TURNING A BLIND EYE TO POLICY PRESCRIPTIONS: EXPLORING THE SOURCES OF PROCYCLICAL FISCAL BEHAVIOR AT THE SUBNATIONAL LEVEL

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ABSTRACT

This paper analyses the fiscal behavior of subnational districts in Argentina over the business cycle. I address two questions. Is the fiscal policy of Argentine districts procyclical? If so, what is the theory that best explains procyclicality? The answers come from the estimation of an error correction model of a panel that spans 23 years and 24 districts. I found that all categories of public expenditures, except for capital expenditures, were procyclical. The main sources of procyclicality are the political networks, changes in the amount of oil, gas and mining grants, federal interventions, and discretionary intergovernmental transfers.

Keywords: fiscal policy, procyclicality, subnational districts, Argentina.

34 Let Pharaoh proceed to appoint overseers over the land to take a fifth of the harvest of Egypt during the seven years of abundance. **35**They should collect all the food of these good years that are coming and store up the grain under the authority of Pharaoh, to be kept in the cities for food. **36**This food should be held in reserve for the country, to be used during the seven years of famine that will come upon Egypt, so that the country may not be ruined by the famine.

Genesis 41:34-36

1. INTRODUCTION

Policy recommendations to smooth out the business cycle are among the most popular in economics. Carrying out a countercyclical fiscal policy is an old prescription that can be traced back to the Holy Bible although it gained fame and recognition from the scientific community with the publication of *The General Theory of Employment, Interest and Mone*y by John Maynard Keynes in 1936. Recommending increases in public spending and decreases in tax rates during recessions and the opposite in booms has become essential in macroeconomists' toolkit and quasi-mandatory in any macroeconomic textbook. Nonetheless, these prescriptions are usually ignored by developing countries' governments. Moreover, a large body of empirical works reports procyclical rather countercyclical fiscal behavior for developing countries

(Brückner & Gradstein, 2014; Catão & Sutton, 2002; Gavin & Perotti, 1997; Kaminski, Reinhart, & Vegh, 2004; Talvi & Vegh, 2005).

Several theories have been put forth to explain this apparent suboptimal behavior of emerging economies.[1] The most prevalent is the borrowing constraint hypothesis that derives from the observation that credit markets narrow sizably for developing countries during recessions and expand considerably in booms, compelling governments to act procyclically. Another theory suggests that debt accumulation, resulting from procyclical fiscal behavior, is a strategic move of incumbents in their last term to constraint the actions of future opposition governments (Cukierman, Edwards & Tabellini, 1992). Alesina, Campante & Tabellini (2008) consider procyclical spending to be a result of rational voters' demand to avoid leaving excessive rents to corrupt governments in an environment characterized by information asymmetries.

Alternatively, Lane &Tornell (1996) conjecture that in the presence of common pool resources the "voracity" of politicians exacerbates expenditures during booms. Economic expansions generate additional funds for which pressure groups compete to appropriate them.

Recently, Frankel & Schreger (2013, 2016) have come out with a new hypothesis that may explain procyclical fiscal policy. Using data from several countries, mostly from the Euro area, the authors documented that government forecasts used for fiscal planning are systematically more optimistic than private sector forecasts, which helps explain excessive deficits in practice.

Proposed theories look well suited to explain cross-country fiscal performance, but except for the voracity hypothesis they are not very useful in explaining variation across subnational districts. Notice that districts in a given country face similar liquidity constraints during recessions. Likewise, the intertemporal strategic game suggested by Cukierman, Edwards & Tabellini (1992) calls for strong parties that subordinate politicians to their long-term strategy, which is hardly the case in most of the emerging economies. On the other hand, Alesina, Campante & Tabellini (2008) assume that voters observe the state of the economy but not the rents appropriated by corrupt governments, a strong assumption for subnational constituencies that have lower costs of information about local politicians than national authorities.[2] Frankel & Schreger (2013) argument also seems inadequate for subnational districts of developing countries that receive large transfers from the federal government

1. McManus and Ozkan (2015) find that fiscal procyclical countries have lower rates of growth, higher rates of output volatility, and higher rates of inflation.

2. Another strong assumption (with apparently no implication for the subnational districts discussion) is that rational voters with no confidence in the government are likely to demand more public goods and accept a higher level of rent extraction by politicians.

based on short-run political agreements that either cannot be anticipated – even a few months in advance and therefore cannot be included in the budget – or simply were left out of the budget.

Undoubtedly, studying the cyclicality of subnational districts calls for additional hypotheses that take into account the relationship between the central government and the subnational jurisdictions.

Why is it important to study procyclicality at the subnational level? In federally organized countries, provinces account for a large fraction of total revenues and expenditures, so procyclical behavior of subnational governments could exacerbate the procyclicality of fiscal policy at the federal level while constraining its ability to save resources for countercyclical discretionary spending during economic downturns.

This paper analyses the fiscal behavior of subnational districts in Argentina over the business cycle. Argentina is a federal republic with some peculiarities that make it an interesting case to study: provincial governments undertake a large share of total spending in Argentina, yet they collect only a small fraction of taxes, implying huge transfers from the federal level to subnational jurisdictions which might be a source of procyclicality. Moreover, transfers are funneled to provinces through two channels: an automatic mechanism called the Federal Tax-Sharing Agreement (FTSA) and a discretionary channel, which usually involves political liaisons.

I address two questions. Firstly, is the fiscal policy of Argentine districts procyclical? If so, what are the variables that best explain procyclicality? The answers come from the estimation of an error correction model from a panel that spans 23 years (from 1985 to 2007) and all 24 districts. Working with a relatively large panel is a contribution respect to previous studies that have worked either with time series and cross sectional but no panel data (Sturzenegger & Werneck, 2006) or with panel data having a considerably lower number of observations (289) with the exclusion of the City of Buenos Aires from the sample (Rodden & Wibbels, 2010). To preview my results, I find strong evidence of procyclicality in all categories of public expenditures except for personnel. I show that this behavior is mostly driven by the political alignment between the president and governors, the influence of federal intervention of provinces undergoing political and economic turmoil and two sources of voracity effects: discretionary transfers from the federal government and the oil, gas and mining grants received by producer states. This channel was ignored in the literature. In contrast with the earlier research on Argentine subnational districts, I also explore the role of the main national parties on procyclicality.

The rest of the paper is organized as follows. The next section reviews both the theoretical and the empirical literature on procyclical fiscal policies. Section 3 discusses some key features of Argentine federalism, and section 4 describes the empirical investigation and presents the results obtained from the dynamic panel data estimation. Finally, section 5 concludes.

2. LITERATURE REVIEW

Since ancient times, societies have demanded that governments smooth intertemporal consumption and avoid macroeconomic instability. Nonetheless, it was just after the Great Depression that formal discussions, in technical terms, gave birth to policy prescriptions rooted in economic theory. The standard Keynesian countercyclical policy recommends tax cuts, expenditure increases, and deficits during recessions, and tax increases, expenditure cuts and surplus during economic booms. On the other hand, the tax-smoothing theory of budget deficits (Barro, 1979) claims that budget deficits and surpluses should be used to "smooth" the distortionary cost of taxation, which implies that a temporary increase in expenditures in bad times should be financed by issuing debt in order to spread the increase in taxes over a longer time horizon and to minimize the welfare costs of high tax rates. Thus, for different reasons, both theories propose countercyclical policies.[3]

The empirical evidence from cross-country studies suggests that most of the developed countries practice some kind of countercyclical policies to smooth consumption while developing countries seem to ignore them (Gavin et al., 1996; Gavin & Perotti, 1997; Talvi & Vegh, 2005). Why do emerging economies turn a blind eye to policy prescriptions? For Alesina, Campante & Tabellini (2008), procyclicality is driven by voters who seek to reduce political rents. In a context of asymmetric information, voters observe the state of the economy but not the rents appropriated by corrupt governments. Hence, after observing a boom, voters demand more public goods or lower taxes, and this induces a procyclical bias in fiscal policy. For Cukierman, Edwards & Tabellini (1992), procyclicality is the result of a political game in which the incumbents run up debt levels in order to constrain the spending policies of future opposition governments. This strategic move would presumably facilitate their return to office next period. Therefore, countries accumulate debt during boom periods, generating a procyclical fiscal policy. Obviously, indebtedness requires full access to credit markets, which seems reasonable for developed countries but not for developing ones – and even less plausible for subnational districts. Furthermore, this intertemporal strategic game needs strong political parties with a long-term planning horizon, which is hardly the

3. In a neoclassical model, procyclical spending can be justified if government consumption and private consumption are complements (Lane, 2003).

case of Argentine parties in most of the districts (Jones, Sanguinetti & Tommasi, 2000; Jones, Saiegh, Spiller & Tommasi, 2002; Jones & Hwang, 2005)

The most common explanation of procyclicality is the credit constraint theory formalized in Gavin, Hausmann, Perotti & Talvi (1996). According to this theory, during recessions, emerging economies lose access to credit markets or get scarce funds at a very high rate, precluding any countercyclical policy. Hence, the only responses left to developing countries are reducing expenditures and raising taxes. As noted by Alesina, Campante & Tabellini (2008), this implies that fiscal policy should be procyclical only in recessions, when the government would like to borrow but is prevented from issuing more debt. Testing the liquidity constraint hypothesis requires variations of debt level during recessions across subnational districts, but this is hard to verify since most of the districts face similar credit constraints.[4]

Recent investigations by Frankel & Schreger (2013, 2016) focus on the relevance of optimism in official output growth forecast for fiscal policy procyclicality. This inference has been challenged by Avellan & Vuletin (2015) using IMF forecasts for 101 countries. They conclude that the explanation for fiscal procyclicality lies less with forecast bias and more with institutions and political economy factors. Although the debate on the role of official forecast in the procyclicality of budget items is interesting and promising, it seems to be unsatisfactory to explain subnational fiscal behavior in developing countries featuring large intergovernmental transfers frequently influenced by political bargains. As explained by Bonvecchi & Zelaznik (2012) for the case of Argentina, during the 1990s and 2000s, the executive used either the underestimation or overestimation of tax revenues to get resources outside the budget rules to transfer them discretionally to allied governors or city mayors. Additionally, for many years, the congress granted the executive special powers to move funds among expenditure accounts. That is, the executive could eventually suppress some items and increase others, making any forecast difficult.

As mentioned in the previous section, voracity effects are the more probable explanation for procyclicality at the subnational level. In a context of economic expansion, politicians compete voraciously for the additional funds generated by the boom, triggering a race for the appropriation of common pool resources (Lane & Tornell, 1996; Tornell & Lane, 1999). More funds for one politician mean fewer resources for the others. According to Akitoby, Clemens, Gupta & Inchauste (2006), voracity effects are more likely if government institutions are weak and if there are significant differences between the pref-

4. It is reasonable to assume that subnational governments have more limited access to credit markets than central governments. Abbott & Jones (2013) address this issue, finding that subcentral government expenditures are more procyclical than central government spending.

erences of different groups in the economy. This is precisely the political environment that characterized most developing economies like Argentina.[5]

2.1 EMPIRICAL EVIDENCE ON SUBNATIONAL FISCAL POLICY

Only recently have economists begun empirically studying procyclical fiscal behavior at the subnational level. Abbott & Jones (2012) tested the predictions derived from the liquidity constraint and voracity theories. Evidence from 23 OECD countries between 1995 and 2006 indicates that subnational district spending is more procyclical than central government expenditure. This result supports the voracity effects. Similar evidence is reported by Arena & Revilla (2009), who analyze the case of Brazilian states for the period 1991–2006. In particular, the authors discuss how subnational fiscal revenues and expenditures were linked to the business cycle after the introduction of the Fiscal Responsibility Law in 2000. Their empirical evidence suggests the existence of a procyclical fiscal policy in Brazil at the state level. However, the introduction of the Fiscal Responsibility Law helped to reduce Brazilian states' spending-side procyclicality. They also find that voracity effects are more intense when there is a political alignment between the president and the governor.

Abbott, Cabral, Jones & Palacio (2015) also obtained procyclical expenditures in their study of 31 states in Mexico between 2005 and 2010. The sources of procyclicality are intergovernmental transfers and the "distribution of fiscal power" across fiscal tiers measured by the coincidence of political party control of the state legislature and the office of state governor. This political alignment increases the likelihood that local politicians will feel that their party is secure enough electorally to accommodate pressures exerted by rent-seeking lobby groups.

To the best of my knowledge, the case of Argentina is considered only by Sturzenegger & Werneck (2006), who analyzed it together with Brazil for the period 1992–2002, and by Rodden Wibbels (2010) who discussed correlations between provincial output fluctuations and various budget items for seven federations, including Argentina.

Based on two separate econometric exercises using time series and cross sectional dimensions at the provincial level for the period 1992–2002, Sturzenegger & Werneck (2006) found that the public expenditures of subnational governments have been markedly procyclical in both countries. The authors remark that, contrary to widespread belief, the observed procyclicality

5. Jones, Sanguinetti & Tommasi (2000), Jones, Saiegh, Spiller & Tommasi (2002), and Spiller & Tommasi (2003) provide a good description of Argentina's institutions and powerful interest groups.

cannot be solely attributed to the behavior of federal transfers. In both countries, though more so in Brazil than in Argentina, the main source of procyclicality is to be found in the highly procyclical pattern of tax revenues directly collected by subnational governments. Thus, for these authors, it is not the flow of federal transfers that makes the spending of subnational units procyclical but the pattern of tax revenues collected by the subnational government. A couple of caveats follow. Firstly, these conclusions were drawn from a limited number of observations (24). Secondly, except for a handful of large districts (Buenos Aires, Córdoba, Santa Fe, and the Federal district) local taxes account for a small fraction of total revenues, which casts some doubts on the assertion that local tax structures are the main source of public expenditure procyclicality.

In their study of the main federations of the world, Rodden & Wibbels (2010) reported procyclical expenditures for the case of Argentina. Their conclusions are based on a relatively short panel with 289 observations that excludes the federal district. The authors analyze the correlation between provincial output fluctuations and five budget items using four different models that differentiate for the inclusion of year dummies and the estimation of one- or two-stage regressions. The latter use the mean residual of the first-stage regression for each province to lessen the effects of outlier states in the second stage regression. The results obtained are rather conflicting since the informed expenditure procyclicality of Argentina that comes from the models without year dummies turns into countercyclicality when year dummies are included.

3. THE PECULIARITIES OF ARGENTINE FEDERALISM

Argentina is a federal republic. For administrative and political purposes, it is organized into 24 districts, the Autonomous City of Buenos Aires, the federal district, plus 23 provinces. Provincial governments undertake a large share of total spending in Argentina, yet they collect only a small fraction of taxes. Subnational districts account for more than 50% of total public spending, which is financed mostly from transfers from the federal government.

The collection of local taxes is led by the turnover tax, a sales tax on every phase of production, without any deduction for the tax paid at earlier stages, which generates a “cascade effect”. As discussed above, Sturzenegger & Werneck (2006) emphasize turnover tax structure as a main source of procyclicality.

The key feature of the Argentine fiscal federalism is that most of the taxes are collected centrally, generating a “common pool” of resources that are distributed among the 24 jurisdictions partly through the FTSA, an automatic mechanism, and partly by discretionary means according to short-run political

convenience. The collection of the main taxes included in the FTSA, like the value-added tax and excise taxes, is expected to increase sharply in good times and decrease abruptly in bad times. In addition, provinces that produce oil, gas and mining products also receive grants, which are also automatic, that vary primarily according to international prices. To the extent that commodity prices influence the growth rate of local GDP, grants are a potential source of procyclicality. Such extraordinary funds are usually subject to the "voracity" of politicians since there are no rules or only mild rules to save them in booms.

This revenue system has various perverse effects: (a) provinces behave as if they face a soft budget constraint, increasing spending and reducing local tax collection efforts, so local politicians benefit from spending and pay only a small fraction of the political cost of taxation; (b) instead of controlling public spending destiny, citizens have an incentive to vote for those who are effective at extracting resources from the central government, hence rewarding profligacy rather than punishing it because taxpayers do not pay for it; (c) the central government uses discretionary transfers in exchange for political support for its projects, so it is anticipated that local politicians compete more intensely for the additional low-cost resources generated during economic expansions. Hence, larger intergovernmental discretionary transfers are expected to be associated with procyclical expenditures.

In such a federal setting, local authorities have electoral incentives to get as much money through intergovernmental transfers as possible and federal authorities are inclined to give as much money from the common pool of resources as possible in exchange for political loyalties. On the other hand, the districts that receive a larger share of funds from the central government are more likely to be subject to political pressures from their constituencies but mainly from their demanding clientelistic network to spend the money right away and therefore to show fiscal procyclicality in their accounts.[6]

4. EMPIRICAL INVESTIGATION

Testing for procyclicality of fiscal policy requires a data set that includes at least two or three cycles in each district. Thus, I constructed the largest possible balanced panel with annual observations from 1985 to 2007 (22 years) at the district level for all 23 Argentinean provinces and the federal district. Following the literature (Abbott & Jones, 2012; Abbott, Cabral, Jones & Palacio, 2015; Akitoby, Clemens, Gupta & Inchauste, 2006), I employed a standard error correction model described by Equation (1).

6 The existence of strong clientelistic networks in Argentina is documented and discussed in Brusco, Nazareno & Stokes (2004), Calvo & Murillo (2004), Stokes (2005), and Weitz & Shapiro (2003).

$$\Delta g_{i,t} = \alpha_i + \beta\ \Delta g_{i,t-1} + \delta\ \Delta y_{i,t} + \gamma\ \Delta y_{i,t-1} + \rho\ g_{i,t-1} + \nu\ y_{i,t-1} + \lambda_t + \varepsilon_{i,t} \quad (1)$$

for $i = 1, \ldots, N$ and $t = 1, \ldots, T$,

where y_{it} is the natural logarithm of real GDP for district i at period t recorded in *Centro de Estudios de la Producción (CEP)*. g_{it} is the natural logarithm of a particular fiscal variable. λ_t stands for common unobserved time effects; α_i are the cross-district effects and ε_{it} is a white-noise error term.

As for the dependent variable, I consider four fiscal variables from the data set of the *Dirección Nacional de Coordinación Fiscal con las Provincias*. I work with total expenditure and its two components, current expenditure and capital expenditure. I also consider personnel expenditures, the main category of current expenditures. Table 1 reports the descriptive statistics of the fiscal variables and GDP.

The interpretation of coefficients in Equation (1) is standard: $\delta > 0$ implies procyclical fiscal behavior, while $\delta < 0$ indicates countercyclicality. The long-run relationship between the level of output and a particular fiscal variable is captured by the estimates of g_{it-1} and y_{it-1}.

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Δlog Total expenditures$_{it}$	552	0.035414	0.178222	-0.5923	0.4156
Δlog Current expenditures$_{it}$	552	0.0388	0.161036	-0.5669	0.6075
Δlog Capital expenditures$_{it}$	552	0.027301	0.445857	-1.86	1.44
Δlog Personnel expenditures$_{it}$	552	0.033095	0.164232	-0.4828	0.8275
Δlog Automatic transfers$_{it}$	552	0.062963	0.208458	-0.8166	0.9113
Δlog Discretionary transfers$_{it}$	552	0.046768	1.37874	-13.663	12.502
ΔLog GDP$_{it}$	552	0.0336184	0.0919225	-0.4225	0.694

Note: Log stands for the natural logarithm of a given variable.

Given the dynamic nature of Equation (1), I estimate the error correction model with the System Generalized Method of the Moments estimator proposed by Blundell & Bond (1998) in which lags and lagged differences are employed to instrument for endogenous variables. Time dummies are included to capture some structural breaks suffered by Argentine provinces, such as the 1989 hyperinflation, the 1991–2001 currency board, the 1993 federal pact for employment and growth which changed the revenue system, the provincial spending on pensions and the way in which shareable revenues were distribut-

ed, the 2002 crisis, and the 2004–2009 commodity price boom, to mention the most important events.

4.1 RESULTS

Table 2 shows evidence that Argentine subnational government outlays are procyclical. The estimated coefficients of contemporaneous output growth for total expenditures, current expenditures, and personnel expenditures are positive ($\delta > 0$) and statistically significant at usual levels. The reactions of all categories of spending are rather small, with personnel expenditures representing the largest response to GDP growth. A 1% rise in the growth rate of GDP increases the growth rate of personnel expenditures by 0.15%, the growth rate of current expenditures by 0.12% and the growth rate of total expenditure by only 0.09%. This is substantially lower than Rodden & Wibbels's (2010) estimation for total expenditures.

Table 2. Cyclical behavior of spending

		Current expenditure	Personnel expenditures	Capital expenditures	Total expenditures
ΔLog g_{it-1}		-0.1209*** (0.02873)	-0.0793*** (0.0279)	-0.0095 (0.0342)	-0.1202*** (0.0316)
ΔLog GDP$_{it}$		**0.1236*** (0.0458)**	**0.1483*** (0.0448)**	**0.0129 (0.1735)**	**0.0921* (0.0525)**
ΔLog GDP_{it-1}		-0.0181 (0.0331)	-0.0108 (0.0327)	0.2988** (0.1306)	0.0562 (0.0385)
Log g_{it-1}		-0.1190*** (0.0172)	-0.1124*** (0.0161)	-0.4423*** (0.0372)	-0.1681*** (0.0229)
Log GDP_{it-1}		0.0564*** (0.0129)	0.0569*** (0.0120)	0.1616*** (0.0330)	0.0809*** (0.0159)
Constant		1.3384*** (0.1681)	1.1896*** (0.1506)	4.4012*** (0.4247)	1.8638*** (0.2296)
Time effects		Yes	Yes	Yes	Yes
Sargan Test	chi2	521.2461 chi2 (529)	545.0808 chi2 (530)	553.0399 chi2 (540)	511.9466 chi2 (529)
	Prob > chi2	0.5867	0.3159	0.3395	0.6948

Notes: standard errors in parenthesis below coefficient. Districts: 24. Years: 23. Observations: 552. *** Significant at .01. ** Significant at .05. * Significant at .10.

The estimated coefficient of contemporaneous output growth for capital expenditures was almost zero, though not statistically significant. However, the coefficient of lagged output growth is positive and significant at 5%, which can indicate that capital expenditures are procyclical, but there is a delay in making decisions on longer term investments.[7] An acyclical behavior for capital expenditures in Argentina is to some extent surprising. It is sup-

7. I thank an anonymous referee for bringing up this point.

posed that subnational governments facing downturns usually follow a pattern of expenditure cuts, beginning with capital expenditures. Notice, nonetheless, that this result is similar to Abbott, Cabral, Jones & Palacio (2015) findings for the Mexican states. The coefficients of lagged output growth for the remaining categories of expenditures are not significant at usual levels meaning that the cyclical relationship is just contemporaneous. On the other hand, the lagged dependent variables are negative and statistical at 1% level for all categories of spending except for capital expenditures, indicating that contemporaneous outlays react to preceding period expenditures.

Table 2 also reports the results of the Sargan test of over-identifying restrictions. In all equations, the null of the Sargan tests (that overidentifying restrictions are valid) cannot be rejected at the 5% level.

4.2. EXPLORING PARTISAN EFFECTS: PERONISTS VERSUS RADICALS

It is frequently argued that in Argentina the procyclical fiscal behavior of subnational governments is related to profligate spending habits of a particular political party, Partido Justicialista that governed several districts over the period under study. To explore the importance of partisan effects, I modify Equation (1) by adding two dummy variables named PJ and UCR, representing the two major national parties, Partido Justicialista (also known as the Peronist Party) and Unión Cívica Radical (called the Radical Party), respectively.[8] PJ dummy takes the value 1 if the province was administered by a Peronist governor and 0 otherwise and UCR dummy takes the value 1 if the province was administered by a Radical governor and 0 otherwise It is worth noting that there were also various provinces under the administration of different local parties in the period 1985–2007. I also include two variables that interact with each political party dummy with GDP growth (Δy_{it}). Equation (2) describes the error correction added with partisan dummies and interaction terms.

$$\Delta g_{i,t} = \alpha_i + \beta\, \Delta g_{i,t-1} + \delta\, \Delta y_{i,t} + \gamma\, \Delta y_{i,t-1} + \rho\, g_{i,t-1} + \nu\, y_{i,t-1} + \mu\, PJ_{i,t} + \sigma\, (PJ_{i,t} * \Delta y_{i,t}) + \theta\, UCR_{i,t} + \varsigma\, (UCR_{i,t} * \Delta y_{i,t}) + \lambda_t + \varepsilon_{i,t} \quad (2)$$

where ***PJ*** stands for *Partido Justicialista* and ***UCR*** represents the *Unión Cívica Radical*.

8. Different provincial parties also administered the districts during the period under study. From a panel of 552 observations (24 provinces and 23 years), 12.1% correspond to provincial parties, 20.5% to UCR, and 67.4% to PJ.

Estimates of the error correction model augmented with partisan effects for each of the four expenditure categories are presented in Table 3. The evidence is consistent with the presumption that both national parties, PJ and UCR, behave procyclically in fiscal matters. The size of the estimated coefficients for the interaction term in the total expenditures and capital expenditures equations are larger for UCR than for PJ while the opposite is found for current expenditures and personnel outlays. However, the Wald tests on the equality of the two coefficients show that except for the current expenditure equation, that displays a slightly higher procyclicality during Peronist administrations than under Radical Party governments, the null hypothesis (equality of coefficients) cannot be rejected at the 10% level (see Appendix)[9].

Table 3. Peronists versus Radicals. Cyclical behavior of subnational expenditures

		Current expenditure	Personnel expenditures	Capital expenditures	Total expenditures
$\Delta Logg_{it-1}$		-0.1307*** (0.0292)	-0.0720** (0.0285)	-0.0194 (0.0340)	-0.1334*** (0.0318)
ΔLog GDP_{it}		-0.0814 (0.10852)	0.0473 (0.0843)	-0.0689 (0.3366)	-0.1140 (0.1006)
ΔLog GDP_{it-1}		-0.0320 (0.0337)	-0.0136 (0.0336)	0.3496*** (0.1336)	0.0484 (0.0393)
Log g_{it-1}		-0.1032*** (0.0157)	-0.0959*** (0.0149)	-0.4064*** (0.0355)	-0.1369*** (0.0207)
Log GDP_{it-1}		0.0503*** (0.0116)	0.0484*** (0.0107)	0.1677*** (0.0295)	0.0664*** (0.0141)
PJ_{it}		0.0167 (0.0122)	0.0146 (0.0122)	-0.0013 (0.0487)	0.0093 (0.0143)
UCR_{it}		-0.0013 (0.0145)	0.0163 (0.0145)	-0.0068 (0.0578)	-0.0107 (0.0170)
PJ_{it} * ΔLog GDP_{it}		**0.2608*** (0.0959)**	**0.1897** (0.0952)**	**0.1348 (0.3821)**	**0.2764** (0.1129)**
UCR_{it} * ΔLog GDP_{it}		**0.2537** (0.1127)**	**0.1091 (0.1115)**	**0.5000 (0.4444)**	**0.3239** (0.1316)**
Constant		1.1487*** (0.1527)	1.0174*** (0.1390)	3.8724*** (0.3903)	1.5233*** (0.2068)
Time effects		Yes	Yes	Yes	Yes
Sargan Test	chi2	597.6323 Chi(0.6847)	620.2239 Chi(614)	628.5164 Chi(615)	605.7908 Chi(612)
	Prob > chi2	0.6847	0.4223	0.3440	05632

Notes: standard errors in parenthesis below coefficient. Districts: 24. Years: 23. Observations: 552. *** Significant at .01. ** Significant at .05. * Significant at .10.

9. I thank an anonymous referee for helping me with this point.

4.3 EXPLAINING PROCYCLICALITY AT THE SUBNATIONAL LEVEL

To explore the effects of voracity, political networks, and political influence (such as federal interventions) as drivers of local government procyclical fiscal behavior, I extended Equation (1) to include four explanatory variables and four interaction terms. The new variables in the error correction model are the political alignment of local and federal government representing political networks, the federal intervention of provinces experiencing political and economic turmoil, the intergovernmental discretionary transfers as a percentage of total revenues, and the changes in the amount of grants received by provinces producing oil, gas and mining products. The last two variables try to capture voracity effects through different channels. These four variables were interacted with the growth rate of GDP: $\Delta \text{LogGDP}_{it}$.

Equation (3) describes the error correction model with political influences and their respective interaction terms added.

$$\Delta g_{it} = \alpha_i + \beta\, \Delta g_{it-1} + \delta\, \Delta y_{it} + \gamma\, \Delta y_{it-1} + \rho\, g_{it-1} + \nu\, y_{it-1} + \pi_1 A_{it} + \pi_2 T_{it} + \pi_3 O_{it} + \pi_4 I_{it} + \pi_5 (A_{it} * \Delta y_{it}) + \pi_6 (T_{it} * \Delta y_{it-1}) + \pi_7 (O_{it} * \Delta y_{it-1} + \pi_8 (I_{it} * \Delta y_{it-1}) + \lambda_t + \varepsilon_{it} \qquad (3)$$

where ***A*** stands for alignment between the local and central government, ***T*** represents the intergovernmental discretionary transfers as a percentage of total revenues, ***O*** are changes in the amount of Oil, Gas and mining Grants received by producer districts, and ***I*** means federal intervention in province ***i***.

To capture the effect of alignment between incumbents at the national and subnational levels, I include the dummy variable ***A***, which takes the value 1 if the governor of a given province is allied with the president and 0 otherwise. I conjecture that the political alignment with the president facilitates governors' access to discretionary funds and bailouts. The codification of this variable is not straightforward. The fracture of the two most important parties (*PJ* and *Alianza UCR/FREPASO*) resulted in some atypical alliances. In the years following the 2001/2002 crisis, there was a major break in the Peronist Party, which ruled the country in the periods 1989–1999 and 2002–2007. One of the factions, led by the governor of the small San Luis province, Adolfo Rodríguez Saá, became the opposition of President Kirchner, head of the winning faction. The other main party, the *Alianza UCR/FEPASO*, also fractured

and one of the groups joined Kirchner. I also account for the agreements between some provincial parties and the incumbent president during the 1990s.[10]

Intergovernmental discretionary transfers and the changes in oil, gas and mining grants are expected to increase all categories of spending. This is consistent with voracity effects. In the presence of widespread clientelistic networks and the absence of fiscal rules (or the enforceability of existing ones) to save in good times, the larger the funds received by local authorities from the central government, the stronger the political pressures to spend the money immediately. Equation (3) includes the contemporaneous value of ***T*** defined as intergovernmental discretionary transfers as a percentage of total revenues[11] and the change in oil, gas and mining grants received by producer provinces (coded ***O***) expressed in millions of Argentine pesos of 2004. A priori, it is not clear whether increasing amounts of grants would augment the current expenditures relatively more than the capital expenditures. It could be predicted that governors dedicate "unexpected" increases in grants to capital rather than current expenditures. Uncertainty about the future stream of grants (their amounts vary with international prices and local regulations) makes it unadvisable to devote uncertain money to salaries and other current expenditures.

The dummy variable ***I*** takes the value 1 if the president declares intervention in a given district and 0 otherwise. The so-called "federal intervention" is another source of influence on fiscal policy variables. The Argentine Constitution allows the federal government to take control of a province in certain extreme cases of social commotion. Upon intervention, one or more branches of the provincial government are dissolved, and the federal government appoints a new authority (called the *interventor*) who serves for a short term until order is re-established. Since historically most of the cases of social commotion usually involved fiscal mismanagement, I expect the *interventor* to stabilize the local economy by diminishing total expenditures and augmenting local taxes. Election and intervention data were obtained from Andy Tow's Atlas Electoral. During the period 1985–2007, there were six episodes of federal intervention, two of them in the province of Corrientes in the years 1992–1993 and 2000–2001, and the others in the provinces of Catamarca (1991), Tucumán (1991), and Santiago del Estero (1994).

10. For the years 2003, 2004, and 2007, I code as 1 the provinces of Mendoza, Río Negro, and Catamarca, administered by UCR governors allied with the Peronist President Kirchner (called "*Radicales K*"). In contrast, the province of San Luis is coded 0 despite being administered by the Peronist governor Rodríguez Saá. For the period 1996–1999, I code as 1 the provinces of Tucumán and Tierra del Fuego to account for the alliances of *Fuerza Republicana* and *Movimiento Popular Fueguino* with President Menem (Peronist).

11. Notice that this definition of T is a measure of the vertical fiscal imbalance. For the case of Argentina, Jones, Meloni & Tommasi (2012) studied the impact of vertical fiscal imbalance on voting behavior and Meloni (2016) on political budget cycles.

Estimates of the revised cyclicality equation for variables under the control of local government are presented in Table 4. The evidence is consistent with the proposition that political networks increase the likelihood of procyclicality in expenditures (both total and current public outlays). The interaction of Alignment and GDP growth is statistically significant at usual levels for all equations except for capital expenditures.

Table 4. Exploring the procyclicality of expenditures

		Current expenditure	Personnel expenditures	Capital ex-penditures	Total ex-penditures
ΔLog g_{it-1}		-0.1117*** (0.0284)	-0.0798*** (0.0280)	-0.0351 (0.0323)	-0.1315*** (0.0304)
ΔLog GDP_{it}		-0.0364 (0.0527)	0.0657 (0.0527)	-0.0674 (0.2030)	-0.0793 (0.0609)
ΔLog GDP_{it-1}		-0.0218 (0.0328)	-0.0018 (0.0328)	0.2721** (0.1294)	0.0503 (0.0379)
Log g_{it-1}		-0.1034*** (0.0140)	-0.0967*** (0.0136)	-0.4138*** (0.0322)	-0.1397*** (0.0183)
Log GDP_{it-1}		0.0575*** (0.0100)	0.0552*** (0.0096)	0.2849** (0.1291)	0.0759*** (0.0122)
$Transfers_{it}$		0.0001 (0.0005)	0.0007 (0.0005)	0.0032 (0.0020)	0.0009 (0.0006)
$Transfers_{it}$ * ΔLog GDP_{it}		0.0153** (0.0059)	-0.0012 (0.0059)	0.0420* (0.0236)	0.0239*** (0.0069)
$Grants_{it}$		0.0002*** (0.00007)	0.0001** (0.00007)	0.0009*** (0.0003)	0.0004*** (0.00008)
$Grants_{it}$ * ΔLog GDP_{it}		-0.0009 (0.0006)	-0.0003 (0.0006)	-0.0064*** (0.0024)	-0.0015** (0.0007)
$Intervention_{it}$		-0.0358** (0.0164)	-0.0117 (0.0165)	-0.1622*** (0.0624)	-0.0577*** (0.0189)
$Intervention_{it}$ * ΔLog GDP_{it}		0.3744*** (0.1242)	0.3448*** (0.1232)	-0.5792 (0.4910)	0.2486* (0.1450)
$Alignment_{it}$		-0.0070 (0.0073)	-0.0068 (0.0072)	0.0071 (0.0288)	-0.0081 (0.0084)
$Alignment_{it}$ * ΔLog GDP_{it}		0.1575** (0.0704)	0.1127 (0.0703)	0.3881 (0.2769)	0.2306*** (0.0815)
Constant		1.1120*** (0.1377)	1.0105*** (0.1285)	3.8214*** (0.3503)	1.4872*** (0.1841)
Districts		24	24	24	24
Years		23 (1985-2007)	23 (1985-2007)	23 (1985-2007)	23 (1985-2007)
Observations		552	552	552	552
Time effects		Yes	Yes	Yes	Yes
Sargan Test	chi2	706.9003 chi2 (704)	757.5854 chi2 (702)	709.3389 chi2 (704)	698.2849 chi2 (702)
	Prob > chi2	0.4622	0.0716	0.4366	0.5325

Note: Significant at .01. ** Significant at .05. * Significant at .10.

Federal interventions also improve the chances of procyclicality in the same variables. Notice that the variable *Intervention* has a negative sign in all expenditure equations, indicating that the federal administrator reduces outlays but the positive and statistically significant interaction term shows that the *interventor* behaves procyclically regarding all categories of expenditures. On the other hand, changes in the amount of oil, gas and mining grants augment the probability of procyclicality in capital expenditures and total expenditures, supporting the conjecture about the conduct of local government regarding volatile funds like grants.

The voracity effects represented by the interaction of intergovernmental discretionary transfers with GDP growth are present in all categories of expenditures with the exception of personnel. The way discretionary transfers operate can best be understood with a supply and demand framework. On one hand, when national income increases, local authorities exert political pressure to get federal funds (governors act voraciously). Thus, they get low-cost financing for their expenditures. On the other hand, discretionary transfers are used by central authorities to discipline subnational governments and to obtain support in Congress.

5. CONCLUDING REMARKS

This article constitutes one step in a broader scholarly agenda to develop more comprehensive cross-country comparisons of subnational behavior across federations. Investigations about the cyclicality of the subnational fiscal policy are rather scarce despite the fact that provincial imbalances have a conceivable impact on the fiscal policy of federal governments.[12]

What can be learned from the recent Argentine experience? I explore the sources of procyclical fiscal behavior in Argentine subnational districts over the period 1985–2007, covering most of the new democratic era.[13] The estimated error correction model with the System Generalized Method of the Moments estimator for four categories of expenditures delivers the following conclusions.

Firstly, I found that a subnational district's total public expenditures are procyclical. That is, I confirm the previous results for subnational districts of emerging economies like Mexico (Abbott, Cabral, Jones & Palacio, 2015),

12. For instance, the profligacy and bulky indebtedness of most of the provinces were important components of the overall fiscal deterioration leading to the 2001/2002 crisis (IMF, 2003). Likewise, it can also be conjectured that bailouts to provinces and subsidies to regional production and local firms played a role in the various crises that Argentina went through in the 1970s to the 2000s (Cerro & Meloni, 2013, 2014)

13. In December 1983, Argentina returned to democracy after seven years of military regime.

Brazil (Arena & Revilla, 2009), and Argentina (Rodden & Wibbels, 2010; Stuzenegger & Werneck, 2006). Nonetheless, it is worth noting that my estimates are smaller than those obtained in these studies. In contrast with these papers, I also found that this procyclicality in total expenditures is driven by current expenditures and its main component, personnel outlays, while capital expenditures are acyclical.

Secondly, I found three sources of procyclicality: (a) political networks (proxied by the alignment between the president and the governor) that increase the likelihood of procyclicality in expenditures and local tax collection (similar results were obtained by Abbott, Cabral, Jones & Palacio (2015) for Mexican states); (b) federal interventions that improve the chances of procyclicality in the same variables; and (c) voracity effects that operate through two channels: the intergovernmental discretionary transfers that influence all categories of expenditures with the exception of personnel and changes in the amount of oil and gas grants that augment the probability of procyclicality in capital expenditures and total expenditures. This is the result of the interplay of opportunist central authorities that transfer discretionary funds to gain political loyalties, voracious governors that overspend to retain power, and clientelistic networks that press for funds.

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APPENDIX

Table 1 A. Testing the equality of partisan effects.

	Current expenditures	Personnel expenditures	Capital expenditures	Total expenditures
Chi2 (1)	0.01	0.87	1.11	0.21
Prob>chi2	0.9359	0.3517	0.2920	0.6435

Wald test of the difference in the estimated coefficients of the interaction terms of PJ and UCR

Null: $\mathbf{PJ_{it} * \Delta Log\ GDP_{it} = UCR_{it} * \Delta Log\ GDP_{it}}$