

**Political Pressure and Procyclical Expenditure:  
An Analysis of the Expenditures of State Governments in Mexico<sup>†</sup>**

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**ABSTRACT**

*Government expenditures are procyclical if they increase in periods of economic growth and decrease in periods of economic downturn. This paper tests the proposition that (within federations) political pressures for public expenditure increase the likelihood that expenditures and intergovernmental transfers will be procyclical. An analysis of political pressures in Mexico suggests that political pressures will produce a distinct pattern of procyclical expenditures across fiscal tiers and across government budgets. This prediction is tested with reference to the expenditures of 31 states in Mexico between 2005 and 2010.*

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## 1. Introduction

While economists often anticipate countercyclical government expenditure (Alesina et al., 2008), an established literature reports evidence of procyclical government expenditure. Expenditure is procyclical if it increases in economic upturns and decreases in economic downturns. There is evidence of procyclicality in developing countries (for example Gavin et al., 1996) and in developed countries (for example Woo, 2009).

Beneficent governments might spend procyclically to maximise welfare if government consumption and private consumption are complements (Lane, 2003). However, the conditions required to rationalise procyclical expenditure as a welfare-maximising strategy are very restrictive and it is impossible to dismiss the relevance of political pressures for increased public expenditure. Lane and Tornell (1996) and Tornell and Lane (1998) argue that there are voracity effects if political pressures for increased public spending are more intense in economic upturns than in economic downturns. Lane (2003) employed Henisz's (2000) index as an indicator of political pressures to test the proposition that political pressures influence the cyclicity of government expenditure.<sup>1</sup> While the index was not relevant when analysing every component of government expenditure in the OECD, it was statistically significant when explaining procyclical consumption and procyclical wage expenditure.

Lane (2003) argued that the likelihood of procyclical government expenditure depended on the 'distribution of fiscal power' across different branches of government. He did not consider sub-central government expenditures, but suggested that "*....other political claimants such as state or provincial governments within a federal system*" (p. 2665) are relevant when explaining procyclical expenditure. Very few studies focus on the procyclicality of sub-central government expenditure (Abbott and Jones (2012), Arena and Revilla (2009) and Sturznegger and Werneck (2006) are exceptions). In this paper, the objective is to consider the proposition that the likelihood of procyclical sub-central government expenditure is influenced by the 'distribution of fiscal power' across fiscal tiers.

In the next section of the paper, the objective is to explore the impact of the 'distribution of fiscal power' across fiscal tiers on the cyclicity of expenditures and intergovernmental transfers within federations. This exploration suggests that: (i) sub-central government expenditures are likely

to be procyclical; (ii) discretionary transfers are likely to be procyclical and more procyclical than non-discretionary transfers; (iii) sub-central government expenditures are more likely to be procyclical if discretionary transfers are procyclical; (iv) sub-central government capital expenditures are more likely to be procyclical than sub-central government current expenditures; and (v) sub-central government expenditures are more likely to be procyclical if there is a co-occurrence between representatives of the same political party holding office at both state and federal government.

These predictions are tested with reference to the expenditures of 31 states in Mexico. The paper focuses on Mexico because as much as 86% of state government revenues are received as intergovernmental transfers from the federal government. The majority of transfers are non-discretionary (they are provided for specific expenditures, like education, health, crime prevention, etc.). While these transfers depend automatically on pre-determined formulae, one-third of all sub-central government revenues are received as discretionary transfers.<sup>2</sup> Mexico is a particularly interesting case study because it relies more heavily on intergovernmental transfers than almost every other federation.<sup>3</sup> Section 2 describes the way that the ‘distribution of fiscal power’ across tiers of government influences the cyclicity of sub-central government expenditure. Section 3 presents the econometric model and the data employed to test predictions. Section 4 reports the estimation results and section 5 concludes.

## **2. Political pressures and procyclical expenditures**

This section of the paper focuses on the cyclicity of intergovernmental transfers and sub-central government expenditures.

### **(a) Political pressures for increased public expenditure**

Governments are more likely to spend procyclically if political pressure to increase public expenditure increases as national income increases (Lane and Tornell, 1996; Tornell and Lane, 1998). In empirical studies, political pressure to increase public expenditure has been identified as a significant determinant of procyclical expenditure (e.g. Lane, 2003; Abbott and Jones, 2013).

Downs (1957) highlights politicians' incentive to increase public expenditure to win votes and he also argues that politicians focus, myopically, on a four- to five-year electoral cycle. When national income is increasing (and tax revenues are increasing), politicians are able to accommodate pressures to increase spending without ever announcing a new tax (or a new tax rate). With a tendency to be indulgent in an economic upturn, they 'sow the seeds' of the difficulties they face in recessions. When national income and tax revenues are falling, they are not able to sustain their new commitments; in economic downturns they face pressures to reduce public expenditure.

In economic upturns the 'flypaper effect' increases the likelihood that politicians in sub-central governments will indulge pressures to increase public expenditure. If intergovernmental transfers increase as national income increases, pressures to increase public expenditure are more intense in sub-central jurisdictions because voters underestimate the tax-cost of expenditure programmes when they receive transfers financed by taxpayers in other jurisdictions (Oates, 1979).<sup>4</sup> Hines and Thaler (1995) and Bailey and Connolly (1998) review this literature (there is a 'flypaper effect' because 'money sticks where it hits' - in the public sector). With a 'flypaper effect', sub-central governments spend more when they receive an intergovernmental transfer than when their citizens receive an equivalent increase in private income.<sup>5</sup> The implication is that the income elasticity of demand for sub-central government expenditures is higher the more sub-central governments receive income in the form of an intergovernmental transfer (Bailey and Connolly, 1998).<sup>6</sup>

Sub-central governments are also likely to spend procyclically because they are not able to borrow as easily as central governments (e.g. Sørensen, 2001).<sup>7</sup> When Gavin et al. (1996) first identified procyclical expenditure, they referred to the difficulties developing countries experience when trying to borrow in a recession. Public spending increases if national income is increasing (and governments can borrow); public spending falls if income is falling (and it is difficult to borrow). In recessions sub-central governments face pressures to reduce public expenditure.<sup>8</sup>

If politicians are likely to indulge pressures to increase public expenditure in an economic upturn (only to find it difficult to sustain expenditure in a recession) and if this tendency is more marked in sub-central government jurisdictions:

- (i) *The expenditures of 31 states of Mexico will be procyclical.*

(b) Political pressures for intergovernmental transfers

Local politicians have electoral incentives to compete for intergovernmental transfers. With intergovernmental transfers, local politicians are able to increase expenditure without increasing taxation. Mueller (2003) argues that local politicians realise that “...*the more the government spends holding taxes constant the happier voters are...*” and “...*the higher the probability of incumbent politicians being re-elected*” (p.223).

Politicians at federal government level are more likely to increase intergovernmental transfers when national income is increasing. Local politicians are more likely to win intergovernmental transfers when federal government tax revenues are increasing. When national income is falling and when tax revenues are falling, federal governments are more constrained and are also likely to be more mindful that there are pressures to increase ‘direct’ federal-government expenditure on health, education, defence, social security, etc. These expenditures are more transparent to voters than intergovernmental transfers. At federal government level, politicians are mindful that they will win votes if they persuade voters they are able to manage the economy (e.g. Jones and Hudson, 1996). In an economic downturn, they are under pressure to increase ‘direct’ government expenditures and to signal their ability to manage aggregate demand. With the incentive to increase ‘direct’ federal government expenditures, they are less receptive to pressure for increased intergovernmental transfers. As political pressures for intergovernmental transfers are more successful in economic upturns than in economic downturns, intergovernmental transfers are likely to be procyclical.

Federal governments are responsible for managing the macro-economy (Oates, 1972) and politicians at federal government are mindful of the signals that their actions emit to voters. They are willing to accommodate pressures for increased intergovernmental transfers when national income is increasing. When national income is falling they must signal their willingness to increase public consumption expenditure, because voters are more aware of ‘direct’ expenditures than of intergovernmental transfers (Downs, 1960). In recessions, politicians at federal government level are likely to reduce discretionary intergovernmental transfers to increase public consumption. Table 1 shows the growth rate in discretionary transfers from the federal government of Mexico to the states and the OECD’s estimate of the percentage output gap. Discretionary transfers and the output gap are

positively correlated. By contrast, government consumption is negatively correlated with the output gap, implying an increase in the relative importance of public consumption expenditures in a recession.

< TABLE 1 NEAR HERE >

While non-discretionary transfers are largely pre-determined (by legislated formulae), the availability of discretionary transfers depends on the mix of incentives that politicians face over the economic cycle. The second prediction is that:

- (ii) *Discretionary intergovernmental transfers are likely to be procyclical and more procyclical than non-discretionary transfers.*

In Mexico, 31 state governments rely on discretionary intergovernmental transfers for almost one-third of their revenue. The third prediction is that:

- (iii) *Sub-central government expenditures are more likely to be procyclical if discretionary transfers are procyclical.*

(c) Patterns of procyclicality across government budgets

When analysing political pressures for increased public spending, some groups are systematically more effective than others. The empirical literature suggests that producer groups are more effective lobbyists than consumer groups (for example Olson, 1971). In ‘small’ groups, individuals are more easily mobilised to exert pressure. In ‘large’ groups, individuals remain anonymous and apathetic. Becker (1983, 1985) argues that ‘small’ groups are more successful than ‘large’ groups when there is competition for increased public spending.

While both voters and the business lobby might press to increase public consumption expenditure, the business lobby is more likely to press to increase public capital expenditure. Downs (1960) argued that voters are more aware of expenditures that exert a *direct* and *tangible* impact on

their *day-to-day* life and this is evident in voters' responses to questionnaire surveys (see Jones, 2006).<sup>9</sup> Lane (2003:2665) argues that "...individual voters may care most about public consumption goods or transfers, business interests about infrastructure, and government employees about public sector wages...". The implication is that producer groups are more likely than consumers to press for increases in capital expenditures.

If the business lobby is far more likely to monitor expected increases in national income and to be aware of the opportunities that exist for increased investment spending, it is also the case that risk-averse, vote-maximising politicians are more likely to accommodate pressure for ('one off') capital projects. Even if a finite initial investment implies future maintenance costs, this commitment is not the same as an increase in expenditure on consumption. Government consumption is far more difficult to 'rein in' if the economy's upturn is transitory.

The implication is that politicians are more likely to increase capital expenditure programmes in economic upturns (than current expenditure programmes), and to reduce public expenditures on capital programmes in economic downturns (to avoid the loss of popularity that accompanies reductions in current expenditures). The fourth prediction is that:

(iv) *Sub-central government capital expenditures are likely to be more procyclical than sub-central government current expenditures.*

(d) Patterns of procyclicality across state jurisdictions

If political pressures are relevant when predicting the likelihood of procyclical government expenditure, differences in the way that political pressures are exerted are likely to explain differences in procyclical expenditures across sub-central government jurisdictions.

Empirical studies indicate that local politicians are likely to be more successful pressing for intergovernmental transfers if they are members of the political party incumbent in federal government. In the USA, they are more successful if they are members of the same political party as the incumbent president (a survey of this literature is presented by Larcinese et al., 2006). Larcinese et al. (2006) emphasise the importance of networks in the USA by citing the statement of the Republican former

governor Mitt Romney: “*For Republican governors, it means we have an ear in the White House, we have a number we can call, we have access that we wouldn’t have otherwise had, and that’s of course helpful*” (*Washington Post*, November 22, 2004).

Cox and McCubbins (1986) argue that this ideological relationship proves important in the USA because the objective is to use funds to maximize presidential support.<sup>10</sup> In this context, it has been argued that intergovernmental transfers are more ‘efficient’ when they are targeted on government supporters (“*....core supporters can be targeted in a more efficient way because parties know their preferences better*” – Larcinese et al., 2006: 448).

If politicians in federal governments are more inclined to offer intergovernmental transfers when there is a coincidence between the political-party affiliation of representatives in office at federal and at state government, this coincidence is also likely to be relevant when analysing patterns of cyclicity across sub-central governments. Grossman (1989) has suggested that the coincidence of representatives from the same political party is relevant when explaining the allocation of intergovernmental transfers (because local politicians are able to win votes when they increase expenditures without increasing taxation) and because local politicians are also able to marshal support for the political party at federal government (by crediting federal government for delivery of the intergovernmental transfer).

If politicians at federal government are more likely to offer intergovernmental transfers when there is a coincidence of the political allegiance of representatives in office at state and at federal government, they are even more likely to favour the same sub-central governments in economic upturns. The implication is that federal governments will find it more difficult to sustain transfers to these sub-central governments in economic downturns. The coincidence of political allegiance of representatives (in office at state and at federal government) is likely to increase the probability of procyclical sub-central government expenditure.

This analysis of the distribution of fiscal power across fiscal tiers predicts that:

- (iv) *Sub-central government expenditures are more likely to be procyclical if there is a coincidence between representatives of the same political party in office at both state and federal government.*



Collectively, these predictions paint a distinct pattern of cyclical sub-central government expenditure. They describe a pattern of cyclical expenditure *within* state jurisdictions and *across* state jurisdictions. With heavy reliance on discretionary transfers, is this the pattern of procyclical sub-central government expenditures in Mexico?

### **3. The institutional background**

As a federal republic, Mexico consists of 31 states plus one Federal District (located in the capital city, Mexico City). State government expenditures and revenues in Mexico are described in Table 2.

< TABLE 2 NEAR HERE >

The states receive intergovernmental transfers from the federal government. On average, these transfers constitute 86% of total state revenue, although there is some variation (with a standard deviation of 7.02%). Most of the variation in federal transfers is across states (than over time). The majority of transfers are non-discretionary (they are provided for specific expenditures, such as education, health, crime prevention, etc.). Discretionary transfers are important, at one-third of all sub-central government revenues. Transfers from the states to the municipalities are an important component of expenditure, averaging 45% (with a standard deviation of 13%). Current government spending is larger than government investment, with spending on human resources accounting for most of government consumption. Included in the ‘Other expenditure’ and ‘Other income’ categories are debt interest payments and current borrowing. Since across our sample, debt interest payments are only 2.63% of total expenditure and current borrowing is only 2.85% of total revenue, we do not consider them separate spending and income categories.

As transfers are very significant, it is important to consider variability in the distribution of transfers across states. Richer states are likely to have a relatively larger proportion of own revenue (given their lower level of economic dependency and their greater ability to generate tax revenues from greater economic activity). In table 3 summary statistics describe the variability of own revenue across

the states. The statistics are consistent with those presented in Table 1. The mean proportion of own revenues in total receipts is 6.99%, but the variability is 3.17% (with most of this variability across the states, rather than over time). The proportion of own revenue can be as little as 2.23% (in Tabasco) or as high as 16.77% (in Chihuahua). Tabasco, in the south of Mexico, is relatively poor, with an economy dependent on agriculture. Chihuahua, on the border with the United States of America, has a relatively large GDP per capita, relying more heavily on manufacturing.

Own revenues include: *taxes* (road taxes; 2% of payroll taxes; house-selling taxes); *rights-payments* (for the use of public goods: licenses, public registration offices, real-state registration acts office); *payment for services* (such as leasing public buildings, the provision of loans and investment, the provision of public infrastructure – e.g. tolls for the use of roads); income from *finances, donations, lotteries*. State governments are able to determine tax rates (road tax, payroll tax, etc.). They are able to spend these revenues and to redistribute these revenues to state municipalities. Municipalities receive tax revenues to provide: street lighting; policing, garbage collection, building approvals, and civil acts (such as birth certificates and municipal graveyard services).

The federal government collects income and consumption taxes (as well as fees from government agencies - e.g. for issuing passports). Both state and federal governments receive income from government infrastructure (e.g. road tolls). Non-discretionary federal transfers are provided to finance the provision of: medical care; education; welfare services; the infrastructure and financial rescue packages. Discretionary federal transfers (that depend, in part, on the availability of federal tax revenue – including oil revenue) are approximately 40% of total transfers. Discretionary transfers are used to finance: education; welfare services; the provision of law and order. Sub-central government expenditures finance the provision of: goods and services; subsidies; welfare payments; charitable donations; capital spending and financial investments; security and social development; and public debt (capital and interest payments). Debt interest payments are reported as part of ‘other expenditure’ and, at 6.42% on average, debt interest payments are a very small part of total expenditure. Borrowing (reported in ‘other income’) is a small part of total revenue.

To compare state reliance on federal transfers, Table 4 presents a correlation matrix of ‘own revenue as a proportion total revenue’, ‘state GDP’ and ‘population’. State GDP and own revenues are

positively correlated, implying that richer states have a greater proportion of their total revenues coming from state tax revenues.

< TABLES 3 & 4 NEAR HERE >

As the intention is to focus on the importance of political networks (when politicians compete for discretionary transfers), it is important to consider the way that decisions are made. Mexico has a presidential system, consisting of 3 levels of government: the federal union; the state governments (31 independent states and one federal district); and 2457 municipalities.<sup>11</sup> The federal republic has a Congress of the Union, consisting of a Senate (upper chamber) and a Chamber of Deputies (lower chamber). Each of the states has a republican form of government, consisting of the executive (a governor and appointed cabinet), the state legislature (a unicameral congress) and the judiciary.

In Mexico, the ‘political sacred cow’ is that politicians cannot stand for re-election. At local and national levels, no incumbent can stand as a candidate for re-election to their post. It is the case, however, that an incumbent can become a candidate again after spending one term out of office. Local politicians have an incentive to win discretionary intergovernmental transfers to win popularity, because an increase in popularity is relevant when incumbents consider the electoral payoff to the next candidate from their political party that stands for election. It is also the case that local politicians have an incentive to win discretionary intergovernmental transfers because the increase in popularity will be relevant when: (i) they present themselves for election at a national level, and when (ii) they return as a candidate for re-election at a local level (after one term of office). Election to a local legislative body is often a platform for election to a national legislative body.<sup>12</sup>

The most important political network to win intergovernmental transfers is the network between the state and the lower chamber at federal government. The lower chamber plays an important role when assessing the case for discretionary intergovernmental transfers. According to article 74 of the Mexican Constitution, the President presents the “Income and Expenses Budget” to the lower chamber. Before the budget is approved, the lower chamber (the *Cámara de Diputados*) is the forum where lobby groups and local politicians press for a larger ‘share of the cake’ (Casar, 1999;

OECD, 2009; Lopez-Montiel, 2012). Although the President retains a veto power, it has been rarely used (Posner and Park, 2007).

#### 4. The data and the model

Data for government spending and revenue in Mexico has been taken from *Estadísticas de las Finanzas Públicas Estatales y Municipales*, which is compiled by Instituto Nacional de Estadística y Geografía (INEGI), Mexico's National Institute of Statistics and Geography. GDP figures come from INEGI's Economic Information Database. All data is presented in real pesos of 2003. Data was collected for all the Mexican states, except the Distrito Federal, over the period 2003 to 2010 (though the estimation period is 2005 to 2010 because first differences and lags are relevant). The Distrito Federal was excluded because data is not readily available. Its accounting and budgetary processes differ from those of other states.

The sample period begins in 2003 because the paper focuses on states' real GDP (compiled using constant 2003 prices) and before 2003 the available data (published from 1993 to 2006) was only available in constant 1993 prices. With a change in the base year, there was also a change in the methodology that was used to calculate the prices.

The cyclicity of government spending and revenues is estimated with the following models (e.g. Akitoby, 2006):

$$\Delta g_{it} = \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \varepsilon_{it} \quad (1)$$

$$\Delta \tau_{it} = \phi \Delta \tau_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \pi_1 \tau_{it-1} + \pi_2 y_{it-1} + \varepsilon_{it} \quad (2)$$

where  $g$  is the log of real government spending (or its component) for state  $i$  at period  $t$ ;  $y$  is the log of state real gross domestic product and  $\tau$  is the log of state revenue (or its component) in constant prices. The error-correction specification allows the simultaneous estimation of both the short-run adjustment process and the long-run relationship. We add  $\Delta g_{it-1}$  ( $\Delta \tau_{it-1}$ ) to account for potential persistence in the growth of government spending (revenues), while  $\Delta y_{it}$  and  $\Delta y_{it-1}$  are included since the cyclical relationship between GDP and government spending (revenues) might not be contemporaneous. Policy makers may not have information instantly on the growth of revenues

associated with an output shock, so that any spending decisions arising from economic growth may evolve over time. The coefficients  $\beta_1$  and  $\beta_2$  estimate the cyclical nature of government spending or government revenues. For example,  $\beta_1 < 0$  indicates government spending is counter-cyclical, while  $\beta_1 > 0$  suggests procyclical expenditure. We employ the System Generalized Method of the Moments (SYS-GMM) estimator proposed by Blundell and Bond (1998) in which lags and lagged differences are employed to instrument for endogenous variables. In addition to utilizing the usual SYS-GMM instruments to control for the endogeneity of our lagged dependent variable and its lagged level, in order to instrument for Mexican states GDP per capita we also add an additional instrument: the growth rate of US GDP. Given the proximity of Mexico to the United States of America and the strong economic ties, it is reasonable to anticipate that both  $\Delta y_{it}$  and  $\Delta y_{it-1}$  will be affected by economic growth in the USA. Hence, all right hand side variables are treated as endogenous. In all cases, we test our hypotheses from the estimated coefficients and the associated t-ratios, which are calculated from robust standard errors. The standard errors are adjusted for clustering in the states. Finally, SYS-GMM estimators are said to be consistent if there is no second or fourth order serial correlation in the residuals by the SC(2) and SC(4) tests and if the instruments employed are valid according to the Sargan test. We report these test results for each of the models estimated in the following section.

## 5. Empirical Results

This paper focuses on the pattern of cyclical sub-central government expenditures *within* state jurisdictions and *across* state jurisdictions

### (a) Patterns of cyclical expenditures *within* state jurisdictions

The first question is whether Mexican sub-central government expenditures are procyclical. Table 5 reports estimates of the cyclical nature of total government spending and its main components. SC(1), SC(2) and SC(4) report the Arellano-Bond test for serial correlation in first-differenced errors. Since the first difference of white-noise errors will be autocorrelated, rejecting the null hypothesis of

no first order serial correlation does not imply model misspecification. Rejecting the null hypothesis at higher orders implies the moment conditions are not valid. Using the p-values from the tests, the evidence presented in table 5 indicates rejection of the null hypothesis ‘no serial correlation’ at 2<sup>nd</sup> and 4<sup>th</sup> orders in only one case. The results of the Hansen test of over-identifying restrictions are also shown, which are not statistically significant at the 1% in all cases, implying the null hypothesis that the over-identifying restrictions are valid cannot be rejected. There is evidence to reject the null hypothesis at the 5% in three cases.

The coefficients show the percentage change in state expenditures for a 1 percentage change in GDP.  $\Delta y_{it}$  is statistically significant and the estimated coefficient is positively-signed for: total government spending; total government consumption and municipal transfers (which is part of government consumption).<sup>13</sup> When reflecting on prediction (iv), it is impossible to conclude that capital spending is more procyclical than current expenditure because capital spending is acyclical. In only one case, ‘other expenditure’, is  $\Delta y_{it-1}$  statistically significant, but the estimated coefficient is negative. Arena and Revilla (2009) reported evidence of procyclical spending for: total expenditure; primary spending; capital spending and personnel expenditure (for the 26 states of Brazil and the federal district of Brasilia, over the period 1990 to 2006).

< TABLE 5 NEAR HERE >

Table 6 describes the cyclicity of various sub-central government income streams. Own revenues and discretionary transfers are procyclical, with  $\Delta y_{it-1}$  also statistically significant for discretionary transfers (implying a lagged response for transfers from a shock to state GDP). Procyclical own revenue reflects (in part) the progressive nature of tax revenue. Non-discretionary transfers are found to be acyclical.  $\Delta y_{it-1}$  is statistically significant for other income. Own revenue is less than 7 per cent of total revenue. The important procyclical element in state government revenues is the procyclicity of discretionary federal transfers. Discretionary federal transfers constitute almost a third of total revenue. As predicted, they are more procyclical than non-discretionary transfers. Evidence of

second-order serial correlation is found only for own income and non-discretionary transfers. The Hansen test is significant at the 1% for only one case.

< TABLE 6 NEAR HERE >

Table 3 described the variation in the percentage of own revenue reported across the states (which varies with state GDP). Poorer states rely more heavily on intergovernmental transfers. It has been argued that the variation in the extent to which governments rely on transfers is likely to influence the procyclicality of government spending. Table 7 reports estimates of the cyclicity of total government spending for four regions of Mexico (from Chiquiar (2005)) and presents evidence of procyclical spending concentrated among the southern states of Mexico. The southern states are the poorest in Mexico, accounting for only 16% of the country's GDP, according to Instituto Nacional de Estadística y Geografía (INEGI).

< TABLE 7 NEAR HERE >

The importance of intergovernmental discretionary transfers as a driver of procyclical government spending is illustrated in the estimates presented in Table 8. The first difference of discretionary federal transfers ( $\Delta tr_{it}$ ), in both current and lagged form, and the lagged levels of transfers ( $tr_{it-1}$ ) are added to (1), where the dependent variable is the growth in total government spending. The results indicate that the impact of discretionary transfers is sufficiently strong to render  $\Delta y_{it}$  statistically insignificant. These results are consistent with the prediction that the expenditures of the 31 states in Mexico are more likely to be procyclical because discretionary transfers are procyclical.<sup>14</sup>

< TABLE 8 NEAR HERE >

(b) Patterns of cyclical sub-central government expenditures *across* state jurisdictions.

Arena and Revilla (2009) found a positive relationship between political coincidence and procyclicality, when they considered the coincidence between the presidential party and the state

governor (measured in terms of the number of years in which the same political party held both the presidency and the gubernatorial office). When multiple power blocks compete for fiscal revenues, political links are likely to intensify voracity effects.

Equation (1) can be extended to include ‘coincidence dummies’,  $PC_{it}$  and  $PC_{it-1}$ , as well as the interaction terms  $(\Delta y \times PC)_{it}$  and  $(\Delta y \times PC)_{it-1}$ , where PC equals one when there is political coincidence:

$$\begin{aligned} \Delta g_{it} = & \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \phi_1 PC_{it} + \phi_2 PC_{it-1} + \varphi_1 (\Delta y \times PC)_{it} + \varphi_2 (\Delta y \times PC)_{it-1} \\ & + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \pi_3 tr_{it-1} + \varepsilon_{it} \end{aligned} \quad (3)$$

In this paper, the intention is to test the proposition that political networks are relevant when explaining the variation of cyclicity across sub-central government expenditures. More than one political network is likely to be relevant. This paper tests the relevance of political coincidence between: (i) the state governor and the federal presidency; (ii) the state legislature and federal presidency; (iii) the state governor and the state legislature and (iv) the state governor and the federal lower (upper) chamber; and (iv) the state legislature and the federal lower (upper) chamber. Coincidence with respect to the federal lower chamber, given its importance in the budget process, is expected particularly to exert an influence on the procyclicality of spending. Data on the coincidence of power came from the authors’ analysis of local and national elections.<sup>15</sup>

Estimates of the revised cyclicity equation for total spending are presented in Table 9. The evidence is consistent with the proposition that political networks increase the likelihood of procyclical total sub-central government expenditure. The interaction term has a contemporaneous effect on  $\Delta g_{it}$  when there is political coincidence between the state legislature and the state governor, while there is a lagged response when political coincidence exists between: (i) the state governor and the federal lower (upper) chamber; (ii) the state legislature and the federal lower (upper) chamber.

< TABLE 9 NEAR HERE >



When the state governorship in a sub-central government jurisdiction and the federal lower (upper) chamber are controlled by the same political party there is a greater likelihood that the sub-central government will spend procyclically. If politicians in the federal lower chamber are able to increase discretionary transfers in economic upturns, they are likely to favour their peer group in sub-central governments. In an economic downturn they will then find it even more difficult to sustain this increase in discretionary transfers. With the importance of political pressures that can be exerted in the federal lower chamber (as described in section three of the paper), the implication is that sub-central government expenditures are more likely to be procyclical when the state legislature and the federal lower chamber are controlled by the same political party.

The second observation in Table 9 is that a sub-central government's expenditure is more likely to be procyclical when control of the state legislature and the office of state governor are held by the same political party. This result is consistent with the proposition that 'flypaper effects' are relevant when explaining procyclical sub-central government expenditures.<sup>16</sup> Politicians in a state jurisdiction spend more of an increase in income received as an intergovernmental transfer than they would if their citizens had received an equivalent increase in their income. The more politicians in a political party believe that the party is electorally secure, the more confident they feel when spending intergovernmental transfers. With a 'flypaper effect', state expenditures are more income elastic (Bailey and Connolly, 1998). If there is a coincidence between a political party's control of the state legislature and control of the office of state governor, state government expenditures are more income elastic. State government expenditures are more procyclical.

## **6. Conclusions.**

This paper has explored the proposition that the 'distribution of fiscal power' across fiscal tiers in federations increases the likelihood that sub-central government expenditures will be procyclical. The paper has focused on the mix of incentives and constraints that influence politicians' willingness to accommodate political pressures to increase public expenditure over the economic cycle.

Many of the predictions presented and tested are inter-related; collectively they describe a distinct pattern of intergovernmental transfers and expenditures. They have been tested with reference

to the pattern of public expenditures and intergovernmental transfers in Mexico because the 31 states in Mexico are very dependent on intergovernmental transfers as a source of revenue.<sup>17</sup>

The first conclusion is that the public expenditures of 31 Mexican states were procyclical between 2005 and 2010. If myopic, vote-maximising, politicians are likely to indulge pressures to increase expenditure in economic upturns, politicians at sub-central government will also face ‘flypaper effect’ pressures (if intergovernmental transfers increases in economic upturns). If myopic, vote-maximising, politicians face pressures sustaining public expenditure commitments in recessions, politicians at sub-central government will face even more intense pressure (because they cannot easily rely on borrowing).

The ‘distribution of fiscal power’ across fiscal tiers also increases the likelihood that intergovernmental transfers will be procyclical. While politicians at federal government may choose to indulge pressures for intergovernmental transfers in economic upturns, they will not find it as easy to indulge these pressures in economic downturns. In economic downturns there is pressure to signal to voters that they are increasing their own ‘direct’ expenditures to manage the economy. With more room to respond to pressures for discretionary transfers (than to pressures for non-discretionary transfers), the second conclusion is that the discretionary transfers received by the 31 state governments in Mexico were procyclical and more procyclical than non-discretionary transfers.

The third conclusion is that sub-central governments in Mexico were more likely to spend procyclically the more they relied on discretionary transfers as a revenue source. This conclusion emphasises the inter-relationship between the likelihood of procyclical intergovernmental transfers and the likelihood of procyclical expenditure.

The fourth prediction focused on the arguments that (i) producer groups are more effective lobbyists (Olson, 1971) and (ii) producer groups are more likely (than consumer-voters) to press for capital expenditure (because voters are more aware of current expenditures than capital expenditures – Downs, 1960). However there was no evidence that the 31 Mexican states’ capital expenditures were systematically more procyclical than other expenditures over the 2005 to 2010 period. One implication of this conclusion is that (within federations) political networks between politicians and producer groups may be more prevalent at *federal government*. A further prediction (for further

research) is that, in federations, producer groups are more likely to focus on networks with politicians at federal government than on networks with politicians at sub-central government.<sup>18</sup>

Turning to the final conclusion, political networks *are* relevant (in federations) when explaining the likelihood of procyclical spending across state government jurisdictions. The coincidence of political-party control of the office of state legislature and the office of state governor increases the likelihood that local politicians will feel that their party is secure enough electorally to accommodate pressures exerted by rent-seeking lobby groups.

It is important to emphasise that, while each of these conclusions is important in its own right, collectively they shed insight into a distinct pattern of cyclical transfers and expenditures in federations, when local politicians compete for discretionary transfers. Lane (2003) suggested that political pressures from state and provincial governments might be relevant when exploring the likelihood of procyclical government expenditure in a federation. The over-arching conclusion in this paper is that the ‘distribution of fiscal power’ across fiscal tiers exerts a systematic influence on state governments’ propensity to spend procyclically.

## **Endnotes**

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**Table 1. Growth in discretionary federal transfers and the output gap**

<b>Year</b>	<b>Percentage Output gap</b>	<b>Percentage growth in discretionary transfers</b>	<b>Percentage growth in government consumption</b>
2005	-0.14	8.04	0.04
2006	2.44	7.91	0.003
2007	3.20	-2.16	0.03
2008	1.98	18.06	0.01
2009	-4.75	-11.19	0.03
2010	-2.10	8.82	0.02
	<b>Correlation with output gap</b>	0.503	-0.434

Source: Estadísticas de las Finanzas Públicas Estatales y Municipales, Instituto Nacional de Estadística y Geografía (INEGI) and OECD Economic Outlook.

**Table 2. Composition of total spending and income (2005-2010)**

	<b>Mean</b>	<b>Standard Deviation</b>			<b>Minimum</b>	<b>Maximum</b>
		<b>Overall</b>	<b>Between</b>	<b>Within</b>		
<b>Total Spending (%)</b>						
Current expenditure	23.14	13.00	12.70	3.493	4.78	53.41
Human resources	19.59	12.33	12.08	3.20	3.52	49.88
Current expenditure excluding human resources	3.55	1.46	1.30	0.70	0	7.78
Capital spending	10.61	5.78	4.63	3.54	1.25	38.89

Subsidies, helps and transfers	44.80	12.90	12.18	4.69	12.85	67.95
Municipal transfers	15.03	2.10	1.86	1.01	7.53	20.25
Other expenditure	6.42	4.93	3.54	3.47	0.05	23.82
<b>Total Revenue (%)</b>						
Own income	6.98	3.17	2.93	1.30	2.23	16.77
Federal transfers	85.89	7.02	5.27	4.73	50.19	96.33
Discretionary federal transfers	32.92	5.49	4.82	2.77	18.01	51.87
Non-discretionary federal transfers	52.97	7.93	7.25	3.43	29.03	71.70
Other income	7.13	6.51	4.07	5.12	0	45.37

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Source: Estadísticas de las Finanzas Públicas Estatales y Municipales, Instituto Nacional de Estadística y Geografía (INEGI).



**Table 3: Summary statistics for the percentage of states own revenues in total revenues (2005-2010)**

	Percentage value
Mean	6.99
Standard deviation:	
overall	3.17
between	2.93
Within	1.30
Minimum	2.23
Maximum	16.77

Source: Estadísticas de las Finanzas Públicas Estatales y Municipales, Instituto Nacional de Estadística y Geografía (INEGI).

**Table 4: correlation of the proportion of own revenue with state GDP and population (2005-2010)**

	Proportion own revenue	State GDP	State Population
Proportion own revenue	1		
State GDP	0.229*	1	
State Population	0.085	0.304*	1

Notes: \* indicates significance at the 5% level

**Table 5: Cyclical sensitivity of state spending**Estimated equation:  $\Delta g_{it} = \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \varepsilon_{it}$ 

	Total spending	Capital Spending	Government consumption				
			All components	Human Resources	Subsidies, assistance & transfers	Municipal transfers	Other expenditure
$\Delta g_{it-1}$	-0.413*** (-5.25)	0.075 (0.85)	-0.233 (-1.32)	-0.212 (-1.18)	-0.263*** (-3.08)	-0.335*** (-3.24)	0.125 (0.85)
$\Delta y_{it}$	0.220** (2.02)	0.328 (0.68)	0.333** (2.01)	0.242 (0.95)	0.282 (1.32)	0.318* (2.15)	-1.577 (-0.94)
$\Delta y_{it-1}$	0.211 (1.32)	-0.298 (-0.39)	0.284 (0.58)	0.451 (0.92)	-0.179 (-0.49)	0.207 (1.16)	-4.419*** (-2.68)
$g_{it-1}$	-0.009*** (-3.08)	-0.048** (-6.71)	-0.035*** (-3.36)	-0.042*** (-3.76)	-0.018*** (-3.35)	-0.005 (-1.61)	-0.074*** (-7.27)
$y_{it-1}$	0.0005 (0.22)	0.045* (2.43)	-0.002 (-0.14)	-0.011 (-0.54)	0.008 (0.75)	0.013* (3.39)	0.106** (2.07)

N×T	186	186	186	186	186	186	186
N	31	31	31	31	31	31	31
$\bar{T}$	6	6	6	6	6	6	6
No. of instruments	16	16	16	16	16	16	16
SC(1)	0.00	0.00	0.21	0.24	0.05	0.00	0.09
SC(2)	0.09	0.16	0.94	0.92	0.88	0.41	0.71
SC(4)	0.13	0.59	0.54	0.42	0.01	0.25	0.67
Hansen test of over id. rest $\chi^2(10)$	0.02	0.03	0.21	0.19	0.11	0.002	0.21
Wald $\chi^2(5)$	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Notes: Estimates of (1) derived using the SYS-GMM dynamic panel data estimator of Blundell and Bond (1998) (t-ratios from robust standard errors are shown in parentheses. \* indicates significance at the 10% level; \*\* indicates significance at the 5% level, and \*\*\* indicates significance at the 1% level.). The number of instruments displayed refers to the number of lagged values of the regressors (in level and first difference form) that are used as instruments for the explanatory variables. US output growth is included as an additional instrument. SC denotes the tests for serial correlation at 1<sup>st</sup>, 2<sup>nd</sup> and 4<sup>th</sup> order. The autocorrelation tests are for zero autocorrelation in first-differenced errors. The Hansen test of over-identifying restrictions is reported, which is robust to heteroskedasticity or autocorrelation. P-values of the diagnostic test are reported. Data sources: Estadísticas de las Finanzas Públicas Estatales y Municipales, Instituto Nacional de Estadística y Geografía (INEGI).

**Table 6: Cyclical sensitivity of state revenue**Estimated equation:  $\Delta\tau_{it} = \phi\Delta\tau_{it-1} + \beta_1\Delta y_{it} + \beta_2\Delta y_{it-1} + \pi_1\tau_{it-1} + \pi_2y_{it-1} + \varepsilon_{it}$ 

	Own income	Discretionary Transfers	Non-discretionary Transfers	Other income
$\Delta\tau_{it-1}$	-0.263** (-2.48)	-0.712*** (-7.46)	-0.469*** (-3.35)	-0.073 (-0.68)
$\Delta y_{it}$	1.101*** (4.04)	0.380** (2.64)	-0.282 (-1.35)	0.984 (0.65)
$\Delta y_{it-1}$	0.008 (0.02)	0.685*** (6.95)	0.047 (0.39)	-3.895** (-2.11)
$\tau_{it-1}$	-0.032*** (-3.52)	-0.007** (-2.45)	-0.003 (-1.07)	-0.074*** (-9.88)
$y_{it-1}$	0.038*** (2.98)	0.006 (1.40)	0.004 (1.93)	-0.031 (-0.46)
N×T	186	186	186	186
N	31	31	31	31
$\bar{T}$	6	6	6	6
No. of instruments	16	16	16	16
SC(1)	0.001	0.00	0.01	0.04
SC(2)	0.02	0.13	0.03	0.95
SC(4)	0.96	0.85	0.33	0.44
Hansen test of over id. rest $\chi^2(10)$	0.09	0.005	0.05	0.19

Wald $\chi^2(5)$	0.00	0.00	0.00	0.00
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Notes: see table 5

**Table 7: Cyclicity of total government spending across the regions**

Estimated equation:  $\Delta g_{it} = \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \varepsilon_{it}$

	Mexico	Region			
		Border	North	Centre	South
$\Delta g_{it-1}$	-0.413*** (-5.25)	-0.607* (-8.18)	-0.310** (-2.76)	-0.472*** (-4.95)	-0.445*** (-3.67)
$\Delta y_{it}$	0.220** (2.02)	0.072 (0.31)	0.102 (0.48)	-0.042 (-0.28)	0.345** (2.87)
$\Delta y_{it-1}$	0.211 (1.32)	-0.518** (-2.38)	0.160 (0.54)	0.190 (0.67)	0.182* (1.87)
$g_{it-1}$	-0.009*** (-3.08)	-0.006* (-1.86)	-0.006** (-2.27)	-0.009** (-2.30)	-0.004 (-1.19)
$y_{it-1}$	0.0005 (0.22)	0.001 (0.28)	0.005** (2.00)	0.004 (1.10)	-0.004* (-1.69)
N×T	186	36	42	60	42
N	31	6	7	11	7
$\bar{T}$	6	6	6	6	6
No. of instruments	16	16	16	16	16
SC(1)	0.00	0.04	0.03	0.02	0.05
SC(2)	0.09	0.83	0.94	0.52	0.05
SC(4)	0.13	0.07	0.06	0.21	0.53
Hansen test of over id. rest $\chi^2(10)$	0.02	1.00	0.89	0.61	0.99

Wald $\chi^2(5)$	0.00	0.00	0.00	0.00	0.00
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Notes: see table 5. Classification of Mexican states (from Chiquiar (2005)): *Border* - states that are contiguous to the US-Mexico border (specifically Baja California; Chihuahua; Coahuila de Zaragoza; Nuevo León; Sonora; Tamaulipas); *North* - states are in between the border and centre region (specifically Aguascalientes; Baja California Sur; Durango; Nayarit; San Luis Potosí; Sinaloa; Zacatecas); *Centre* – the states surrounding Mexico City (Colima; Guanajuato; Hidalgo; Jalisco; México; Michoacán de Ocampo; Morelos; Puebla; Querétaro; Tlaxcala; Veracruz de Ignacio de la Llave); *South* –Campeche; Chiapas; Guerrero; Oaxaca; Quintana Roo; Tabasco; Yucatán.

**Table 8: Extended cyclical equation for total state spending**

Estimated equation: 
$$\Delta g_{it} = \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \beta_3 \Delta tr_{it} + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \pi_3 tr_{it-1} + \varepsilon_{it}$$

	Total spending
$\Delta g_{it-1}$	-0.224 (-1.28)
$\Delta y_{it}$	0.079 (0.63)
$\Delta y_{it-1}$	0.047 (0.31)
$\Delta tr_{it}$	0.513*** (6.56)
$\Delta tr_{it-1}$	0.100 (0.49)
$g_{it-1}$	-0.032** (-2.91)
$y_{it-1}$	-0.031** (-2.62)
$tr_{it-1}$	0.038*** (3.13)
N×T	186
N	31
$\bar{T}$	6
No. of instruments	19
SC(1)	0.02
SC(2)	0.33



SC(4)	0.46
Hansen test of over id. rest $\chi^2(10)$	0.04
Wald $\chi^2(8)$	0.00

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Notes: see table 5.

**Table 9: Sources of procyclical expenditure**

Estimated equation:  $\Delta g_{it} = \phi \Delta g_{it-1} + \beta_1 \Delta y_{it} + \beta_2 \Delta y_{it-1} + \varphi_1 PC_{it} + \varphi_2 PC_{it-1} + \delta_1 (PC \times \Delta y)_{it} + \delta_2 (PC \times \Delta y)_{it-1} + \pi_1 g_{it-1} + \pi_2 y_{it-1} + \varepsilon_{it}$

	Coincidence of						
	State governor and federal presidency	State legislature and federal presidency	State governor and state legislature	State governor and federal lower chamber	State governor and federal upper chamber	State legislature and federal lower chamber	State legislature and federal upper chamber
$\Delta g_{it-1}$	-0.449*** (-5.33)	-0.419*** (-4.87)	-0.433*** (-5.09)	-0.449*** (-5.34)	-0.442*** (-4.88)	-0.421*** (-5.05)	-0.405*** (-4.49)
$\Delta y_{it}$	0.337*** (3.02)	0.294** (2.57)	-0.501** (-2.08)	0.183 (1.85)	0.160 (1.51)	0.182 (1.63)	0.120 (1.02)
$\Delta y_{it-1}$	0.229 (1.50)	0.232 (1.39)	-0.105 (0.31)	-0.047 (-0.28)	-0.055 (-0.36)	0.050 (0.29)	-0.011 (-0.07)
$PC_{it}$	-0.001 (-0.67)	-0.001 (-1.03)	0.001 (1.54)	-0.0009 (-1.57)	-0.0007 (-0.85)	-0.002** (-2.66)	-0.0008 (-0.85)
$PC_{it-1}$	0.0009 (0.40)	0.002 (1.82)	-0.0002 (-0.15)	0.0007 (0.67)	0.0006 (0.61)	0.0002 (0.25)	0.0003 (0.31)

$(PC \times \Delta y)_{it}$	-0.592***	-0.433	0.787***	0.018	0.059	0.136	0.268
	(-2.60)	(-1.69)	(3.24)	(0.09)	(0.35)	(0.67)	(1.64)
$(PC \times \Delta y)_{it-1}$	0.110	0.010	0.121	0.624***	0.608***	0.512**	0.562**
	(0.35)	(0.03)	(0.45)	(4.15)	(3.39)	(2.95)	(2.81)
$g_{it-1}$	-0.009***	-0.010***	-0.009***	-0.009***	-0.010***	-0.010***	-0.011***
	(-3.14)	(-3.23)	(-3.00)	(-3.15)	(-3.19)	(-3.26)	(-3.22)
$\bar{y}_{it-1}$	-0.0003	-0.0001	0.0002	0.002	0.002	0.002	0.003
	(-0.11)	(-0.04)	(0.09)	(0.85)	(0.87)	(1.14)	(1.26)
N×T	186	186	186	186	186	186	186
N	31	31	31	31	31	31	31
$\bar{T}$	6	6	6	6	6	6	6
No. of instruments	20	20	20	20	20	20	20
SC(1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SC(2)	0.26	0.12	0.12	0.22	0.22	0.20	0.18
SC(4)	0.16	0.07	0.25	0.09	0.10	0.13	0.06

Joint significance: $\Delta y_{it}$ and $(PC \times \Delta y)_{it}$	0.004	0.03	0.00	0.13	0.21	0.10	0.05
Joint significance: $\Delta y_{it-1}$ and $(PC \times \Delta y)_{it-1}$	0.32	0.34	0.26	0.00	0.00	0.01	0.02
Hansen: test of over id. rest $\chi^2(10)$	0.02	0.02	0.02	0.02	0.00	0.01	0.01
Wald $\chi^2(9)$	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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Notes: see table 5

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<sup>1</sup> Hennisz's index is based on the number of veto points in the process of decision-making and on the distribution of differences in preferences for government spending. The first step in compiling the index is to count the number of veto points over policies in branches of government. Voracity effects are likely to be less relevant as this number increases. The index also considers differences in group preferences but voracity effects are likely to more relevant as these increase.

<sup>2</sup> Sub-central governments are free to spend discretionary transfers as they wish. In some cases the intention is to rely on pre-defined formulae to allocate discretionary transfers, but in practice the allocation of discretionary transfers depends on pressure exerted at the lower chamber of federal government (from the *Cámara de Diputados* ).

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<sup>3</sup> In 2005, intergovernmental transfers were 23% of total government expenditure in Mexico while, on average, they were only 13% of total government expenditure in the OECD (Blöchliger and Vammalle, 2009).

<sup>4</sup> Local politicians must respond to political pressures for increase spending from: local bureaucrats (Niskanen, 1971; Romer and Rosenthal, 1980); local interest groups (Dougan and Kenyon, 1988); and local voters (Oates, 1979).

<sup>5</sup> While this outcome is to be expected when intergovernmental transfers take the form of matching grants, it is a surprise when intergovernmental transfers take the form of lump sum, unconditional grants.

<sup>6</sup> Some critics argue that they do not observe flypaper effects and others argue that if there is a ‘flypaper effect’, it is not obvious that this is caused by failings in political processes. Cullis and Jones (2009) review this literature. Here the argument is simply that, in the presence of a (well-documented) flypaper effect, the flypaper effect increases the tendency for procyclical sub-central government expenditures.

<sup>7</sup> While fiscal responsibilities for the provision of local public goods are devolved to sub-central government, central governments retain responsibility for macroeconomic stabilization (because central government actions are more productive). Sub-central government spending is less effective. If sub-central governments were to rely on deficit spending they would be forced to compete with one another (for example by paying higher interest rates to attract loanable funds). If one local jurisdiction attempted to reduce local unemployment it would have very little success because (with open trade between jurisdictions) the multiplier is very low.

<sup>8</sup> They must reduce spending if intergovernmental transfers do not increase in a recession.

<sup>9</sup> It is important to note that producers are also likely to press governments to increase current expenditure and to increase capital expenditure (because an increase in current government expenditure is likely to increase demand for their services). The argument is about the extent to which producers and consumers are likely to press for increases in capital expenditures. Producers are more likely to press for increases in capital expenditures than voters.

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<sup>10</sup> Anderson and Tollison (1991) and Crouch and Shugart (1998) focused on the *New Deal* to report a positive correlation between Roosevelt's share of votes in US states and spending at the state level.

<sup>11</sup> The number of municipalities varies in size across the states, from a minimum of 5 (for the state of Baja California) to 571 (Oaxaca).

<sup>12</sup> Based on the biographies provided on the *Cámara de Diputados* website ([www.diputados.gob.mx](http://www.diputados.gob.mx)) about each legislature member, we find that 39% of the deputies (194 out of 500) were at some point members of their respective local state legislature, 72% of them within the last 6 years. Additionally, 34 of the 500 were Senators. While 84 have been members of the lower chamber at least twice.

<sup>13</sup> Further analysis (not reported) suggested evidence of procyclicality for both upturns and downturns.

<sup>14</sup> A flypaper effect will increase the impact that procyclical transfers exert on the procyclicality of state government expenditures. The impact will also depend on the importance of this revenue source. In Mexico, discretionary federal transfers are a third of all revenue sources and not all revenue sources are procyclical. The results in table 8 are consistent with the prediction that procyclical discretionary federal transfer will exert a greater influence on the cyclicity of state government expenditures the more that state governments rely on discretionary federal transfers as a source of revenue.

<sup>15</sup> Electoral results at local—state—level can be accessed on each state's Electoral Institute (*Instituto Estatal Electoral*) which is the institutional body in charge of organizing all local elections. At national level, the *Instituto Federal Electoral* ([www.ife.gob.mx](http://www.ife.gob.mx)) is the one responsible for organizing, regulating and counting the elections for President and both Legislative chambers. All data can be accessed from: <http://www.eleccionesenmexico.org.mx>

<sup>16</sup> Further analysis, available from the authors upon request, suggests discretionary federal transfers are procyclical with respect to the output gap of national GDP.

<sup>17</sup> The advantage of focussing on a case study is that it is possible to highlight the areas that are to be explored but, of course, we freely acknowledge that this is just one case study.

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<sup>18</sup> The *Economist* (24 November, 2012) suggests that, as politicians in Mexico are unable to retain office in a consecutive year, they are concerned about their future employment opportunities when they receive representations from business lobby groups.