasonal effects using quarterly dummies for the first, second and third quarters. In the monthly data, we control for seasonal effects using monthly dummies for the first eleven months of the year.

Table 3. Annual electoral window for budget surplus/GDP ratio, 1980:I-2005:IV

Data frequency $f = q$ (<i>surplus_gdp_q</i>)	30 country sample			39 country sample		
	Total	Latin America	OECD	Total	Latin America	OECD
	(1)	(2)	(3)	(1)	(2)	(3)
<i>ln(rgdp_per_capita)_q</i>	0.1604 (1.0314)	-2.5988 (1.6579)	2.7881 (2.7226)	1.0622 (1.0218)	-2.6117 (1.6511)	3.5513* (1.7650)
<i>rgdp_growth_q</i>	0.1014** (0.0438)	0.1488** (0.0534)	0.0319 (0.0555)	0.0987** (0.0406)	0.1486** (0.0530)	0.0452 (0.0473)
<i>ele_quarter(-3)</i>	-0.1941 (0.3670)	-0.2245 (0.5068)	-0.1943 (0.5331)	-0.1578 (0.3180)	-0.2259 (0.5042)	-0.1478 (0.3952)
<i>ele_quarter(-2)</i>	-0.2275 (0.2349)	-0.5825* (0.3115)	0.2759 (0.4195)	-0.0956 (0.2140)	-0.5823* (0.3097)	0.3614 (0.3371)
<i>ele_quarter(-1)</i>	-0.3879 (0.3568)	-0.4641 (0.5086)	-0.2553 (0.3961)	-0.5302 (0.3155)	-0.4747 (0.5037)	-0.5351 (0.3410)
<i>ele_quarter(0)</i>	-1.4097*** (0.4331)	-1.3993** (0.4996)	-1.2418 (0.8138)	-1.3195*** (0.3892)	-1.3899** (0.4969)	-1.1510* (0.6291)
<i>ele_quarter(1)</i>	-0.0207 (0.4594)	-0.6069 (0.8533)	0.5203 (0.3203)	0.0214 (0.3923)	-0.6086 (0.8497)	0.4477 (0.2747)
<i>ele_quarter(2)</i>	1.1715*** (0.2823)	1.7203*** (0.2668)	0.5177 (0.5001)	1.2427*** (0.2633)	1.7204*** (0.2660)	0.7054 (0.4131)
<i>ele_quarter(3)</i>	0.2439 (0.2849)	0.7028* (0.3428)	-0.4326 (0.3422)	0.2933 (0.2733)	0.6998* (0.3421)	-0.1870 (0.3291)
<i>ele_quarter(4)</i>	0.1426 (0.4289)	0.8269 (0.5339)	-0.7514 (0.7527)	0.1300 (0.3783)	0.8192 (0.5275)	-0.6724 (0.5523)
<i>constant</i>	-2.6696 (7.1452)	12.7618 (9.7433)	-24.8105 (23.9307)	-9.077 (7.4539)	12.8776 (9.7172)	-31.6744* (15.6764)
Observations	2311	1359	952	2723	1372	1351
Countries	30	17	13	39	19	20
R-squared	0.395	0.363	0.480	0.432	0.364	0.529
p-value F test						
<i>ele_quarter(-t) = ele_quarter(0),</i> <i>t=1, 2,3</i>	0.0261	0.3620	0.122	0.00807	0.365	0.0168
<i>ele_quarter(t) = ele_quarter(1),</i> <i>t= 2,3, 4</i>	0.00639	0.00182	0.167	0.00178	0.00125	0.231

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: four. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using quarterly dummies for the first, second and third quarters.

Table 4. Three-quarter electoral window for budget surplus/GDP ratio, 1980-2005 (39-country sample)

Data frequency $f=q$ (<i>surplus_gdp_q</i>)	Total			Latin America			OECD		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>ln(rgdp_per_capita)_q</i>	1.0566 (1.0262)	1.0424 (1.0279)	1.0224 (1.0272)	-2.7291 (1.6992)	-2.797 (1.7155)	-2.8029 (1.7083)	3.5224* (1.7413)	3.4658* (1.7485)	3.4445* (1.7293)
<i>rgdp_growth_q</i>	0.0989** (0.0404)	0.1040** (0.0414)	0.1043** (0.0414)	0.1523** (0.0530)	0.1603** (0.0558)	0.1619** (0.0563)	0.0483 (0.0488)	0.0578 (0.0477)	0.0586 (0.0481)
<i>ele_quarter(-2)</i>	-0.0968 (0.2093)			-0.6554* (0.3236)			0.4393 (0.3081)		
<i>ele_quarter(-1)</i>	-0.5215 (0.3125)			-0.4948 (0.4862)			-0.4705 (0.3435)		
<i>ele_quarter(0)</i>	-1.3228*** (0.3738)			-1.4674*** (0.4784)			-1.0643* (0.5946)		
<i>ele_quarter(1)</i>	0.0300 (0.3872)			-0.6355 (0.8241)			0.5134 (0.3079)		
<i>ele_quarter(2)</i>	1.2408*** (0.2611)			1.6476*** (0.2786)			0.7791* (0.4209)		
<i>ele_quarter(3)</i>	0.2993 (0.2832)			0.6657* (0.3721)			-0.1163 (0.3368)		
<i>ele_3qw(0)</i>		-0.6534*** (0.2230)			-0.8772*** (0.2888)			-0.3770 (0.3247)	
<i>ele_3qw(1)</i>		0.5297** (0.2010)			0.5699* (0.3111)			0.3943 (0.2524)	
<i>pbq_3qw</i>			-0.5847*** (0.1699)			-0.7247** (0.2559)			-0.3762 (0.2245)
<i>constant</i>	-9.0278 (7.4946)	-8.8834 (7.5188)	-8.7598 (7.4965)	13.6443 (10.0121)	14.0874 (10.1120)	14.0788 (10.0640)	-31.507* (15.507)	-30.997* (15.5880)	-30.812* (15.4280)
Observations	2723	2723	2723	1372	1372	1372	1351	1351	1351
Countries	39	39	39	19	19	19	20	20	20
R-squared	0.432	0.428	0.428	0.362	0.354	0.354	0.528	0.525	0.524
p-value F test									
<i>ele_quarter(-t) =</i> <i>ele_quarter(0), t = 1, 2</i>	0.0028			0.2180			0.0092		
<i>ele_quarter(t) =</i> <i>ele_quarter(1), t = 2, 3</i>	0.0014			0.0006			0.1630		
<i>ele_3qw(0) = -</i> <i>ele_3qw(1)</i>		0.623			0.339			0.962	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: four. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using quarterly dummies for the first, second and third quarters.

Table 5. Annual electoral window for budget surplus/GDP ratio, 1980:1-2005:12

Data frequency $f = m$ (<i>surplus_gdp_m</i>)	Total	Latin America	OECD	Total	Latin America	OECD
	(4)	(5)	(6)	(4)	(5)	(6)
<i>ln(rgdp_per_capita)_f</i>	0.7133 (0.8960)	-1.6679 (1.4538)	2.3831 (2.5819)	0.6629 (0.9194)	-1.8136 (1.4940)	2.4391 (2.6404)
<i>rgdp_growth_f</i>	-0.0428 (0.0474)	0.013 (0.0425)	-0.1733 (0.1449)	-0.0398 (0.0480)	0.0183 (0.0439)	-0.172 (0.1452)
<i>ele_quarter(-3)</i>	0.2130 (0.2472)	0.2826 (0.3026)	0.089 (0.3533)	0.1761 (0.2659)	0.2819 (0.3204)	0.0214 (0.3667)
<i>ele_quarter(-2)</i>	-0.3736 (0.2726)	-0.9024* (0.4572)	0.2310 (0.3294)	-0.4186 (0.2639)	-0.9221* (0.4421)	0.1558 (0.3266)
<i>ele_quarter(-1)</i>	-0.6886** (0.3204)	-0.7677** (0.2977)	-0.4570 (0.5615)	-0.7311** (0.3412)	-0.7633** (0.3169)	-0.5303 (0.5821)
<i>ele_quarter(0)</i>	-0.9776*** (0.3385)	-0.9489** (0.4368)	-0.8328 (0.5353)	-1.0653*** (0.3489)	-0.9813** (0.4441)	-0.9176 (0.5314)
<i>ele_quarter(1)</i>	-0.096 (0.2621)	-0.5573 (0.4432)	0.2033 (0.3093)			
<i>ele_quarter(2)</i>	0.3891 (0.5479)	0.3671 (0.9741)	0.4260 (0.3804)			
<i>ele_quarter(3)</i>	0.6901** (0.3242)	1.0884*** (0.3311)	0.2394 (0.6421)			
<i>ele_quarter(4)</i>	0.4774* (0.2500)	0.7849** (0.2825)	-0.0074 (0.3244)			
<i>interlude</i>				-1.1175 (0.7500)	-1.1818 (0.7892)	-0.0167 (1.6872)
<i>term_quarter(0)</i>				0.6682*** (0.2299)	0.9804*** (0.2711)	0.0945 (0.3077)
<i>term_quarter(1)</i>				-0.1031 (0.5649)	-0.4027 (0.9752)	0.1145 (0.4333)
<i>term_quarter(2)</i>				0.4455** (0.2129)	0.8363*** (0.2851)	-0.0229 (0.3162)
<i>term_quarter(3)</i>				0.3358 (0.3366)	0.8029 (0.5362)	-0.1436 (0.4506)
<i>constant</i>	-7.3319 (5.2276)	2.4314 (6.4437)	-18.8812 (19.9815)	-6.9664 (5.3422)	3.1929 (6.5891)	-19.2452 (20.4074)
Observations	6625	3776	2849	6625	3776	2849
Countries	30	17	13	30	17	13
R-squared	0.289	0.291	0.328	0.29	0.292	0.328
p-value F test						
<i>ele_quarter(-t) = ele_quarter(0), t=1, 2,3</i>	0.0182	0.0213	0.2180	0.0133	0.0197	0.2010
<i>ele_quarter(t) = ele_quarter(1), t=1, 2,3</i>	0.3610	0.0609	0.7440	0.4910	0.4110	0.9670

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: twelve. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using monthly dummies for the first eleven months of the year.

Table 6. Tests of monthly dummies aggregated by quarters in Table 5

p-value F test	Total	Latin America	OECD
Annual window around electoral quarter			
<i>ele_month</i> (-11)= <i>ele_month</i> (-10)= <i>ele_month</i> (-9)	0.265	0.217	0.578
<i>ele_month</i> (-8)= <i>ele_month</i> (-7)= <i>ele_month</i> (-6)	0.553	0.493	0.533
<i>ele_month</i> (-5)= <i>ele_month</i> (-4)= <i>ele_month</i> (-3)	0.636	0.540	0.469
<i>ele_month</i> (-2)= <i>ele_month</i> (-1)= <i>ele_month</i> (0)	0.054	0.098	0.148
<i>ele_month</i> (1)= <i>ele_month</i> (2)= <i>ele_month</i> (3)	0.039	0.021	0.262
<i>ele_month</i> (4)= <i>ele_month</i> (5)= <i>ele_month</i> (6)	0.968	0.377	0.290
<i>ele_month</i> (7)= <i>ele_month</i> (8)= <i>ele_month</i> (9)	0.663	0.865	0.621
<i>ele_month</i> (10)= <i>ele_month</i> (11)= <i>ele_month</i> (12)	0.370	0.015	0.032
Annual window around interlude			
<i>ele_month</i> (-11)= <i>ele_month</i> (-10)= <i>ele_month</i> (-9)	0.260	0.188	0.572
<i>ele_month</i> (-8)= <i>ele_month</i> (-7)= <i>ele_month</i> (-6)	0.584	0.514	0.513
<i>ele_month</i> (-5)= <i>ele_month</i> (-4)= <i>ele_month</i> (-3)	0.674	0.556	0.498
<i>ele_month</i> (-2)= <i>ele_month</i> (-1)= <i>ele_month</i> (0)	0.022	0.101	0.070
<i>term_month</i> (0)= <i>term_month</i> (1)= <i>term_month</i> (2)	0.504	0.218	0.817
<i>term_month</i> (3)= <i>term_month</i> (4)= <i>term_month</i> (5)	0.103	0.408	0.437
<i>term_month</i> (6)= <i>term_month</i> (7)= <i>term_month</i> (8)	0.884	0.686	0.533
<i>term_month</i> (9)= <i>term_month</i> (10)= <i>term_month</i> (11)	0.475	0.130	0.766

Notes: significant p-values in bold.

Table 7. Three-quarter electoral window around interlude in budget surplus/GDP ratio, 1980:1-2005:12

Data frequency $f = m$	Total			Latin America			OECD		
(<i>surplus_gdp_m</i>)	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
<i>ln(rgdp_per_capita)_m</i>	0.6617 (0.9243)	0.6897 (0.9151)	0.6884 (0.9133)	-1.873 (1.5002)	-1.8266 (1.4931)	-1.8192 (1.4928)	2.4159 (2.6696)	2.387 (2.6655)	2.3662 (2.6424)
<i>rgdp_growth_m</i>	-0.0401 (0.0479)	-0.0408 (0.0470)	-0.0423 (0.0475)	0.0169 (0.0436)	0.0156 (0.0435)	0.0159 (0.0438)	-0.1721 (0.1448)	-0.1676 (0.1429)	-0.1738 (0.1466)
<i>ele_quarter(-2)</i>	-0.4632* (0.2693)			-1.0074** (0.4548)			0.1674 (0.3238)		
<i>ele_quarter(-1)</i>	-0.7809** (0.3301)			-0.8598*** (0.2880)			-0.5173 (0.5886)		
<i>ele_quarter(0)</i>	-1.1079*** (0.3460)			-1.0766** (0.4361)			-0.9060 (0.5541)		
<i>interlude</i>	-1.1658 (0.7377)	-1.1625 (0.7377)	-1.0767 (0.7404)	-1.284 (0.7633)	-1.2746 (0.7625)	-1.1712 (0.7663)	-0.0036 (1.6711)	-0.0025 (1.6733)	0.0669 (1.7031)
<i>term_quarter(0)</i>	0.6255** (0.2324)			0.8919*** (0.2852)			0.1043 (0.3134)		
<i>term_quarter(1)</i>	-0.1508 (0.5749)			-0.5121 (1.0030)			0.1252 (0.4176)		
<i>term_quarter(2)</i>	0.3989* (0.2053)			0.7488** (0.2710)			-0.0093 (0.3018)		
<i>ele_3qw(0)</i>		-0.7760*** (0.2276)			-0.9749*** (0.2290)			-0.4225 (0.4121)	
<i>ele_3qw(1)</i>		0.2855 (0.2383)			0.3743 (0.3657)			0.0482 (0.2065)	
<i>pbcb_3qw</i>			-0.5319*** (0.1468)			-0.6743*** (0.1799)			-0.2471 (0.2067)
<i>overlap</i>			-3.1749** (1.4569)			-1.1129 (3.3275)			-3.3361* (1.8674)
<i>constant</i>	-6.909 (5.3741)	-7.0917 (5.3244)	-7.1352 (5.3038)	3.5765 (6.6271)	3.307 (6.6007)	3.2095 (6.5720)	-19.0795 (20.6270)	-18.8595 (20.6044)	-18.7275 (20.4196)
Observations	6625	6625	6625	3776	3776	3776	2849	2849	2849
Countries	30	30	30	17	17	17	13	13	13
R-squared	0.29	0.289	0.29	0.292	0.29	0.29	0.328	0.328	0.329
p-value F test									
<i>ele_quarter(-t) = ele_quarter(0), t = 1,2</i>	0.240			0.902			0.124		
<i>term_quarter(t) = term_quarter(0), t = 1,2</i>	0.389			0.248			0.954		
<i>ele(0)_3qw = - ele_3qw(1)</i>		0.189			0.243			0.480	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Lags of the dependent variable: twelve. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using monthly dummies for the first eleven months of the year.

Table 8. Electoral cycles in the revenue/GDP and expenditure/GDP ratios, 1980-2005

Data frequency <i>f</i>	<i>y= revenue_gdp_f</i>						<i>y=expenditure_gdp_f</i>					
	Annual data		Quarterly data		Monthly data		Annual data		Quarterly data		Monthly data	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
<i>y_f(-1)</i>	0.4065 (0.2395)	0.4057 (0.2404)	0.4875*** (0.1567)	0.4875*** (0.1564)	0.047 (0.0337)	0.047 (0.0337)	0.4352* (0.2271)	0.4319* (0.2272)	0.3409* (0.1774)	0.3414* (0.1773)	0.0634** (0.0264)	0.0634** (0.0263)
<i>ln(rgdp_pc)_f</i>	-3.5759 (3.2325)	-3.5222 (3.2543)	-1.9477* (0.9979)	-1.9432* (1.0047)	-2.4185*** (0.8584)	-2.4223*** (0.8630)	-3.872 (2.5235)	-3.8215 (2.5181)	-2.3214** (0.9629)	-2.3361** (0.9599)	-3.2293*** (1.1169)	-3.2331*** (1.1140)
<i>rgdp_growth_f</i>	0.1082 (0.0790)	0.1075 (0.0782)	-0.0162 (0.0449)	-0.0161 (0.0449)	-0.0252 (0.0292)	-0.0253 (0.0292)	-0.0076 (0.0567)	-0.008 (0.0571)	-0.0802 (0.0608)	-0.0814 (0.0610)	0.026 (0.0483)	0.0259 (0.0483)
<i>ele(0)</i>	-0.6172 (0.4577)		0.0518 (0.1566)		-0.1275 (0.1385)		-0.1937 (0.4246)		0.7402** (0.2781)		0.2955* (0.1610)	
<i>ele(+1)</i>	-0.0257 (0.3639)		-0.0964 (0.3074)		0.2212* (0.1282)		-0.6145** (0.2633)		-0.3286 (0.2439)		-0.1834 (0.2170)	
<i>pbc</i>		-0.2912** (0.1211)		0.0701 (0.2050)		-0.1766* (0.0896)		0.1894 (0.2301)		0.5218** (0.2042)		0.2350* (0.1268)
<i>constant</i>	42.8982 (25.3582)	42.2868 (25.5741)	18.9987*** (6.7661)	18.9592*** (6.8320)	18.8516*** (5.0922)	18.8909*** (5.1307)	46.0238** (21.2163)	45.4614** (21.1333)	23.8006*** (6.7793)	23.9552*** (6.7663)	29.5925*** (7.8026)	29.6236*** (7.7873)
Observations	609	609	2187	2187	6333	6333	634	634	2288	2288	6613	6613
Countries	30	30	30	30	30	30	30	30	30	30	30	30
R-squared	0.195	0.194	0.475	0.475	0.547	0.547	0.214	0.212	0.4	0.4	0.371	0.371
p-value F test												
<i>ele(0)=-ele(+1)</i>	0.423		0.862		0.642		0.144		0.191		0.688	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: one for annual data, four for quarterly data, and twelve for monthly data. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. In the quarterly data, we control for seasonal effects using quarterly dummies for the first, second and third quarters. In the monthly data, we control for seasonal effects using monthly dummies for the first eleven months of the year.

Table 9. Three-quarter electoral window in the revenue/GDP and expenditure/GDP ratios, 1980-2005 (39-country sample)

Data frequency $f=q$	$y=\text{revenue_gdp_q}$						$y=\text{expenditure_gdp_q}$					
	Total		Latin America		OECD		Total		Latin America		OECD	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\ln(\text{rgdp_per_capita})_q$	-2.6832*** (0.9427)	-2.6843*** (0.9452)	-2.2860** (0.8946)	-2.2853** (0.8913)	-1.4115 (2.0233)	-1.4096 (2.0286)	-3.6686*** (1.1848)	-3.6556*** (1.1820)	1.0352 (1.2431)	1.0351 (1.2402)	-4.6309** (2.0451)	-4.6043** (2.0445)
rgdp_growth_q	-0.0152 (0.0493)	-0.0152 (0.0494)	0.051 (0.0469)	0.0508 (0.0472)	-0.0928 (0.0872)	-0.0936 (0.0865)	-0.066 (0.0575)	-0.0665 (0.0577)	-0.0677 (0.0779)	-0.0687 (0.0792)	0.0422 (0.1001)	0.0419 (0.0992)
$\text{ele_3qw}(0)$	-0.0564 (0.2081)		-0.3729 (0.2186)		0.0949 (0.2169)		0.7172*** (0.2632)		0.4915 (0.3696)		0.8501** (0.3157)	
$\text{ele_3qw}(1)$	0.0281 (0.2483)		0.4194** (0.1947)		-0.2203 (0.4627)		-0.5632* (0.3122)		-0.3512 (0.4013)		-0.7232 (0.5589)	
pbc_3qw		-0.0352 (0.1991)		-0.3961*** (0.1331)		0.1671 (0.2990)		0.6403** (0.2535)		0.4215 (0.2727)		0.7805* (0.4118)
constant	24.9595*** (6.7361)	24.9629*** (6.7643)	16.0001*** (5.1813)	16.0072*** (5.2004)	19.0024 (18.0565)	18.9802 (18.1145)	33.7643*** (8.6649)	33.6879*** (8.6420)	1.8507 (7.4449)	1.8593 (7.4357)	47.5383** (18.4041)	47.3253** (18.3990)
Observations	2599	2599	1316	1316	1283	1283	2700	2700	1373	1373	1327	1327
Countries	39	39	19	19	20	20	39	39	19	19	20	20
R-squared	0.457	0.457	0.647	0.647	0.427	0.427	0.424	0.424	0.506	0.506	0.451	0.451
p-value F test												
$\text{ele_3qw}(0) = -\text{ele_3qw}(1)$	0.902		0.885		0.760		0.574		0.800		0.736	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** p<0.01, ** p<0.05, * p<0.10. Lags of the dependent variable: four. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using quarterly dummies for the first, second and third quarters.

Table 10. Three-quarter electoral window around interlude in the revenue/GDP and expenditure/GDP ratios, 1980:1-2005:12

Data frequency $f=m$	$y= \text{revenue_gdp_m}$						$y=\text{expenditure_gdp_m}$					
	Total		Latin America		OECD		Total		Latin America		OECD	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
$\ln(\text{rgdp_per_capita})_m$	-2.4343*** (0.8667)	-2.4215*** (0.8669)	-2.2944** (0.9880)	-2.2819** (0.9940)	-0.6697 (2.1430)	-0.6577 (2.1583)	-3.2298*** (1.1308)	-3.2275*** (1.1196)	-0.101 (0.9760)	-0.0937 (0.9825)	-4.2867 (2.6257)	-4.1397 (2.5641)
rgdp_growth_m	-0.0242 (0.0294)	-0.0252 (0.0295)	-0.0072 (0.0388)	-0.0082 (0.0387)	-0.0917** (0.0389)	-0.0938** (0.0389)	0.0257 (0.0481)	0.0258 (0.0484)	-0.0093 (0.0484)	-0.01 (0.0488)	0.0836 (0.1504)	0.0857 (0.1525)
<i>interlude</i>	-0.7004** (0.3364)	-0.6825** (0.3283)	-0.4532 (0.3802)	-0.4287 (0.3642)	-1.7021*** (0.4732)	-1.6900*** (0.4675)	0.3637 (0.7475)	0.3038 (0.7408)	0.701 (0.7901)	0.7003 (0.7689)	-1.7896* (0.9655)	-1.9241* (0.9596)
$\text{ele_3qw}(0)$	-0.2958* (0.1526)		-0.4389* (0.2153)		-0.0643 (0.1989)		0.4872** (0.1798)		0.3405 (0.2890)		0.6308** (0.2398)	
$\text{ele_3qw}(1)$	0.1858 (0.1450)		0.2792 (0.1729)		-0.0081 (0.2495)		-0.1334 (0.2306)		-0.3442 (0.3796)		0.1016 (0.1732)	
pbc_3qw		-0.2436** (0.1012)		-0.3576** (0.1412)		-0.0436 (0.1354)		0.3030** (0.1324)		0.3426 (0.2086)		0.2498 (0.1444)
<i>overlap</i>		-2.3642*** (0.5565)		-4.320*** (1.3535)		-2.0399*** (0.4756)		0.6082 (1.3119)		-2.4352 (2.2874)		1.1852 (1.6256)
<i>constant</i>	19.021*** (5.1346)	18.9489*** (5.1505)	14.391*** (4.7983)	14.306*** (4.8570)	12.8669 (17.1035)	12.8181 (17.2135)	29.539*** (7.8619)	29.535*** (7.8029)	12.2058* (5.9266)	12.1782* (5.9851)	44.0253* (22.3120)	42.8744* (21.8430)
Observations	6333	6333	3616	3616	2717	2717	6631	6631	3794	3794	2837	2837
Countries	30	30	17	17	13	13	31	31	18	18	13	13
R-squared	0.547	0.548	0.56	0.56	0.568	0.569	0.371	0.371	0.406	0.406	0.348	0.348
p-value F test												
$\text{ele_3qw}(0) = -\text{ele_3qw}(1)$	0.617		0.563		0.845		0.272		0.994		0.028	

Notes: significant electoral coefficients in bold; robust standard errors, clustered by country, in parentheses below coefficients. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. Lags of the dependent variable: twelve. We control for time effects using four quinquennial dummies, the first of which takes value 1 in the 1980-1984 period and 0 otherwise; the other dummies cover the periods 1985-1989, 1990-1994 and 1995-1999. We control for seasonal effects using monthly dummies for the first eleven months of the year.

Table A1. List of countries

Latin America	<i>ele(0)</i> >0	<i>demo</i> > 0	Budget surplus	Fre- quency	OECD	<i>ele(0)</i> >0	<i>demo</i> > 0	Budget surplus	Fre- quency
Argentina	5	1983-2005	1980-2004	a,q,m	Australia	10	All period	1980-2002	a,q,m
Barbados	6	All period	1980-2004	a,q,m	Austria	5	All period	1980-1996	a,q
Bolivia	6	1982-2005	1980-1988, 1993-2005	a,q,m	Belgium	7	All period	All period	a,q,m
Brazil	5	1985-2005	1980-1994	a,q,m	Canada	7	All period	1980-2001	a,q,m
Chile	4	1989-2005	1980-2000	a,q	Denmark	8	All period	1980-2000	a
Colombia	7	All period	All period	a,q,m	Finland	4	All period	All period	a,q,m
Costa Rica	7	All period	1980-2002	a,q,m	France	4	All period	1980-1997	a,q
Dominican Rep.	7	All period	1980-2000, 2002, 2004-2005	a,q,m	Germany	8	All period	1980-1998	a,q,m
Ecuador	7	All period	1980-2004	a,q,m	Greece	8	All period	1980-1999	a,q,m
El Salvador	5	1984-2005	-	-	Iceland	4	All period	1980-2005	a,q,m
Guatemala	4	1986-2005	1980-1983, 1985-2005	a,q,m	Ireland	4	All period	1980-2002	a,q
Guyana	6	All period	1980-1997	a	Italy	6	All period	All period	a,q,m
Honduras	6	1982-2005	All period	a,q,m	Japan	9	All period	1980-1993	a,q
Jamaica	6	All period	1980-1985	a,q,m	Korea	3	1988-2005	1980-1997	a,q,m
Mexico	4	1988-2005	All period	a,q,m	Luxembourg	5	All period	1980-1997	a
Nicaragua	4	1990-2005	1991-2005	a,q,m	Netherlands	9	All period	1986-2005	a,q,m
Panama	4	1989-2005	1980-2000	a,q,m	New Zealand	9	All period	1980-1988, 1990-2000	a,q
Paraguay	4	1989-2005	1980-2001	a,q	Norway	7	All period	1980-2003	a
Peru	4	1980-1999, 2002-2005	All period	a,q,m	Portugal	6	All period	1980-1998	a
Trinidad-Tobago	6	All period	1980-1989, 1993-1995	a	Spain	7	All period	All period	a,q,m
Uruguay	4	1985-2005	All period	a,q,m	Sweden	7	All period	1980-2000, 2002-2005	a,q,m
Venezuela	6	All period	1980-2001	a,q,m	Switzerland	6	All period	All period	a,q
					United Kingdom	6	All period	1980-1999	a,q
					United States	7	All period	All period	a,q,m

Notes: Mexico is a member of the OECD since 1994. Of the 46 countries, seven do not have either quarterly or monthly data, so they are excluded from the estimates. The symbols *a*, *q* and *m* denote annual, quarterly and monthly frequency.

Table A2. Augmented Dickey-Fuller tests in levels and first differences for GDP, Imports, and residuals of regressions

Country	GDP	Δ GDP	Imports	Δ Imports	Residual	Residual Δ
Argentina	-0.0461	-3.279 **	-1.014	-3.193 **	-0.347	-4.736 ***
Australia	2.838	-2.849 *	0.327	-3.517 ***	-2.407	-2.917 **
Austria	1.023	-4.321 ***	-0.394	-4.095 ***	-2.481	-3.87 ***
Barbados	0.293	-2.589 *	0.214	-3.944 ***	-1.545	-2.938 **
Belgium	1.151	-4.566 ***	-0.748	-2.873 **	-1.531	-3.956 ***
Bolivia	3.027	-1.754	-1.431	-4.077 ***	1.971	-1.523
Brazil	0.409	-5.22 ***	-0.212	-3.212 **	-2.458	-5.649 ***
Canada	1.83	-2.947 **	0.817	-3.866 ***	-2.032	-2.283
Chile	2.232	-2.567 *	0.664	-2.759 *	-2.248	-2.277
Colombia	0.806	-2.806 *	-0.0312	-2.942 **	-1.999	-3.221 **
Costa Rica	3.064	-2.841 *	1.244	-3.716 ***	-3.174 **	-4.406 ***
Denmark	1.075	-4.265 ***	-0.684	-4.73 ***	-2.429	-4.086 ***
Dom. Rep.	2.427	-2.882 **	0.0406	-4.532 ***	-2.163	-3.394 **
Ecuador	1.04	-4.621 ***	1.667	-3.627 ***	-2.711 *	-7.101 ***
El Salvador	0.965	-2.701 *	1.312	-5.03 ***	-2.032	-3.436 ***
Finland	0.759	-2.265	-0.0144	-4.22 ***	-3.194 **	-1.988
France	0.606	-3.456 ***	-0.327	-4.69 ***	-3.399 **	-3.184 **
Germany	-0.445	-3.414 **	-0.306	-4.304 ***	-2.732 *	-3.376 **
Greece	5.676	-2.277	-0.36	-3.157 **	-2.575 *	-2.149
Guatemala	3.434	-1.530	1.917	-4.347 ***	-2.374	-2.51
Guyana	0.143	-2.599 *	-1.021	-3.407 **	-1.397	-4.122 ***
Honduras	2.078	-4.501 ***	1.417	-3.353 **	-2.611 *	-4.918 ***
Iceland	2.061	-2.952 **	0.774	-2.903 **	-2.678 *	-4.454 ***
Ireland	5.468	-1.293	-0.0648	-6.961 ***	-2.103	-1.426
Italy	-0.808	-4.062 ***	-0.268	-4.412 ***	-2.709 *	-3.394 **
Jamaica	-0.72	-3.292 **	-0.199	-4.766 ***	-2.03	-3.563 ***
Japan	-1.713	-2.675 *	-0.182	-4.879 ***	-3.76 ***	-2.692 *
Korea	1.235	-4.956 ***	-1.693	-7.219 ***	-3.635 ***	-3.9 ***
Luxembourg	0.508	-4.698 ***	-0.253	-3.872 ***	-2.178	-4.71 ***
Mexico	0.892	-4.639 ***	0.998	-4.194 ***	-3.603 ***	-4.933 ***
Netherlands	0.747	-3.291 **	0.0002	-4.673 ***	-2.826 *	-3.058 **
New Zealand	1.784	-3.848 ***	1.024	-3.587 ***	-2.047	-4.103 ***
Nicaragua	1.194	-2.337	0.252	-3.952 ***	-1.708	-2.857 *
Norway	1.368	-2.602 *	0.048	-3.492 ***	-2.246	-2.682 *
Panama	1.384	-2.647 *	-0.726	-3.068 **	-1.521	-3.173 **
Paraguay	-1.02	-4.515 ***	-0.956	-3.686 ***	-1.301	-5.61 ***
Peru	0.705	-2.872 **	-0.0958	-3.434 ***	-0.755	-3.02 **
Portugal	0.201	-2.661 *	-0.682	-5.278 ***	-2.148	-2.733 *
Spain	3.051	-2.909 **	0.653	-3.752 ***	-2.919 **	-3.078 **
Sweden	2.119	-2.786 *	0.14	-3.827 ***	-2.662 *	-2.416

Switzerland	-0.18	-3.365 **	-0.198	-3.862 ***	-2.771 *	-3.457 ***
Trinidad-Tobago	3.608	-1.423	-1.539	-4.497 ***	-0.539	-2.626 *
United Kingdom	1.943	-3.177 **	0.488	-4.09 ***	-2.543	-2.897 **
United States	1.88	-3.196 **	1.586	-4.246 ***	-2.524	-4.697 ***
Uruguay	-0.277	-3.008 **	-0.887	-2.668 *	-2.723 *	-4.892 ***
Venezuela	-1.015	-4.303 ***	-3.187 **	-4.847 ***	-1.177	-4.392 ***

Notes: *** p<0.01, ** p<0.05, * p<0.10.

Table A3. Coefficients used in the estimation of monthly real GDP

Country	Constant	Slope	Base	Country	Constant	Slope	Base
Argentina	17215.72	3.46	2003	Ireland	1387.68	0.61	2005
	26.76	9.34			7.49	4.25	
Australia	22811.00	1.00	2005	Italy	95939931.11	1117.92	2005
	19.65	3.63			33.96	4.30	
Austria	105279.16	4.63	2005	Jamaica	28728.04	0.23	2003
	29.75	3.69			40.04	1.52	
Barbados	158.24	0.48	2003	Japan	14600716.46	107.14	2005
	7.03	4.04			21.55	2.37	
Belgium	678907.73	5.93	2005	Korea	5582269.76	902.93	2005
	14.81	1.74			5.79	6.64	
Bolivia	1953.00	2.30	2003	Mexico	275303.29	13.61	2003
	21.51	2.77			31.65	8.41	
Brazil	29898.47	2.28	2003	Netherlands	28762.98	0.75	2005
	8.51	1.90			14.90	3.54	
Canada	31331.95	1.17	2005	New Zealand	4548.12	0.80	2005
	17.85	5.26			20.16	2.93	
Chile	1025048.05	529.52	2003	Nicaragua	2781.21	6.67	2003
	15.48	7.33			12.93	3.44	
Colombia	4877738.44	2525.23	2003	Norway	449254.98	24.29	2005
	17.91	5.67			15.01	1.68	
Costa Rica	114152.59	228.08	2003	Panama	243.17	1.18	2003
	10.94	5.00			6.60	5.30	
Denmark	61478.45	2.70	2005	Paraguay	772820.10	1697.85	2003
	28.41	3.09			12.55	2.25	
Dom. Republic	7395.37	22.98	2003	Peru	7173.45	4.41	2003
	8.13	4.91			15.52	4.31	
Ecuador	337.41	0.37	2003	Portugal	1069992.28	73.38	2005
	9.96	3.17			21.35	2.56	
El Salvador	3267.68	5.37	2003	Spain	3934441.99	119.00	2005
	13.80	3.40			25.64	4.39	
Finland	26466.21	2.86	2005	Sweden	97606.06	2.89	2005
	21.55	4.34			30.96	3.87	
France	376829.83	2.70	2005	Switzerland	21682.60	0.37	2005
	32.54	3.05			36.75	2.50	
Germany	152256.81	0.82	2005	Trinidad and Tobago	2010.92	0.09	2003
	23.83	2.61			13.06	1.80	
Greece	1830118.09	121.45	2005	United Kingdom	41553.40	0.41	2005
	19.16	1.95			27.66	3.56	
Guatemala	4933.85	4.03	2003	United States	313831.91	2.30	2005
	20.58	3.79			26.65	5.96	
Honduras	2727.92	5.94	2003	Uruguay	13177.74	26.40	2003
	10.16	2.60			24.24	8.90	
Iceland	18104.39	39.04	2005	Venezuela	5426383.12	1367.08	2003
	13.46	4.19			15.54	6.09	

Note: t-statistics reported below coefficient estimates; t-statistics in bold indicates coefficients that are significant at 10% level or more (only 6 of the 44 countries have coefficients that are not significant at these levels). Following the approach in Fernández (1981), the first differences in annual real GDP are regressed against the first differences of annual imports in dollars, deflated by the US CPI, subject to the constraint that the sum of the variations of the estimated monthly series add up to the actual annual variation. We use the MATLAB package developed by E. Quilis at <http://www.mathworks.com/matlabcentral/fileexchange/loadFile.do?objectId=15597>.

Table A4. Determination of number of lags for budget surplus/GDP ratio

Frequency of <i>surplus_gdp_f</i>	Lags	R ²	Total F	Akaike IC	R ²	Latin America F	Akaike IC	R ²	OECD F	Akaike IC
Annual (<i>f=a</i>)	0	0.140	14.16	4070	0.133	5.172	1931	0.352	21.83	2026
	1	0.452	29.82	3684	0.315	7.896	1828.6	0.731	101.2	1639.6
	2	0.452	28.83	3652	0.310	7.294	1809.2	0.734	97.22	1628.2
	3	0.450	25.68	3628	0.305	6.757	1796.4	0.740	90.41	1611.4
	4	0.458	23.12	3590	0.318	6.622	1773.8	0.740	86.11	1602.8
Quarterly (<i>f=q</i>)	2	0.118	14.86	15770	0.180	11.92	7472	0.186	14.19	8056
	3	0.124	14.53	15574	0.183	11.74	7394	0.188	13.55	7954
	4	0.438	38.20	14126	0.346	14.84	6914	0.537	51.43	7114
	5	0.441	36.75	13838	0.351	14.31	6794	0.537	48.92	6958
	6	0.450	37.21	13508	0.352	13.41	6678	0.554	50.42	6746
Monthly (<i>f=m</i>)	10	0.107	11.19	40800	0.180	9.680	21798	0.149	8.790	18470
	11	0.110	10.91	40274	0.182	9.364	21524	0.151	8.540	18228
	12	0.357	28.40	37638	0.283	12.69	20540	0.463	25.59	16816
	13	0.360	27.64	37216	0.282	12.45	20320	0.475	26.16	16598
	14	0.362	27.43	36856	0.284	12.20	20118	0.477	26.01	16444