Collegio Carlo Alberto

Do Leaders Affect Government Spending Priorities?

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Do Leaders Affect Government Spending Priorities?*

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This version: February 24, 2010

Since a key function of competitive elections is to allow voters to express their policy preferences, one might take it for granted that when leadership changes, policy change follows. Using a dataset we created on the composition of central government expenditures in a panel of 71 democracies over 1972-2003, we test whether changes in leadership induce significant changes in one measure of policy - spending composition - as well as looking at the effect of other political and economic variables. We find that the replacement of a leader tends to have no significant effect on expenditure composition in the short-run. This remains true after controlling for a host of political and economic variables. However, over the medium-term leadership changes are associated with larger changes in expenditure composition, mostly in developed countries. We also find that in established democracies, election years are associated with larger changes in expenditure composition while new democracies, which were found by Brender and Drazen (2005) to raise their overall level of expenditures in election years, tend not to have such changes.

1. Introduction

A central function of competitive elections is to allow voters to express their policy preferences. One might therefore expect that when elections result in leadership changes, policy change follows. But, does it? And if so, how quickly?

In this paper we examine this question by looking at how the composition of government spending responds to political variables such as changes in leadership or elections. There are many other aspects of policy, and we make no claim that our results easily generalize to other measures of policy. But expenditure composition is clearly an important aspect of government policy – candidates and parties differentiate themselves by how they would prioritize expenditures if elected, and many campaign issues are related to expenditure composition. Hence, it is worthwhile examining expenditure composition in and of itself, to see whether elections and leadership changes matter at all for expenditure allocation. Moreover, changes in the composition of government spending may well be representative of policy change in general.

Whether leadership changes result in changes in the composition of government expenditure is an empirical question that cannot be determined by theory alone. (See section 3 below.) Though anecdotal evidence may be used to support a position in one direction or the other, it is no substitute for formal empirical evidence. However, as we discuss below, the evidence on this question is scarce and mixed. As far as we know, it only covers OECD countries.

The question of whether leadership change results in changes in the composition of expenditure really has two parts: do elected leaders want to change the composition of spending, as they state in their campaigns?; and, can they do so if they in fact want to? We do not distinguish between the two here, but simply ask whether in fact leadership changes induce changes in the composition of spending. To study the effect of this and other political variables on expenditure composition, we compiled data for a panel of 71 democracies[1] over 1972-2003 and constructed an index of changes in the composition of central government expenditures based on these data. We find several economic and political variables that are associated with expenditure changes but that the replacement of a leader has ***no*** statistically significant effect on expenditure composition in the first two years relative to a leader not having been replaced. In

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[1] Given our interest in elections, we focus on democracies. Constraints on and motivations of leaders in dictatorships are different, and we think the subject of a different paper.

contrast, leadership changes do result in greater composition change over a four-year period, predominantly in developed countries. We further find that in established democracies (but not in new democracies) election years are associated with larger changes in expenditure composition than other years. This may be seen as the flip side of our earlier results (Brender and Drazen, 2005, 2008) that election-year changes in the *level* of expenditures and of deficits characterize new democracies but not established democracies, where they are generally punished.

The plan of the paper is as follows. In the next section we consider existing empirical studies of the relation between ideology and expenditure composition, related to our interest in the effect of leadership change on changes in budget composition. In section 3 we argue that economic theory gives no clear answer as to whether changes in leadership will result in changes in expenditure composition, so that the question is an empirical one. In section 4 we set out our empirical methodology, followed by our empirical results on the effect of leader characteristics on expenditure composition in the short-run in section 5. In section 6, we look at longer-run relationships, where we do find an effect of leadership change on changes in expenditure composition. Section 7 considers election-year effects, where we see that in established democracies, but not in new ones, election years are associated with larger changes in expenditure composition than non-election years. In the final section we summarize our findings and present conclusions. An appendix provides detailed information about the derivation of our variables.

2. Existing Empirical Studies

2.1 Leadership changes

What is the evidence on the relation between changes in leadership and subsequent changes in expenditure composition?[2] The literature that exists has largely focused on a related question, the relation between ideology and expenditure composition.[3] Budge and Hofferbert (1990) examine the relation between U.S. party programs and federal government expenditures, where

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[2] We mean expenditure composition across detailed rather than broad categories. Persson and Tabellini (2004) consider the effect of electoral rules and forms of government on the ratio of central government social security and welfare compared to other government outlays. In section 5.3 below we report on the effect of government and electoral rules on how detailed composition of government spending changes over time.

[3] An exception is Chattopadhyay and Duflo (2004) who find significant leader gender effects in village councils in India.

they argue that a party is bound (both morally and by fears of retribution at the next election) to carry through the program on which it has been elected (p. 111). Using an analysis of what the party emphasizes in its platform to construct a numerical measure of a party's policy in a given area,[4] they conclude that there is significant evidence that parties do enact policies on which they are elected. King, et al. (1993) argue however that their strong results arise from a failure to correct for autocorrelation and exhibit Granger-Newbold spurious correlation. Once a correction is made, King, et al. argue that the Budge-Hofferbert data do not support their assertions of a strong relation between platforms and policy outcomes, and that the lack of relation reflects the fact that American parties are more diffuse, porous, and less programmatic than those in most other countries (p. 744). The bottom line for the U.S. is that budgets' allocations almost always change incrementally (p.747).

Tsebelis and Chang (2004) argue that in a sample of 19 OECD countries[5] over 1973-95, changes in government composition do affect budget composition. They consider the average budget distance over 9 categories with a similar measure to ours below[6] and relate it to measures of the ideological distance between parties in the government as well as the alternation of ideological position from one government to the next. They find that the change in the budget composition is related negatively to the ideological distance between parties in the current government and positively to the ideological differences between the current government and the previous year's governments. As they put it, the budgetary structure tends to lock itself into the existing pattern in political systems with ideologically distant veto players; in contrast, the budgetary structure tends to be more flexible in political systems with ideologically similar veto players. (p. 470)

Bräuninger (2005) considers the ratio of social security expenditure to the aggregate expenditure on social security and economic affairs. He finds that higher weight on social welfare spending in a party's policy manifestos does lead to a significant increase in social security spending. A change in the position of the median legislator has an effect in the correct direction, but is less significant statistically. A change in the ideological composition of the

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[4] Specifically, following Budge, Robertson, and Hearl (1987), they take the percent of sentences in the ruling parties' platform related to each expenditure category.
[5] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, and United Kingdom.

legislature towards more left-wing parties had no statistically significant effect on social spending.

All these papers consider the relation between aspects of a government's ideology and the composition of expenditure, which is clearly related to the issues we are considering. However, none of them looks specifically at a change in leadership *per se* and how it affects the composition of spending. Additionally, these papers do not examine changes in expenditure composition in the medium-term.

The paper that is probably most closely related to ours is Jones and Olken (2005), who consider how deaths of leaders while in office are associated with economic performance and government policy. They find that such plausibly exogenous leadership transitions matter for growth of real GDP per capita in a country and are strongest in non-democracies, where they argue that there are fewer constraints on a leader's power. More relevant for our question, they also look at changes in the growth rate of government expenditure following a leadership change. The results they present show no significant effect of a leader's death on expenditure growth (though they mention that alternative tests do show an effect). They conclude that there is no strong evidence of fiscal policy effects. Our results may be seen as pushing this further, since we consider not only replacement due to death, but also replacement in elections, where it is more likely to find policy changes – and we still find no short-term effect.

2.2 Election-year effects

There has been a significant amount of work on the effect of elections on *aggregate* fiscal variables (political budget cycles) at the national level. In Brender and Drazen (2005), where much of the literature is summarized, we found that the existence of a political deficit cycle identified in many studies is driven by the experience of new democracies[7]: the strong political budget cycle in these countries accounts for the finding of a budget cycle in larger samples that include these countries and disappears when these countries are removed from larger samples. That is, increased deficits and expenditures in election years are a phenomenon of new democracies and are not statistically significant in developed countries or established

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[6] They use Euclidean distance $\Delta E_{it} = \left(\left(E_{it,1} - E_{it-1,1} \right)^2 + \ldots + \left(E_{it,9} - E_{it-1,9} \right)^2 \right)^{\frac{1}{2}}$ rather than absolute value as we do.

[7] These are countries that became democracies after 1960 (when our sample in that paper started) with the country being classified as a new democracy in the years up to (and including) the fourth election after the transition to democracy.

democracies as a group. The findings in Brender and Drazen (2008) suggest why this may be the case – election-year deficits or increases in overall expenditure significantly decrease the probability of reelection in established democracies and developed countries as a group, but have no statistically significant effect in developing countries or new democracies in either direction. Hence, election-year deficits and expenditure increases may not be observed in established democracies because they are not an effective election-year tool.

Election-year effects on the *composition* of spending have been investigated primarily at the sub-national level (see Drazen and Eslava [2009] for a summary and empirical study of Colombia), with a number of papers finding that in specific countries at the sub-national level, investment or infrastructure spending rises in election years relative to other categories of spending.[8] (Drazen and Eslava (2009) find further that this composition shift increases an incumbent's reelection probabilities.) Vergne (2009) looks at composition of expenditure at the national level in a sample of developing countries and finds that, in contrast to the studies just mentioned, the share of current (rather than capital) expenditure tends to rise in election years. To the best of our knowledge, there is *no* other large panel study of election-year effects on the composition of government expenditure at the central government level and none at all including developed countries.

3. The Effect of Leadership in Theory

The choices of optimizing agents should reflect their preferences. The same should apply to government leaders (as, e.g., is central to the predictions of citizen-candidate models of Osborne and Slivinski [1996] and Besley and Coate [1997]). Hence, basic theory would lead one to expect that a change in the policy preferences of a policymaker would be reflected in changes in the actual composition of expenditures. Accordingly, a change in the political party controlling the executive or legislative branch of government would be thought to lead to a change in the

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[8] Kneebone and McKenzie (2001) find no evidence of a political cycle in aggregate spending for Canadian provinces, but do find a cycle in what they call visible expenditures, mostly investment expenditures such as construction of roads and structures. For Mexico, Gonzalez (2002) finds similarly that investment expenditure expands prior to elections, while some other categories of spending, such as current transfers, contract. Brender (2003) finds that voters in local elections in Israel reward high expenditure in development projects - controlling for the size of the deficit - in the year previous to an election. Similarly, Khemani (2004) finds that Indian states spend more on public investment before scheduled elections than in other times, while they contract current spending,

composition of spending. Even without a change in party, new leaders come in with their own spending priorities and would likely change the composition of spending.

However, there are several, not mutually exclusive, reasons why leadership change might not lead to rapid policy change. First, policy changes take time. Much government expenditure is mandated by law (such as entitlements) or by past government decisions and can be changed only gradually. Lags in the budget approval process imply that expenditure composition – or at least its broad outlines – in the early part of a new leader's term are determined before he or she takes office.[9] Even when there are no legal constraints in changing policy, new officeholders may face a learning curve in how to achieve their aims. This suggests that leadership changes would induce changes in expenditure composition, but with a lag, a possibility we investigate empirically.

Second, the need to get elected means that leaders may need to commit, at least partially, to policies that reflect median-voter preferences, so that differences in enacted policies may be smaller than underlying ideological differences between leaders may suggest. The basic Downsian model of purely office-motivated candidates who can commit to policy platforms implies that under certain conditions the policy platforms of both candidates in a two-candidate race will converge to the policy preferred by the median voter. Though the predictions of the simple Downsian model are considered often unrealistic, other models may also yield analogous results. (For example, the citizen-candidate model implies that if there is a policy that is a Condorcet winner, the candidate who would implement this policy is the one elected.) The main point is that if policy preferences of the electorate are fairly stable over time, the policy enacted by elected leaders will be similarly stable, though the leader's identity may change.

Third, an elected leader is not a unitary policymaker. In making policy, she must work with other political actors – legislators, special interest groups, and the existing bureaucracy – whose identities and interests do not necessarily change when a new leader is elected (Bräuninger, 2002). The composition of the legislature often shows relatively little change from election to

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leaving the overall balance unchanged. Drazen and Eslava (2009) find a similar increase in infrastructure spending in Colombian municipal elections in election years, but no increase in aggregate spending.
[9] Tsebelis and Chang (2004) focus on short-term changes because they argue that in OECD countries new governments *can* change the expenditure composition, as there are numerous ways in many of these countries to alter the existing budget. In contrast, the country chapters in Hallerberg et al. (2009) highlight the formal and informal rigidities that limit leaders' ability to change the budget composition.

election. The bureaucracy below the top rungs shows similar inertia. And, new leaders must bargain with entrenched special interests lobbying for the same issues they did with the previous political leadership, where being new on the job may imply relatively low bargaining power. (See Drazen and Limão [2008] where bargaining power with special interest groups may vary over policymakers.) Hence, to the extent that some powerful political actors remain in place when leaders are changed, policy may appear to have significant inertia.

Conceptually, one may argue that there is a price to pay to change expenditure composition (which may be close to infinite on some issues at some points) which must be weighed against the gain. More precisely, the questions of whether a new leader wants to change expenditure and whether she is able to effect a change can be subsumed in the question: When does the benefit to the leader of changing expenditures exceed the cost she faces to do so? These costs may be quite high for a new leader except in special circumstances (such as Franklin Roosevelt's First "Hundred Days" after taking office in 1933). Leaders gain experience over time in how to achieve what they want. Moreover, as in the general theory of investment, rapid change may be especially costly, giving another reason why change may be observed only after some time in office.

The value of holding office is one very tangible benefit to incumbents. Alesina et al. (1997 suggest that "certain more visible and politically sensible programs may be more easily and productively manipulated than others," and several models (Rogoff, 1990, Drazen and Eslava, 2008, 2009) consider how incumbents may try to increase their probability of reelection by changing the composition of expenditure. This would be consistent with the desire to target some groups of voters before elections without increasing overall spending or deficits. These models assume that the incumbent running for reelection has complete control over fiscal policy, while the above discussion suggests changing policy may be difficult or costly.

Significant change in election years may reflect several factors. Experience may reduce the cost of effecting change, while the electoral motive may imply a large perceived payoff. Moreover, shifting expenditures may be less visible than deficits and may also be perceived by voters as more sustainable, implying a lower political cost. In any country and period, the direction of change may be different, depending on the perception of current needs and voter distribution (e.g., who the median voter is and what dimensions are priorities in each particular

case); this is why we look at a general index of change, which is independent of direction.

The bottom line is that theory makes no unambiguous prediction about how much expenditure composition will change, if it changes at all, when a new leader takes office. This is true even if the new leader prefers an expenditure composition different than the status quo. Hence, the effect of leadership changes on expenditure composition becomes an empirical question.

4. Description of Methodology

4.1 Basic Sample

Our sample consists of 71 democracies (as described in Appendix I) over the period 1972-2003 for which we have data on the breakdown of central government expenditure. One reason that expenditure composition is not more studied is no doubt the problem of data availability, where detailed breakdown of expenditure into more than a few categories requires substantial work if one is to consider a broad set of countries over a long period. Hence, our first methodological step was simply creating such a data set.

In constructing our indices of composition, we used two different breakdowns of expenditures, one using 9 categories of expenditures, the other using 12 categories, as detailed in the appendix. The 12-category breakdown has the advantage of allowing a more refined examination of changes but it comes with a cost of reducing the sample size. The effect of the availability of data for the various categories on the sample size is reported in Table 1. As we move from a one-year to a four-year window (see the next paragraph) the number of available observations falls, with developed countries and established democracies forming a greater proportion of the sample relative to less-developed countries and new democracies. (These are related, as most new democracies are less-developed countries). This has implications also for other categories – for example, most countries with a Presidential system are less developed.

4.2 Construction of Index

Our index is constructed as follows. Let $i=$ country; $j=$ expenditure category; $t=$ date. We therefore have a vector of expenditure shares $e_{j,i,t}$ in country i at t for j different categories of expenditure (where $e_{j,i,t}$ is between 0 and 100 so that $\sum_{j=1}^{j=J} e_{j,i,t} = 100$). An index of the change in composition of expenditure in country i between year t and year t-1 is then

$$I_{i,t}(1) = \frac{\sum_{j=1}^{j=J} \left| e_{j,i,t} - e_{j,i,t-1} \right|}{2}$$

The data may also be used to construct an index of change over a period longer than one year by replacing $e_{j,i,t-1}$ with the change over the n previous years, that is, with $e_{j,i,t-s}$, so that the index becomes:

$$I_{i,t}(n) = \frac{\sum_{j=1}^{j=J} \left| e_{j,i,t} - e_{j,i,t-s} \right|}{2}$$

which includes the previous equation when $n=1$. This index goes from 0 (in the case of no change in the share of expenditure in any category) to 100 (in the case of one category going from none to the entire expenditure in year t relative to the earlier year or years and another going from all to none). The index measures the change from any category to another, taking no stand on the direction of the change.[10] The means and standard deviations of the index for different country categories and horizons are shown in Table A-3 in the data appendix.

Table 1: Sample Composition According to Country Characteristics[1]

	9 Expenditure Categories			12 Expenditure Categories		
Observations	1 year	2 years	4 years	1 year	2 years	4 years
Total	**1010**	**912**	**705**	**867**	**779**	**603**
Developed	551	510	423	455	427	362
Undeveloped	459	402	282	412	352	241
New Democracies	322	273	164	277	227	132
Established Democracies	688	639	541	590	552	471
Presidential	317	278	196	278	237	163
Parliamentary	693	634	509	589	542	440
Majoritarian	212	186	147	207	181	144
Proportional	798	726	558	660	598	459

[1] For definitions of the country categories see the data appendix.

4.3 Measuring Political Effects

Leadership changes

Changes in the leadership of a country are examined using data from *World Political Leaders 1945-2008* and from *World Statesmen*. In countries with a presidential system we focus on changes of presidency; in parliamentary ones on the prime minister (see the data appendix for

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[10] Unlike the Euclidean index used by Tsebelis and Chang (2004), this measure does not give a larger weight to larger changes in the shares of specific categories. See footnote 5.

details). For each country in each year we check whether the head of state at the end of the fiscal year is the same as at the beginning of the year and distinguish between whether the leader was replaced in an election year or not. (In countries with a presidential system, we look at presidential elections; in parliamentary systems we look at parliamentary elections.) The distribution of our sample according to these criteria is reported in Table 2. In our largest sample – of expenditure composition changes over one year and using 9 expenditure categories – we have 254 observations in which the leader was replaced. Of those the leader was replaced in an elections year in 152 cases. When we move to observations for which we have data on the 12 expenditure categories the number of leader replacements falls (along with the sample size) to 210, of which 131 were replaced in election years.

Table 2: Leadership Changes by Type of Change and Political Orientation [1]

	9 Expenditure Categories					
	1 year	*in EY[2]*	**2 years**	*in EY[2]*	**4 years**	*in EY[2]*
Replaced Leader	**254**	*152*	**230**	*138*	**178**	*110*
No change in alignment	151	*73*	134	*64*	100	*50*
Change from Left to All	33	*26*	32	*25*	25	*20*
of which to Right	26	*22*	25	*21*	20	*17*
Change from Right to All	42	*35*	38	*32*	33	*27*
of which to Left	28	*24*	26	*22*	21	*17*
Change from Center or Undefined to all	28	*18*	26	*17*	20	*13*

	12 Expenditure Categories					
	1 year	*in EY[2]*	**2 years**	*in EY[2]*	**4 years**	*in EY[2]*
Replaced Leader	**210**	*131*	**188**	*118*	**144**	*95*
No change in alignment	118	*60*	104	*53*	74	*41*
Change from Left to All	29	*24*	27	*22*	25	*20*
of which to Right	23	*20*	21	*18*	20	*17*
Change from Right to All	38	*32*	34	*29*	29	*24*
of which to Left	26	*23*	24	*21*	19	*16*
Change from Center or Undefined to all	25	*15*	23	*14*	16	*10*

[1]Relating to a change in the base year, e.g., in the 2 years category we report whether there had been a leadership change in t-2.
[2] EY stands for election year.

We also examine whether leadership changes were associated with a change in the leader's political alignment. Using data predominantly from the World Bank's DPI we classify all the leaders to four categories: Left, Center, Right and Undefined (see data appendix). We then look at whether the new leaders share the alignment of their predecessors or not. We find that in about 60 percent of all cases there is no change in alignment and that sharp changes (from left to right

and from right to left) are of similar magnitude to each other. However, among the cases where the leader was replaced in an election year the proportion of changes in alignment is more than 50 percent.

Political Strength

A leader's political strength may have a substantial effect on his ability to carry out the changes he desires. Leaders who step into office enjoying strong popular support and a convenient parliamentary majority may be more able to carry out their desired and promised changes in spending priorities and to tackle entrenched interests. We distinguish between two forces: (1) the effect of political strength itself on changes in expenditure composition, (2) the interaction between political strength and leadership changes -- that is whether new leaders who enjoy strong support change expenditure composition more than ones with weaker support. To account for the political strength in presidential systems we examine the share of votes received by the president in the last elections; in parliamentary systems we examine the share of seats in parliament held by the leader's party.[11] In Section 5.3 below we discuss additional political factors that may affect leaders' political strength.

4.4 Regressions

To test for the effect of leadership changes -- both alone and in conjunction with other political variables --on changes in government expenditure composition we run a panel regression with country fixed effects:

$$I_{i,t}(n) = \sum_s b_s \mathbf{z}_{s,t} + c x_t + \varepsilon_t$$

where $\mathbf{z}_t$ is a vector of control variables--overall expenditure growth, GDP per capita, GDP growth, government size (relative to GDP), inflation, percent of population over 65; political characteristics of the country – which are discussed in greater detail in section 4.5 – and the initial shares of specific expenditure categories, as discussed below. x_t is the leadership change measure we consider. Because the regressions for periods that extend beyond one year include overlapping observations, we use robust standard errors corrected both for serial correlation and

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[11] To allow for an intuitive interpretation of the coefficients both variables are standardized by subtracting their mean from each observation and dividing the score by their standard deviation.

moving average using the Newey-West procedure. [12]

Means and standard deviations of all the variables are reported in Table 3. The mean change in expenditure composition is 4.5% (5.1%) per year for 9 (12) expenditure categories. This rises by a factor of 1.7 (rather than four) as we move to a four-year window, suggesting that some changes are reversed over the longer horizon. Note further that the means of GDP per capita, average inflation and population over 65 decrease at the four- relative to the one- and two-year windows, reflecting the greater proportion of developed countries in the longer windows. In contrast, votes (for presidential systems), and leader's party strength (for parliamentary systems) do not change significantly as we move from a one- to a four-year window, so that *differences* in results for the effect of leadership on changes in expenditure composition are not driven by these variables.

Table 3: Descriptive Statistics of the Main Variables*

		9 Expenditure Categories				12 Expenditure Categories			
		1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years
Change in Expenditure Composition [1]	mean	4.473	6.317	7.747	7.926	5.144	7.105	8.577	8.754
	stdev	3.890	4.778	5.764	5.030	4.352	5.185	6.089	5.431
Expenditure Growth [2]	mean	4.459	8.732	13.300	17.769	4.503	8.761	13.141	17.503
	stdev	8.777	13.962	17.960	20.125	9.081	14.429	18.705	20.818
GDP Per Capita Growth [3]	mean	2.317	4.643	7.149	10.120	2.297	4.544	6.921	9.790
	stdev	3.236	5.290	7.115	8.247	3.255	5.271	7.110	8.197
GDP Per Capita [4]	mean	12.027	12.416	12.790	13.820	11.451	11.996	12.368	13.640
	stdev	9.604	9.569	9.595	9.412	9.249	9.267	9.268	9.187
Average Inflation [5]	mean	0.240	0.298	0.259	0.122	0.264	0.327	0.284	0.125
	stdev	1.062	1.520	1.109	0.202	1.143	1.633	1.193	0.209
Population over 65 [6]	mean	10.587	10.716	10.820	11.284	10.147	10.317	10.424	10.990
	stdev	4.269	4.219	4.182	3.963	4.240	4.199	4.186	3.998
Presidential Votes [7]	mean	0.438	0.447	0.446	0.428	0.440	0.454	0.455	0.437
	stdev	0.190	0.176	0.170	0.171	0.196	0.179	0.175	0.182
Leader's Party Political Strength [8]	mean	0.384	0.386	0.388	0.390	0.396	0.398	0.401	0.402
	stdev	0.186	0.181	0.176	0.164	0.182	0.176	0.170	0.157

* For detailed information on the construction of the variables see the data appendix.

[1] The percentage change in Expenditure Composition within 9 or 12 categories during the period.

[2] The total real (inflation adjusted) percentage growth of central government expenditure during the period.

[3] The total percentage growth of GDP Per Capita during the period.

[4] The level of GDP per capita in thousands of $US in the last year of each period.

[5] Average annual inflation during the period (1=100% average annual inflation).

[6] The percentage of the population over age 65 in the last year of each sample.

[7] Only for observations in Presidential systems: The percentage of the votes received by the current president in the first round of the most recent presidential elections.

[8] Only for observations in Parliamentary systems: The percentage of seats in the parliament held by the current leader's party.

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[12] Estimation of the equations for a sample that avoided the overlap of observations (at the cost of substantially reducing the sample size) did not affect qualitatively any of our main results. These results are not reported here for brevity.

The dependent variable in all our regressions is the index of the change in expenditure composition between the current year and the n previous years (n=1,2,3,4) as given in the index above. For example, Cat9_1 is the change in the expenditure composition index between the current year and the previous year using the 9 basic expenditure categories given above, while Cat12_2 is the change in the expenditure composition index between the current year and two years ago using 12 expenditure categories.

4.5 Controls

We first set out the economic and political control variables. More details and data sources may be found in the data appendix.

4.5.1 Economic variables

Overall expenditure growth

The ability of political actors to agree to change the composition of expenditure, that is, how the pie is sliced, may depend on whether or not the pie is growing. On the one hand faster growth of the pie may keep everyone happy and prevent the need to reallocate resources; on the other hand, expenditure growth may allow redirecting resources to the leader's preferred uses while keeping other types of spending unaffected in absolute terms. To account for that, we include overall expenditure growth in the equations. However, there is also a possibility that expenditure growth may be caused by the desire of a leader to change expenditure composition while avoiding conflicts. We therefore repeat our estimation without this variable to verify that its inclusion does not mask an underlying pressure to change the expenditure composition.

Level and change in per-capita GDP

Changes in the composition of expenditures may be affected by both the level of development and the rate of economic growth. Poorer countries may be more constrained in what government spending finances, while higher income allows more choices and hence greater flexibility in expenditure composition. The income elasticity of demand may differ across categories of expenditure (see, for example, Sanz and Valázquez, 2002; and Shelton, 2007) or, following Baumol's (1967) famous argument, that differential technological progress in production of goods versus services will lead to greater expenditure on the latter over time.

Inflation

The price of different components of government spending may rise differentially when

there is overall inflation, so that composition percentages calculated from nominal magnitudes would vary with inflation even if real magnitudes remained unchanged. Price elasticities may also differ across government expenditure groups leading to changes in real magnitudes, for example, if real wages are protected by an automatic cost of living adjustment. Nevertheless, since the decision to protect certain expenditure components from inflation may itself reflect policy priorities we repeat our estimation without this control, to verify that inflation and protection from it are not the mechanism used by new leaders to change the budget composition. Because the effect of inflation may not be linear -- in part because high inflation countries develop mechanisms to mitigate its real effects -- we include in our equation both the inflation rate and the squared rate of inflation.

Wars

Wars may have a large and significant effect on the composition of expenditures as they impose significant defense costs in a short period. To account for that effect we used the COSIMO database from the Heidelberg Institute of International Conflict Research to identify events of military conflicts (see data appendix for details). While our data include quite a few observations that are defined as war years this variable had no effect on expenditure composition due to the use of the country fixed effects.[13]

Percent of population over 65

Since a large fraction of government expenditure in many countries goes to various forms of old-age assistance, one might expect that having a large share of elderly population would create a strong lobby that will prevent changes in the composition of government expenditure. We find no significant effects of this variable (and therefore do not report the effects in the tables). The reason appears to be that there is little variation in this variable over time in individual countries while differences between countries are largely captured by the country fixed effects.

4.5.2 Political variables

In addition to change in government leadership, elections, and government strength, a number of other political variables may also influence changes in the composition of government expenditure.

Electoral systems

The extent of change in composition of government expenditure may differ in majoritarian versus proportional electoral systems. The first is often associated with fewer parties and majority governments, the second with more parties and coalition governments. A simple proportional system can be thought of as having a single district, as opposed to many geographically-determined districts in a majoritarian system. Numerous papers[14] argue theoretically that a proportional system tilts the composition of public spending towards programs benefiting large groups in the population, such as public goods or universalistic welfare programs. Persson and Tabellini (2004) argue that much larger district size (often national districts) in proportional systems give parties strong incentives to seek support from broad coalitions in the population. In contrast, in majoritarian elections conducted in smaller districts, politicians target smaller, but pivotal, geographical constituencies. They find that countries with majoritarian elections have smaller welfare programs than those with proportional elections. These factors that affect the composition may also be associated with different tendencies to change it, e.g., if the pivotal constituencies change more frequently than the tastes of the public at large. To account for potential differences stemming from the electoral system we use the classifications provided in the World Bank's DPI.

Government structure

Analogous to the research on electoral systems, there has been research on the effect on government expenditure of having a presidential versus a parliamentary system of government, though it has primarily been concerned with its effect on the size, rather than on the composition of government expenditure. Persson and Tabellini (2004) argue that presidential regimes induce smaller governments than parliamentary democracies. To account for this possible effect we follow their methodology and use the definitions of the POLITY IV dataset to determine the country's system of government. We take no stand *a priori* on the question of whether a prime minister in a parliamentary system is expected to be stronger than a president in a presidential system.

Government size

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[13] When we do not use fixed effects estimation, this coefficient is positive and statistically significant. Note also that the standard error is very high, so that there may be an effect, but we cannot capture significance.

[14] Persson and Tabellini (1999), Lizzeri and Persico (2001), and Milesi-Ferretti, Perotti, and Rostagno (2002).

The size of the government sector itself relative to the economy may also affect the extent of changes in the composition of government expenditures. A small government, providing minimal necessary functions may have little scope for changing the composition of its spending, while a larger one may have more room for maneuver.

New democracies

Given this difference in fiscal policy between new and established democracies found in our earlier papers, one may ask whether there are differences in changes in government budget composition along this dimension. Such changes would be consistent with the desire to significantly change the structure of the economy (as in the formerly socialist economies) or more generally to make large or make other. The composition effect that we examine here is *not* an election-year effect, but a secular characteristic.

Ideological Orientation

Several papers, as discussed in section 2, look at the connection between a government's ideological orientation or the policy priorities found in a party's platform and the actual composition of spending. We begin with an even more basic question of whether ideological orientation *per se* affects the propensity for expenditure change.

5. The Effect of Replacing a Leader on Expenditure Composition

To test whether and when leaders affect the composition of expenditures, we begin with the central question of whether a change in leadership results in a change in expenditure composition. We start by considering short–term effects of a leader being replaced per se and then look at the effect when a leader is replaced in an election year as opposed to being replaced by other political (democratic) or exogenous mechanisms (such as death of the incumbent leader).

5.1 Short-term effects – basic lack of effect

In Table 4 we provide a simple examination of whether a change in government leadership actually leads to change in the composition of expenditures. We find that in the short-run it does not (relative to the case of the same leader being in power). This is true regardless of whether we control for expenditure growth or not and whether we look at 9 or 12 expenditure categories. To the extent that we find any effects of leaders being replaced, it is that there is a *smaller* change in

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expenditure composition when the leader is replaced in an election year, although this effect is often insignificantly different from 0. Moreover, the absence of a positive effect persists two years after a change in leadership, suggesting that the result is not explained simply by a problem with one year being a too short period for changes to be affected.

Table 4 - Leadership Change Effects on Expenditure Composition: 1-2 years*

	Dependent Variable	Replaced leader	Replaced leader in election year	Expenditure growth	Number of observations	Number of countries	R-Squared
1	**Cat9_1**	-0.128			1010	71	0.378
		[0.603]					
2	**Cat9_1**	-0.135		0.018	1010	71	0.379
		[0.581]		[0.456]			
3	**Cat9_1**		-0.558*		1010	71	0.380
			[0.052]				
4	**Cat9_1**		-0.561**	0.019	1010	71	0.382
			[0.048]	[0.445]			
5	**Cat12_1**	-0.234			867	68	0.438
		[0.406]					
6	**Cat12_1**	-0.242		0.028	867	68	0.441
		[0.386]		[0.296]			
7	**Cat12_1**		-0.514		867	68	0.439
			[0.122]				
8	**Cat12_1**		-0.52	0.028	867	68	0.442
			[0.112]	[0.288]			
9	**Cat9_2**	-0.205			912	70	0.459
		[0.466]					
10	**Cat9_2**	-0.205		0.002	912	70	0.459
		[0.466]		[0.869]			
11	**Cat9_2**		-0.113		912	70	0.459
			[0.741]				
12	**Cat9_2**		-0.115	0.003	912	70	0.459
			[0.737]	[0.829]			
13	**Cat12_2**	-0.279			779	65	0.507
		[0.387]					
14	**Cat12_2**	-0.284		0.015	779	65	0.508
		[0.376]		[0.352]			
15	**Cat12_2**		-0.244		779	65	0.505
			[0.523]				
16	**Cat12_2**		-0.261	0.015	779	65	0.507
			[0.490]	[0.339]			

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

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One potential explanation is that the absence of an effect is due to entitlement spending. In the U.S., for example, mandatory spending (synonymous in the budget with "direct spending") generally includes all spending that is made pursuant to laws other than appropriations laws, so that its fundamental characteristic is the lack of annual discretion to establish spending levels (unless the law is changed). Entitlement spending (a subset of mandatory spending), such as Social Security, Medicare, and Medicaid in the U.S. and analogous programs in other countries, comprises half of the budget or more in many countries. In some countries strong defense or agricultural lobbies, teachers unions, etc. may also limit the ability to reallocate budget resources.

Entitlement spending which cannot easily be changed is *not*, however, the explanation for our results on the lack of a leadership effect. First, consider the basic arithmetic argument. If a category of spending is fixed by law over a horizon of *n* years, it is fixed whether or not a leader is replaced. Hence, it would not explain the absence of an effect in years after a leader is replaced *relative* to years of no leader replacement.[15] Second, we also calculated the composition and the changes in the index *excluding* social protection and health, two sectors in which entitlement spending is dominant and in which, it is generally argued, legislation to reduce such spending is difficult to enact. The results were not qualitatively different from the reported specification, making clear that our results are *not* driven by fixity of entitlement spending.[16]

Another argument is that leadership changes do not matter much for "normal" changes in expenditure composition but they do raise the probability of eventual large changes. To account for this possibility we estimated logit equations in which the dependent variable was the probability of a change in expenditure composition that was at least one standard deviation above the country-specific average change (we also repeated it for similar changes above the sample average). The estimation (results available upon request) did not identify any significant effect over the one or two-year periods.

5.2 The contribution of economic factors

One may ask whether the lack of a positive effect of leadership changes on expenditure

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[15] Unless all categories are fixed, in which case leadership changes indeed can have no effect on the composition.
[16] We also control below for the share of several expenditure categories, which are sometimes claimed to be more difficult to change.

composition is mitigated when we control for the economic and political factors mentioned above. In Table 5 we show that this is not the case. First, consider the economic variables in the first block. Higher overall expenditure growth leads to more change in the composition of expenditure, while higher per-capita GDP growth lowers it (although this effect is not statistically significant at the "noisier" Cat9_1 series). These effects are similar in magnitude, so that changes in the composition of government expenditure increase only when overall expenditure grows faster than GDP. We also find that the level of GDP per-capita is not associated with more change in expenditure composition. We see a highly significant positive effect of inflation, consistent with the argument about differential rates of inflation when the original expenditure data is in nominal terms.[17] The negative coefficient on squared inflation indicates the effect is concave. All these effects, however, are small quantitatively for plausible values of the variables. That is, economic variables explain relatively little of expenditure change.

In the second block, we examine the effect of the initial share of various expenditure categories, which reveal some interesting results. Higher defense spending in developed countries is associated, if anything, with larger subsequent changes, rather than lower changes (as suggested by the claim that large defense budgets in some developed countries lead to inertia in the budget). There is some evidence that higher defense spending in less-developed countries is associated with smaller changes in expenditure composition. Higher spending on social protection leads to lower subsequent changes, but the effect is significant only at the one-year horizon. Higher education spending in less-developed countries has a significant and large negative effect on subsequent expenditure change. We found no evidence (not reported in table) that spending on agriculture (mostly subsidies) affects subsequent expenditure composition change.

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[17] We also found (coefficients not shown) that once one controls for inflation, changes in the exchange rate do not have an additional effect. Additionally, we find that when the inflation variables are removed the lack of effect of leadership change remains.

Table 5 - Leadership Change Effects on Expenditure Composition: 1-2 years Including Economic and Political Controls.*

	Replaced Leader				Replaced Leader in Election Year			
	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Economic variables								
Expenditure growth (1% =1)[1]	0.049**	0.072***	0.031**	0.050***	0.050**	0.072***	0.033**	0.050***
	[0.033]	[0.003]	[0.040]	[0.001]	[0.032]	[0.003]	[0.033]	[0.001]
GDP per-capita growth (1% =1)[1]	-0.062	-0.092*	-0.056*	-0.104***	-0.065	-0.091*	-0.058*	-0.103***
	[0.155]	[0.063]	[0.068]	[0.002]	[0.132]	[0.060]	[0.055]	[0.002]
GDP per-capita (in 000's of $US)	0.007	0.056	-0.006	0.059	0.001	0.054	-0.015	0.050
	[0.857]	[0.195]	[0.908]	[0.302]	[0.981]	[0.219]	[0.763]	[0.383]
Average inflation (100% inflation=1)	1.860***	2.288***	1.944***	2.148***	1.859***	2.294***	1.954***	2.157***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Average inflation squared	-0.096***	-0.118***	-0.070***	-0.078***	-0.096***	-0.118***	-0.070***	-0.078***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Expenditure Composition[2]								
Defense share	-0.053	-0.064	-0.075	-0.125	-0.057	-0.066	-0.080	-0.130*
	[0.463]	[0.415]	[0.272]	[0.103]	[0.430]	[0.402]	[0.245]	[0.091]
Defense share * Developed [3]	-0.019	0.131	0.043	0.293**	-0.021	0.130	0.034	0.279**
	[0.864]	[0.245]	[0.724]	[0.021]	[0.848]	[0.246]	[0.778]	[0.026]
Education share * Less Developed [3]	-0.242***	-0.256**	-0.335***	-0.476***	-0.242***	-0.258**	-0.329***	-0.472***
	[0.005]	[0.016]	[0.005]	[0.000]	[0.005]	[0.015]	[0.006]	[0.000]
Social protection share	-0.066**	-0.077**	-0.058	-0.069	-0.065**	-0.076**	-0.057	-0.069
	[0.027]	[0.030]	[0.159]	[0.144]	[0.029]	[0.032]	[0.167]	[0.149]
Political Characteristics								
Government size (% of GDP)	0.048**	0.085***	0.070**	0.111***	0.048**	0.085***	0.072**	0.115***
	[0.043]	[0.002]	[0.022]	[0.002]	[0.042]	[0.002]	[0.020]	[0.002]
New democracy	2.016**	2.297**	2.129**	2.348**	1.972**	2.281**	2.085**	2.372**
	[0.012]	[0.014]	[0.027]	[0.039]	[0.014]	[0.015]	[0.030]	[0.039]
Presidential	-1.982***	-1.653**	-2.819**	-3.557**	-1.994***	-1.633**	-2.772**	-3.457**
	[0.004]	[0.034]	[0.010]	[0.038]	[0.004]	[0.038]	[0.011]	[0.045]
Majoritarian	-0.343	-0.309	0.566	-0.402	-0.314	-0.260	0.615	-0.292
	[0.675]	[0.695]	[0.554]	[0.696]	[0.700]	[0.740]	[0.518]	[0.775]
Majoritarian and new democracy	-3.584**	-4.006**	-5.545***	-7.240***	-3.583**	-4.014**	-5.580***	-7.297***
	[0.018]	[0.016]	[0.002]	[0.000]	[0.017]	[0.015]	[0.002]	[0.000]
Leader Characteristics								
Replaced leader [4]	**-0.170**	**-0.245**	**-0.300**	**-0.376**	**-0.604****	**-0.545***	**-0.275**	**-0.481**
	[0.484]	[0.368]	[0.258]	[0.204]	[0.028]	[0.077]	[0.415]	[0.179]
Constant	6.638***	5.275***	8.217***	8.077***	6.806***	5.288***	8.315***	8.038***
	[0.000]	[0.005]	[0.000]	[0.000]	[0.000]	[0.005]	[0.000]	[0.000]
Number of observations	969	856	887	773	969	856	887	773
Number of countries	69	66	68	63	69	66	68	63
R-Squared	0.455	0.526	0.545	0.603	0.458	0.527	0.545	0.602
Adjusted R-Squared	0.404	0.477	0.497	0.558	0.406	0.478	0.498	0.556

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Total growth during the period.

[2] The percent of government spending on the respective category in the base year (1% share=1).

[3] The percent of government spending in the base year on the respective category multiplied by a binary variable for developed or less developed countries.

[4] A binary variable that receives the value 1 if the leader was replaced (in an election year, in columns 5-8) in the base year.

5.3 Political factors

The third block of Table 5 reports on political covariates. Several results stand out. First, government size (relative to GDP) has a significant positive effect on the extent of change in expenditure composition, suggesting that larger overall expenditure gives government more freedom in changing composition. We can only venture guesses on the reason for this. Small governments may be concentrated on more basic, central functions, giving them less flexibility to change composition. This doesn't necessarily imply that large governments are engaged in activities that are "superfluous" or easily left to the private sector. They may be providing a range of public goods, where the emphasis on which to provide more of reflects changing circumstances or voter preferences. We leave this as a question deserving further study.

Second, new democracies tend to change their expenditure composition substantially more than established ones. The effect of being a new democracy on the tendency to change the composition of expenditures is quite substantial quantitatively, amounting to more than 40 percent of the average change in composition (as reported in Table 3). This effect is different in new democracies that have a majoritarian electoral system which tend to have smaller changes in expenditure composition compared to other countries (not just to other new democracies), though this is a very small group of countries.[18]

Third, turning to the political structure, we find no statistically significant difference between majoritarian and proportional systems in the amount of expenditure composition change. These findings complement Shelton (2007) who finds that "majoritarian governments do not display a clear bias towards or against any type of spending and that they simply correlate with reduced expenditure across the board." We do find a significant effect of having a presidential system rather than a parliamentary one – presidential systems are characterized by smaller changes in expenditure composition, though the result is reversed when the equations are estimated without fixed effects. Hence, in contrast to the finding of Persson and Tabellini on the relation between government system and the *level* of spending composition (over broad categories) discussed above, our results provide no definitive conclusion on the effect of government on the *change* in expenditure composition.

In Table 6 we add variables measuring the political strength and orientation of a leader, as

well as interacting strength variables with leadership change to see if new leaders who are politically stronger act differently than weaker ones.[19] We find that political strength per se (measured in terms of standard deviations from the sample mean) does not matter for the extent of changes in expenditure composition.[20] As for the political orientation of the leader, we see that having a leader from a right or center party at the beginning of the period (regardless of whether or not he was replaced) tends to increase expenditure composition changes over a two-year period. We have no a priori explanation for this result. It may reflect differences in the cohesiveness of left versus right or center parties, or differences in party ability to prioritize.

When political strength is interacted with change of leader, we find an intriguing result. In presidential systems, strong new leaders change expenditure composition by *less* than weak ones (where strength is measured by vote share in the election). This seems contrary to the intuition that presidents who come in with "electoral mandates" are able to effect more change. In Table 7, we divide the sample into developed and less developed countries and see indeed that this result is driven by less-developed countries where the bulk of presidential systems are.[21] If anything, a strong new leader in a less-developed country is associated with less expenditure change in the year or two after election relative to a weak one.

Here too, we can only speculate on the reason for this result. Expenditure change reflects not only changed ideology, but also distributive politics. In many countries, supporters of the new leader want to share in the spoils of office. A strong leader with wide support may be better able to resist these pressures, whereas a weaker one may need to use government largesse to strengthen his position. The association of weakness and more composition change shows up elsewhere in our results as well. We cannot make definitive statements, but this is clearly an issue deserving further research.

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[18] This group includes only 10-15 percent of our sample of new democracies, listed in Table A-4.

[19] These interactions are calculated by multiplying the binary variables for replaced leader by the political strength variables - Votes_pres and Party_parl - described in section 4.3.

[20] These variables are correlated with the country fixed effects; when we remove the fixed effects political strength has a statistically significant positive effect on the tendency to change the composition of expenditures in both presidential and parliamentary systems. Nevertheless, even in such specifications the interactions of political strength with replaced leader have a negative sign (although not always statistically significant).

[21] Developed countries are those that were OECD members throughout the sample period. The only developed countries with a presidential system are the US, and Greece and Portugal in the late 1970s and early 1980s.

Table 6 - Leadership Change Effects on Expenditure Composition: 1-2 years Including Economic and Political Controls and Leader Characteristics.*

	Replaced Leader				Replaced Leader in Election Year			
	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Economic variables								
Expenditure Growth (1% =1)[1]	0.047**	0.070***	0.031**	0.052***	0.047**	0.070***	0.033**	0.052***
	[0.045]	[0.004]	[0.047]	[0.001]	[0.045]	[0.004]	[0.031]	[0.001]
GDP per-capita growth (1% =1)[1]	-0.058	-0.089*	-0.046	-0.092***	-0.063	-0.091*	-0.050*	-0.091***
	[0.180]	[0.070]	[0.121]	[0.004]	[0.145]	[0.062]	[0.089]	[0.004]
GDP per-capita (in 000's of USD)	0.005	0.056	-0.009	0.066	0.001	0.055	-0.008	0.057
	[0.892]	[0.194]	[0.908]	[0.234]	[0.985]	[0.209]	[0.863]	[0.308]
Average inflation (100% inflation=1)	1.840***	2.270***	1.973***	2.128***	1.837***	2.268***	1.959***	2.108***
	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Average inflation squared	-0.094***	-0.115***	-0.072***	-0.078***	-0.095***	-0.117***	-0.070***	-0.077***
	[0.001]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
Expenditure Composition[2]								
Defense share	-0.038	-0.046	-0.052	-0.105	-0.042	-0.049	-0.055	-0.110
	[0.615]	[0.568]	[0.460]	[0.180]	[0.569]	[0.542]	[0.437]	[0.159]
Defense share * Developed [3]	-0.040	0.114	0.028	0.294**	-0.042	0.111	0.011	0.274**
	[0.713]	[0.314]	[0.814]	[0.019]	[0.694]	[0.326]	[0.926]	[0.029]
Education share * Less Developed [3]	-0.242***	-0.257**	-0.331***	-0.474***	-0.243***	-0.261**	-0.329***	-0.474***
	[0.005]	[0.014]	[0.006]	[0.000]	[0.005]	[0.013]	[0.006]	[0.000]
Social protection share	-0.066**	-0.077**	-0.063	-0.077	-0.066**	-0.076**	-0.062	-0.077
	[0.029]	[0.035]	[0.125]	[0.109]	[0.029]	[0.035]	[0.134]	[0.112]
Political Characteristics								
Government Size (% of GDP)	0.040*	0.078***	0.056*	0.096***	0.040*	0.079***	0.059*	0.100***
	[0.099]	[0.005]	[0.079]	[0.010]	[0.099]	[0.004]	[0.066]	[0.007]
New Democracy	1.943**	2.279**	2.039**	2.179*	1.919**	2.289**	2.023**	2.228*
	[0.016]	[0.015]	[0.033]	[0.057]	[0.018]	[0.016]	[0.035]	[0.053]
Presidential	-1.803**	-1.264	-2.562**	-3.443**	-1.796**	-1.241	-2.507**	-3.377**
	[0.015]	[0.139]	[0.023]	[0.044]	[0.015]	[0.144]	[0.025]	[0.048]
Majoritarian	-0.323	-0.289	0.853	-0.102	-0.296	-0.247	0.907	-0.026
	[0.697]	[0.719]	[0.366]	[0.918]	[0.719]	[0.755]	[0.334]	[0.979]
Majoritarian and New Democracy	-3.378**	-3.875**	-4.967***	-6.294***	-3.368**	-3.856**	-4.910***	-6.375***
	[0.025]	[0.019]	[0.005]	[0.002]	[0.024]	[0.018]	[0.006]	[0.002]
Leader Characteristics								
Replaced leader [4]	**-0.139**	**-0.078**	**-0.158**	**0.007**	**-0.475**	**-0.217**	**0.196**	**-0.055**
	[0.630]	[0.796]	[0.622]	[0.983]	[0.135]	[0.544]	[0.682]	[0.899]
Vote_pres * Replaced Leader[5]	**-0.193**	**-0.368**	**-0.584**	**-0.946****	**-0.453**	**-0.724**	**-0.728***	**-0.764***
	[0.622]	[0.379]	[0.111]	[0.015]	[0.265]	[0.103]	[0.087]	[0.071]
Party_parl * Replaced Leader[5]	**0.189**	**-0.043**	**0.426**	**0.113**	**0.254**	**0.020**	**-0.370**	**-0.156**
	[0.566]	[0.892]	[0.301]	[0.800]	[0.451]	[0.953]	[0.487]	[0.747]
Vote_pres	-0.159	-0.245	0.143	0.555	-0.125	-0.216	0.158	0.469
	[0.631]	[0.528]	[0.727]	[0.241]	[0.713]	[0.585]	[0.698]	[0.324]
Party strength_parl	0.079	0.191	0.358	0.677*	0.084	0.178	0.562	0.726**
	[0.755]	[0.463]	[0.326]	[0.082]	[0.716]	[0.465]	[0.112]	[0.046]
leader from right or center	0.545**	0.282	0.850***	0.671**	0.536**	0.272	0.828***	0.648**
	[0.023]	[0.254]	[0.002]	[0.024]	[0.025]	[0.272]	[0.004]	[0.032]
Constant	6.570***	5.131***	7.769***	7.501***	6.723***	5.161***	7.763***	7.550***
	[0.000]	[0.006]	[0.000]	[0.001]	[0.000]	[0.006]	[0.000]	[0.001]
Number of observations	969	856	887	773	969	856	887	773
Number of countries	69	66	68	63	69	66	68	63
R-Squared	0.459	0.529	0.553	0.611	0.463	0.531	0.552	0.608
Adjusted R-Squared	0.404	0.476	0.503	0.564	0.408	0.479	0.503	0.561

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Total growth during the period.

[2] The percent of government spending on the respective category in the base year (1% share=1).

[3] The percent of government spending in the base year on the respective category multiplied by a binary variable for developed or less developed countries.

[4] A binary variable that receives the value 1 if the leader was replaced (in an election year, in columns 5-8) in the base year.

[5] An interaction between the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system) and the variable "replaced leader".

Table 7: Leadership Change Effects on Expenditure Composition in Developed and Less Developed Countries: 1-2 years*

	Developed				Less Developed			
	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Economic variables								
Expenditure growth (1% =1)[1]	0.011	0.079**	0.040	0.102***	0.056**	0.074**	0.032	0.060***
	[0.838]	[0.043]	[0.226]	[0.000]	[0.036]	[0.013]	[0.104]	[0.002]
GDP per-capita growth (1% =1)[1]	0.003	0.003	-0.053	-0.068*	-0.121*	-0.158**	-0.055	-0.121**
	[0.957]	[0.965]	[0.191]	[0.082]	[0.054]	[0.029]	[0.218]	[0.015]
GDP per-capita (in 000's of USD)	0.017	0.070	0.016	0.102**	-0.419	-0.187	-0.268	0.324
	[0.708]	[0.101]	[0.750]	[0.045]	[0.175]	[0.727]	[0.413]	[0.568]
Average inflation (100% inflation=1)	0.836	-1.801	2.960	2.493	1.690***	2.011***	1.580***	1.605***
	[0.790]	[0.593]	[0.502]	[0.625]	[0.000]	[0.000]	[0.000]	[0.000]
Average inflation squared	1.618	5.438	2.934	4.948	-0.088***	-0.105***	-0.058***	-0.059***
	[0.715]	[0.241]	[0.593]	[0.417]	[0.001]	[0.000]	[0.001]	[0.000]
Expenditure Composition[2]								
Defense share	-0.026	0.098	0.011	0.228***	-0.099	-0.086	-0.115	-0.155
	[0.711]	[0.141]	[0.904]	[0.004]	[0.238]	[0.443]	[0.188]	[0.173]
Education share	0.013	0.032	-0.092	-0.176*	-0.227**	-0.230**	-0.268**	-0.384***
	[0.856]	[0.700]	[0.298]	[0.093]	[0.012]	[0.036]	[0.038]	[0.008]
Social Protection share	-0.056	-0.046	0.011	0.032	-0.059	-0.093	-0.191***	-0.299***
	[0.112]	[0.307]	[0.819]	[0.592]	[0.352]	[0.221]	[0.006]	[0.000]
Agriculture share		0.149		0.137		-0.012		-0.131
		[0.236]		[0.415]		[0.903]		[0.203]
Political Characteristics								
Government size (% of GDP)	0.045*	0.072***	0.067**	0.104***	0.025	0.101	0.034	0.132
	[0.085]	[0.009]	[0.044]	[0.006]	[0.687]	[0.214]	[0.661]	[0.172]
New democracy	0.525	1.465	1.940	3.182	2.417**	2.891**	1.661	2.221*
	[0.714]	[0.346]	[0.254]	[0.106]	[0.030]	[0.012]	[0.157]	[0.100]
Majoritarian	0.043	-0.212	0.547	-0.139	-0.790	-0.030	1.485	-0.538
	[0.961]	[0.820]	[0.587]	[0.897]	[0.701]	[0.987]	[0.585]	[0.862]
Majoritarian and new democracy					-3.773**	-4.480**	-5.034***	-6.066***
					[0.019]	[0.010]	[0.007]	[0.005]
Presidential	-0.169		-0.174		-1.223	-0.724	-2.312	-3.297
	[0.896]		[0.892]		[0.290]	[0.498]	[0.243]	[0.156]
Leader Characteristics								
Replaced leader in EY[3]	**-0.498***	**-0.266**	**0.209**	**0.180**	**-0.035**	**0.186**	**-0.073**	**-0.208**
	[0.060]	[0.307]	[0.643]	[0.676]	[0.962]	[0.832]	[0.923]	[0.815]
Vote_pres * Replaced leader in EY[4]	**-0.010**	**0.071**	**0.011**	**-0.242**	**-1.409***	**-1.871****	**-1.194***	**-1.455***
	[0.948]	[0.554]	[0.977]	[0.187]	[0.051]	[0.020]	[0.093]	[0.052]
Party_parl * Replaced leader in EY[4]	**0.136**	**-0.029**	**-0.104**	**0.299**	**0.142**	**-0.120**	**-0.448**	**-0.869**
	[0.651]	[0.919]	[0.848]	[0.475]	[0.816]	[0.847]	[0.492]	[0.211]
Vote_pres	-0.441*	-0.173	-0.356	-0.003	0.031	-0.147	0.476	0.757
	[0.084]	[0.689]	[0.205]	[0.993]	[0.947]	[0.774]	[0.420]	[0.264]
Party strength_parl	-0.026	0.150	0.047	0.212	0.173	0.255	1.051	1.472*
	[0.908]	[0.469]	[0.877]	[0.457]	[0.666]	[0.598]	[0.140]	[0.053]
Constant	3.203	-0.584	1.563	-3.318	11.647***	9.666*	17.174***	18.628***
	[0.159]	[0.828]	[0.553]	[0.313]	[0.003]	[0.086]	[0.000]	[0.001]
Number of observations	524	453	493	426	445	403	394	347
Number of countries	24	22	24	22	45	44	44	41
R-Squared	0.229	0.321	0.262	0.391	0.390	0.427	0.493	0.527
Adjusted R-Squared	0.164	0.257	0.193	0.327	0.289	0.321	0.397	0.425

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Total growth during the period.

[2] The percent of government spending on the respective category in the base year (1% share=1).

[3] A binary variable that receives the value 1 if the leader was replaced in the base year and it was an election year.

[4] An interaction between the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system) and the variable "Replaced Leader in EY".

The division of the sample into developed and less-developed countries reveals some other interesting results as well. The government size effect we saw before becomes stronger in developed countries, while disappearing entirely in less-developed ones. As already mentioned, this seems an interesting point for further study. Inflation loses significance in developed countries, which we attribute primarily to the much lower rates of inflation in these countries implying lower inflation differentials across categories.

We performed several other tests of political effects, as described in the various boxes in Table 8. First, does the effect of a new leader on expenditure composition change depend on whether he is replacing a leader with a different political ideology? In the first regression, we limit the definition of "replaced leader" to cases of an elected leader whose party alignment differs from his predecessor. The results indicate this does not matter; the coefficient on expenditure change if the new leader has a different political alignment is actually negative, though not statistically significant, The second and third lines are interaction effects of the leader with a different political alignment with measures of political strength. Once again, to the extent that there is any effect, it is negative.

In the second box, we specify the direction of the change, also to no effect. We also consider cases where the largest coalition party changes (which generally overlaps with a change in leader, but is not identical); the coefficients still indicate no significant short-run effect on change in composition. In short, our earlier lack of an effect of change in leaders did not arise because leadership change did not indicate ideology change.

These results would appear to contrast with that of Tsebelis and Chang (2004), who found (see above) that budget composition does change relative to the previous year's government if the ideological composition of the government changes (independent of whether or not there was a change in leader herself), provided the ideological distance between parties in the government is not too great. The difference in results may reflect their use of a much smaller sample or their looking at ideological difference between governments in successive years rather than changes in leadership. These are not the same. That is, one could have a change in the ideological composition of the governing coalition under the same leader; conversely, there could be a change in leadership without a change in the government's ideology.

Table 8: Political Effects on the Relationship Between Leadership Change and Expenditure Composition Change*

	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Replaced leader with different alignment in EY[1]	-0.346	-0.425	0.051	-0.201	-0.328	-0.318	0.560	0.122
	[0.306]	[0.245]	[0.901]	[0.661]	[0.373]	[0.419]	[0.242]	[0.808]
Vote_pres * Replaced leader with different alignment in EY[2]					-0.016	-0.197	-0.786	-0.667
					[0.983]	[0.804]	[0.242]	[0.354]
Party_parl * Replaced leader with different alignment in EY[2]					-0.034	-0.111	-0.640	-0.262
					[0.936]	[0.790]	[0.283]	[0.692]
Replaced leader in EY[1]	-0.592**	-0.538*	-0.275	-0.484	-0.596**	-0.559*	-0.262	-0.462
	[0.032]	[0.081]	[0.414]	[0.174]	[0.031]	[0.071]	[0.438]	[0.195]
Leader change from Left to Right	-0.074	0.489	-0.367	-0.271	-0.302	-0.807	0.345	-0.071
	[0.884]	[0.581]	[0.512]	[0.691]	[0.710]	[0.416]	[0.747]	[0.951]
Leader change from Right to Left	-0.818	-1.100*	0.310	0.216	-1.248	-1.975	1.732	1.712
	[0.115]	[0.080]	[0.677]	[0.818]	[0.315]	[0.143]	[0.395]	[0.488]
Largest Government party change from Left to Right					0.272	1.516*	-0.869	-0.254
					[0.706]	[0.082]	[0.336]	[0.803]
Largest Government party change from Right to Left					0.496	1.038	-1.644	-1.711
					[0.670]	[0.400]	[0.368]	[0.432]
Replaced leader in EY[1]	-0.590**	-0.537*	-0.323	-0.553	0.029	-0.201	0.225	0.200
	[0.042]	[0.097]	[0.347]	[0.121]	[0.954]	[0.722]	[0.684]	[0.740]
Number of Parties in Government	0.148	0.116	0.150	0.085	0.202*	0.149	0.199	0.161
	[0.130]	[0.285]	[0.213]	[0.525]	[0.062]	[0.235]	[0.138]	[0.291]
Number of Parties in Government * Replaced leader in EY					-0.253	-0.141	-0.226	-0.317*
					[0.115]	[0.449]	[0.212]	[0.087]
Replaced leader in EY[1]	-0.573**	-0.526*	-0.335	-0.571	-0.594**	-0.554*	-0.188	-0.394
	[0.044]	[0.098]	[0.331]	[0.110]	[0.032]	[0.066]	[0.609]	[0.292]
Presidential control[3]	0.214	0.228	0.989	1.232*	0.183	0.185	1.189*	1.485*
	[0.697]	[0.724]	[0.114]	[0.085]	[0.754]	[0.789]	[0.082]	[0.059]
Presidential control * Replaced leader in EY					0.106	0.136	-0.700	-0.822
					[0.878]	[0.861]	[0.330]	[0.292]
Replaced leader in EY[1]	-0.593**	-0.542*	-0.281	-0.490	-0.936	-1.478	-1.669	-1.867
	[0.030]	[0.077]	[0.406]	[0.171]	[0.408]	[0.259]	[0.228]	[0.188]
Political Constraints[4]	-3.096**	-3.109**	-1.064	-1.108	-3.228**	-3.494**	-1.698	-1.796
	[0.018]	[0.041]	[0.513]	[0.565]	[0.019]	[0.033]	[0.347]	[0.408]
Political Constraints * Replaced leader in EY					0.768	2.127	3.118	3.139
					[0.748]	[0.444]	[0.329]	[0.323]
Replaced leader in Predetermined EY[5]	-0.316	-0.169	-0.024	-0.305	-0.303	-0.154	-0.023	-0.336
	[0.387]	[0.672]	[0.953]	[0.426]	[0.407]	[0.700]	[0.955]	[0.388]
Replaced leader in Early EY[6]	-1.066***	-1.181***	-0.693	-0.735	-1.058***	-1.170***	-0.660	-0.671
	[0.002]	[0.003]	[0.198]	[0.258]	[0.002]	[0.003]	[0.216]	[0.297]
Vote_pres					-0.266	-0.381	-0.060	0.256
					[0.422]	[0.322]	[0.882]	[0.581]
Party_parl					0.091	0.134	0.388	0.607*
					[0.666]	[0.543]	[0.208]	[0.061]

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t, and the economic, expenditure composition and political variables that appear in Table 5. The regressions in the first box also include the share of votes received by the president in a presidential system and the largest party's share of seats in parliament in a parliamentary system. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] A binary variable that receives the value 1 if the leader was replaced in elections (with a leader of a different alignment in the first box) in the base year.

[2] An interaction between the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system) and the variable "replaced leader with different alignment".

[3] A binary variable with a value of 1 in a presidential system when the president's party is the largest party in government and in parliament.

[4] POLCONIII from Henisz (2002). A measure of the political constraints on government decision making i.e. the extent to which a change in the preferences of any one actor may lead to a change in government policy. The variable has a range of 0 to 1 (with 1 being maximum constraint) and an in-sample average of 0.432.

[5] A binary variable that receives the value 1 if the leader was replaced in predetermined elections in the base year.

[6] A binary variable that receives the value 1 if the leader was replaced in early elections in the base year.

In the third box, we consider the effect of the number of parties in the coalition. Conventional wisdom is that the larger the coalition, the less able it is to undertake policy change. (See, for example, Roubini and Sachs [1989].) The first line indicates that when we control for this variable, the results on a new leader are unchanged from before. The coefficient on the number of parties is positive (although not significant), indicating that, if anything, the larger the coalition, the *more* expenditure composition changes, which seems in contrast to what is often argued. One interpretation is along the lines of the ability of leaders to resist demands for spending presented above. The larger the coalition, the more the budget must be changed to keep the coalition together, and this effect offsets the lower ability to reach decisions. This is another issue to study that is raised by these results. We also find that there is no significant difference in the effect of the number of parties in the coalition on the tendency of newly elected leaders to change the composition compared to continuing ones.

In the fourth box, we check whether presidents whose parties are the largest in the government and in parliament are more likely to change the composition of expenditure. We find that such power in parliament has a positive (although statistically significant only at the two-year horizon) effect on such changes, but it is not different between new and continuing leaders; when we interact the replaced leader variable with this parliamentary effect we find that new presidents who enjoy such a support are not different than continuing ones.

In the fifth box, we check whether strong political constraints, as reflected in a measure of the strength of "*veto players*" (Henisz [2002]), account for the lack of effect of leadership changes on expenditure composition. We find that more constraints do reduce expenditure composition changes at the one-year regressions, but that this variable does not account for the lack of effect of leadership changes.[22]

Finally, in the sixth box, we examine whether the lack of leadership change effect reflects the experience of new leaders who were elected in early elections (elections that took place before their originally scheduled fate) and therefore did not have time to prepare properly prior to taking office. We find that, indeed, leaders that were elected in early elections tend to change the expenditure composition significantly less in their first year in office. Nevertheless, we find that new leaders that were elected in predetermined elections (those that took place at the date set

after the previous elections) do not change the expenditure composition more than continuing ones.

5.4 Is it Data Quality?

Another response to the lack of a leadership effect is that it may simply reflect poor quality data in such a broad sample. On the assumption that data quality may be higher in developed countries, there should then be an effect in developed countries. Table 7 shows that this is not the case – the absence of a positive effect of leadership changes on expenditure composition is common to both country categories. In Table 9 we present results on the effect of leadership changes in two more restricted sets of developed economies.[23] In the left-hand box, we report results for the sample of 19 countries that Tsebelis and Chang (2004) used for their study; in the right-hand box we present results when Belgium, Italy, Portugal, and Spain are excluded from this group (the first two because of arguments by some that there is budget manipulation; the latter two because they were "New Democracies" over part of the sample period). In both cases we find basically the same results previously reported – there is no positive effect of leadership change on changes in expenditure composition over one- or two-year windows. In short, our results are not driven by poor data quality in developing countries.

Another concern may be that the lack of change we find reflects too high a level of aggregation (which is as disaggregated as can be found for such a large panel of countries). That is, significant expenditure changes may be taking place within our broader categories which cannot be detected. We cannot tell, but this line of argument seems unconvincing to us. Parties and candidates claim to differ on large issues such as defense versus social spending which should show up in our measures if elections are fought and won over issues like this.

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[22] This result is robust to the replacement of Henisz's definition by the "checks and balances" variable in Beck et al. (2001). We present the former because using the latter results in a loss of about 5 percent of our sample.

[23] This table and many that follow report only the coefficients on Leader Characteristics, as the coefficients on the covariates are very similar to what is reported in the earlier tables. Full results are at http://www.nber.org/data-appendix/w15368 and on http://econweb.umd.edu/~drazen/.

Table 9 - Leadership Change Effects on Expenditure Composition: 1-2 years in Selected OECD countries*

	Tsebelis & Chang 19 [†]				OECD 15 [‡]			
	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Leader Characteristics								
Replaced leader in EY[1]	**-0.424***	**-0.341**	**0.006**	**0.223**	**-0.194**	**-0.158**	**0.104**	**0.120**
	[0.076]	[0.151]	[0.988]	[0.596]	[0.390]	[0.500]	[0.762]	[0.734]
Party_parl * Replaced leader in EY[2]	**-0.232**	**-0.227**	**-0.020**	**-0.067**	**-0.244**	**-0.233**	**-0.158**	**-0.216**
	[0.285]	[0.346]	[0.953]	[0.851]	[0.240]	[0.320]	[0.576]	[0.484]
leader from right or center	**0.367**	**0.011**	**0.834****	**0.264**	**0.260**	**0.215**	**0.666****	**0.642****
	[0.152]	[0.964]	[0.021]	[0.442]	[0.226]	[0.345]	[0.027]	[0.034]
Vote_pres	-0.081		-0.255**					
	[0.492]		[0.028]					
Party strength_parl	0.071	0.138	0.189	0.347	0.181	0.186	0.235	0.363
	[0.679]	[0.453]	[0.412]	[0.164]	[0.287]	[0.316]	[0.275]	[0.133]
Constant	2.153***	1.734**	0.343	2.611**	1.965**	1.472*	-0.133	1.816
	[0.006]	[0.044]	[0.877]	[0.026]	[0.012]	[0.089]	[0.954]	[0.106]
Number of observations	468	396	436	374	405	361	383	343
Number of countries	19	18	19	18	15	15	15	15
R-Squared	0.186	0.220	0.222	0.251	0.159	0.230	0.208	0.283
Adjusted R-Squared	0.126	0.158	0.158	0.186	0.104	0.173	0.150	0.224

*P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t and the economic and political variables variables that appear in Table 5. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.
[†] Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden and the United Kingdom
[‡] Australia, Austria, Canada, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, New Zealand, Norway, Sweden and the United Kingdom
[1] A binary variable that receives the value 1 if the leader was replaced in an election year in the base year.
[2] An interaction between the largest party's share of seats in parliament in a parliamentary system and the variable "replaced leader in EY".

5.5 Spurious (lack of) causation?

Yet another possibility is that leaders raise expenditures as a mechanism to facilitate composition changes, so that the significant positive effect of growth of expenditures on composition change is masking the effect of a change of leader effect on change in expenditure composition. That is, there is a multicollinearity problem when expenditure growth is included in the expenditure composition regressions. In Table 10, as in Table 4, we show that our main results are not sensitive to the inclusion of expenditure growth as a control.

To summarize, *we find no evidence that a change in government leader results in a larger change in the composition of government expenditure in the first two years after the change relative to no change in leaders.* If anything, a change in leaders is associated with less change. How can one explain this lack of effect?

6. Longer-run Effects

To address this question, we examine whether leadership changes are reflected in composition changes over a longer horizon, a four-year period (which corresponds to a term of office in many countries).

Table 10: Leadership Change Effects on Expenditure Composition over 1-2 years, without Controlling for Expenditure Growth

	Cat9_1	Cat12_1	Cat9_2	Cat12_2	Cat9_1	Cat12_1	Cat9_2	Cat12_2
	1	2	3	4	5	6	7	8
Leader Characteristics								
Replaced leader in EY[1]	**-0.542***	**-0.355**	**0.194**	**-0.008**	**-0.597****	**-0.531***	**-0.218**	**-0.356**
	[0.083]	[0.324]	[0.680]	[0.985]	[0.036]	[0.099]	[0.518]	[0.328]
Vote_pres_Replaced Leader in EY[2]	**-0.402**	**-0.613**	**-0.712***	**-0.761***				
	[0.340]	[0.190]	[0.098]	[0.079]				
Party_parl_Replaced Leader in EY[2]	**0.419**	**0.323**	**-0.220**	**0.056**				
	[0.199]	[0.361]	[0.677]	[0.910]				
leader from right or center	0.511**	0.232	0.743**	0.532*				
	[0.038]	[0.360]	[0.010]	[0.084]				
Vote_pres	-0.262	-0.435	0.106	0.344				
	[0.456]	[0.292]	[0.806]	[0.505]				
Party strength_parl	0.029	0.112	0.519	0.669*				
	[0.902]	[0.657]	[0.153]	[0.074]				
Constant	6.515***	5.565***	9.044***	9.844***	6.713***	5.809***	9.737***	10.429***
	[0.000]	[0.005]	[0.000]	[0.000]	[0.000]	[0.003]	[0.000]	[0.000]
Number of observations	969	856	887	773	969	856	887	773
Number of countries	69	66	68	63	69	66	68	63
R-Squared	0.452	0.515	0.552	0.604	0.447	0.510	0.545	0.598
Adjusted R-Squared	0.397	0.461	0.502	0.557	0.395	0.459	0.498	0.553

[*] P values are in the parantheses. The equations also included control for cases where there was an additional leadership change in t-1 or in t and the economic and political variables that appear in Table 5. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] A binary variable that receives the value 1 if the leader was replaced in the base year which was an election year.

[2] An interaction between the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system) and the variable "replaced leader".

In Table 11 we examine simple regressions of changes in expenditure composition on leadership changes, both for all leadership changes and for those associated with elections. To do this we measure the change in expenditure composition over a 4-year period and check whether the leader was replaced in the base year (we include controls for the possibility that there had been a successive leadership change during the period). We find that over this period, leadership changes are indeed associated with larger changes in expenditure composition. This effect is statistically significant only at the more detailed classification of 12 expenditure categories and remains so regardless of whether we control for expenditure growth or not.

Table 11 - Leadership Change Effects on Expenditure Composition: 4 years*

	Dependent Variable	Replaced leader [1]	Replaced leader in election year [2]	Expenditure Growth	Number of observations	Number of countries	R-Squared
1	Cat9_4	0.415 [0.284]			705	55	0.489
2	Cat9_4	0.446 [0.236]		0.041*** [0.000]	705	55	0.507
3	Cat9_4		0.48 [0.283]		705	55	0.490
4	Cat9_4		0.459 [0.291]	0.041*** [0.000]	705	55	0.508
5	Cat12_4	0.849* [0.063]			603	51	0.563
6	Cat12_4	0.957** [0.029]		0.056*** [0.000]	603	51	0.593
7	Cat12_4		1.082** [0.034]		603	51	0.565
8	Cat12_4		1.073** [0.029]	0.055*** [0.000]	603	51	0.594

* P values are in the parantheses. The equations also included controls for cases where there was an additional leadership during the covered period. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] A binary variable that receives the value 1 if the leader was replaced in the base year.

[2] A binary variable that receives the value 1 if the leader was replaced in the base year, and that year was an election year.

This result remains even with the inclusion of the economic and political controls we used in the earlier regressions, as can be seen in Table 12. We also find that the economic variables that we found as affecting expenditure composition change in Table 5 retain their impact at the four-year frame and that the effect of defense spending in developed countries in the base period becomes larger. We also find that the level of GDP per-capita now has a positive and significant effect. In Table 13 we find that for the subset of developed countries the effect is somewhat stronger and with larger statistical significance. Though statistically significant, the magnitudes are not large – in the sample as a whole a change of about 0.7 percent attributable to a leadership change relative to 9% change over a four-year period (see Table 3). It is larger in the developed countries, 1% relative to 6% mean change (see Table A-3).

Table 12: Leadership Change Effects on Expenditure Composition: 4 years Including Economic and Political Controls.*

	Replaced Leader		Replaced Leader	
	Cat9_4	**Cat12_4**	**Cat9_4**	**Cat12_4**
	1	**2**	**3**	**4**
Economic variables				
Expenditure Growth [1]	0.061***	0.076***	0.057***	0.076***
	[0.000]	[0.000]	[0.000]	[0.000]
GDP per-capita growth [1]	-0.051*	-0.069**	-0.053**	-0.068**
	[0.053]	[0.014]	[0.046]	[0.017]
GDP per-capita (in 000's of USD)	0.162**	0.165**	0.158**	0.161**
	[0.011]	[0.028]	[0.012]	[0.035]
Average Inflation (100% inflation=1)	10.577***	9.070***	10.096***	9.143***
	[0.000]	[0.006]	[0.000]	[0.005]
Average Inflation squared	-4.811***	-4.163**	-4.538***	-4.180**
	[0.002]	[0.019]	[0.002]	[0.018]
Expenditure Composition[2]				
Defense share * Less Developed[3]	-0.124	-0.126	-0.084	-0.128
	[0.171]	[0.202]	[0.356]	[0.222]
Defense share * Developed[3]	0.292**	0.471***	0.279**	0.479***
	[0.017]	[0.000]	[0.021]	[0.000]
Social Protection share	-0.072	-0.040	-0.071	-0.039
	[0.130]	[0.439]	[0.135]	[0.450]
Education share * Less Developed[3]	-0.303	-0.553**	-0.284	-0.559**
	[0.185]	[0.035]	[0.218]	[0.036]
Political Characteristics				
Government Size (% of GDP)	0.115**	0.129**	0.110**	0.125**
	[0.014]	[0.017]	[0.019]	[0.023]
New Democracy	2.309*	1.057	2.312*	1.002
	[0.080]	[0.431]	[0.067]	[0.469]
Majoritarian	-0.940	-1.205	-0.873	-1.138
	[0.323]	[0.208]	[0.361]	[0.231]
Majoritarian and New Democracy	-7.214***	-8.618***	-7.411***	-8.378***
	[0.001]	[0.000]	[0.000]	[0.000]
Presidential			0.965	-0.042
			[0.452]	[0.980]
Leader Characteristics				
Replaced leader [4]	**0.263**	**0.739***	**0.285**	**0.739***
	[0.480]	[0.078]	[0.441]	[0.079]
Vote_pres			-0.978**	0.147
			[0.023]	[0.830]
Party strength_parl			0.103	0.297
			[0.791]	[0.440]
Constant	3.264	3.568	3.415	3.547
	[0.272]	[0.271]	[0.258]	[0.297]
Number of observations	698	600	698	600
Number of countries	55	51	55	51
R-Squared	0.576	0.657	0.580	0.658
Adjusted R-Squared	0.527	0.613	0.530	0.612

* P values are in the parantheses. The equations included controls for cases where there was an additional leadership change during the covered period. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Total growth during the period (1% growth=1).

[2] The percent of government spending on the respective category in the base year (1% share=1).

[3] The percent of government spending in the base year on the respective category multiplied by a binary variable for developed or less developed countries.

[4] A binary variable that receives the value 1 if the leader was replaced in the base year.

Table 13: Leadership Change and Political Strength Effects on Expenditure Composition in 4 years Periods - Developed Countries.*

	Replaced Leader		Replaced Leader in Election Year	
	Cat9_4	Cat12_4	Cat9_4	Cat12_4
	1	2	3	4
Leader Characteristics				
Replaced leader [1]	**1.008****	**1.085****	**0.827***	**1.003****
	[0.015]	[0.024]	[0.071]	[0.034]
Vote_pres	0.013	-0.453	0.045	-0.463*
	[0.937]	[0.122]	[0.815]	[0.089]
Party strength_parl	-0.174	0.255	-0.145	0.267
	[0.620]	[0.433]	[0.673]	[0.410]
Constant	-4.424	-1.397	-4.756	-1.857
	[0.167]	[0.461]	[0.148]	[0.356]
Number of observations	423	362	423	362
Number of countries	22	20	22	20
R-Squared	0.338	0.442	0.343	0.436
Adjusted R-Squared	0.278	0.389	0.284	0.384

*P values are in the parantheses. The equations include the controls that appear in Table 12. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.
[1] A binary variable that receives the value 1 if the leader was replaced (in an election year in columns 3-4) in the base year.

Therefore, a part of the answer to why changes in the composition of government expenditure in the first two years after a change in government leader are no larger than when there is no change in leaders – and, if anything, change less– is: "It takes time." Changes in expenditure composition take more time to implement than campaign promises may suggest. This may be due to a learning process after taking office, legislative procedures, and bureaucratic lags. And, it may depend on the motivation to make changes, as the election year results in the next section suggest.

7. Election-year Effects

The ability of (experienced) leaders to change expenditure composition can be seen in the results on changes in spending composition in election years. In Table 14 we add an election year dummy to our earlier one-year regressions. There is still no direct effect of replaced leader, as before. We find however that election years in established democracies are associated with larger changes in expenditure composition than in non-election years, the difference being both statistically significant and large in magnitude (on the order of ¾ of a percent, where the mean change reported in Table 3 was about 4.5%). When we interact election year with new

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democracy, we find a negative coefficient , although in most cases not statistically significant, implying that in new democracies, expenditure composition is not changed more in election years – and possibly even *less* - than in other years. In other words, the higher change in expenditure composition associated with election years is a phenomenon of established democracies.

Table 14: Election Year Effects on Expenditure Composition*

	Replaced Leader				Replaced Leader in Election Year			
	Cat9_1	Cat12_1	Cat9_1	Cat12_1	Cat9_1	Cat12_1	Cat9_1	Cat12_1
	1	2	3	4	5	6	7	8
Economic variables								
Expenditure Growth (1% growth=1)[1]	0.069***	0.079***			0.070***	0.080***		
	[0.000]	[0.000]			[0.000]	[0.000]		
Political Characteristics								
New Democracy	2.278***	2.869***	2.165***	2.673***	2.285***	2.914***	2.158**	2.700***
	[0.006]	[0.001]	[0.010]	[0.002]	[0.006]	[0.001]	[0.011]	[0.002]
Leader Characteristics								
Election Year and New Democracy	**-0.923****	**-0.602**	**-0.856***	**-0.582**	**-0.862***	**-0.613**	**-0.800**	**-0.601**
	[0.035]	[0.250]	[0.058]	[0.289]	[0.070]	[0.276]	[0.104]	[0.307]
Election Year and Established Democracy	**0.634****	**0.779****	**0.634****	**0.777****	**0.704****	**0.780****	**0.696****	**0.773****
	[0.022]	[0.011]	[0.023]	[0.012]	[0.030]	[0.024]	[0.035]	[0.029]
Election year in t+1	0.209	0.015	0.229	0.053	0.133	-0.018	0.147	0.020
	[0.368]	[0.952]	[0.323]	[0.830]	[0.578]	[0.942]	[0.537]	[0.936]
Replaced leader [2]	**-0.025**	**0.021**	**-0.095**	**-0.073**	**-0.154**	**0.090**	**-0.265**	**-0.051**
	[0.928]	[0.941]	[0.737]	[0.797]	[0.583]	[0.788]	[0.368]	[0.883]
Vote_pres_Replaced Leader[3]	**-0.216**	**-0.366**	**-0.152**	**-0.272**	**-0.599**	**-0.820***	**-0.516**	**-0.698**
	[0.587]	[0.386]	[0.704]	[0.519]	[0.129]	[0.061]	[0.218]	[0.132]
Party_parl_Replaced Leader[3]	**0.158**	**-0.021**	**0.370**	**0.237**	**0.039**	**-0.073**	**0.324**	**0.285**
	[0.629]	[0.947]	[0.275]	[0.478]	[0.891]	[0.823]	[0.297]	[0.416]
Vote_pres	-0.244	-0.208	-0.450	-0.470	-0.204	-0.183	-0.404	-0.435
	[0.462]	[0.595]	[0.189]	[0.242]	[0.549]	[0.645]	[0.247]	[0.284]
Party strength_parl	0.026	0.158	-0.042	0.071	0.058	0.162	0.002	0.092
	[0.916]	[0.547]	[0.867]	[0.786]	[0.796]	[0.503]	[0.992]	[0.704]
Constant	4.382***	3.229*	5.602***	4.814***	4.494***	3.225*	5.723***	4.804***
	[0.001]	[0.053]	[0.000]	[0.008]	[0.001]	[0.054]	[0.000]	[0.009]
Number of observations	966	850	966	850	966	850	966	850
Number of countries	69	66	69	66	69	66	69	66
R-Squared	0.487	0.539	0.470	0.520	0.490	0.542	0.473	0.522
Adjusted R-Squared	0.433	0.486	0.415	0.464	0.436	0.488	0.418	0.467

[*] P values are in the parantheses. The equations also included controls for cases where there was an additional leadership change in t-1 or in t and the economic and political variables variables that appear in Table 5. *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Total growth during the period.

[2] A binary variable that receives the value 1 if the leader was replaced (in an election year in columns 5-8) in the base year.

[3] An interaction between the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system) and the variable "replaced leader".

In Table 15 we examine the robustness of our findings with respect to the election year effect, accounting for various political factors that may be associated with it. In the first box we show that the president's party being the largest in parliament does not affect composition

changes in election years. In the second and third boxes, respectively, we find that the election year effect does not depend on the governmental system (presidential versus parliamentary), nor on the electoral system (majoritarian versus proportional). In the fourth box, we examine whether the initial political strength of the incumbent is associated with the magnitude of change in composition during election years; we find no evidence for such an effect in parliamentary systems, while in presidential ones we find some evidence that politically strong leaders tend to change the composition in election years less than weaker ones. Nevertheless, in all these specifications the main results stand: leaders in established democracies tend to change the composition of expenditures in election years more than in other years, while those in new democracies do not.

Given our earlier work, we find this not at all surprising. In Brender and Drazen (2005) we found that new democracies, but not established ones, raise their overall level of expenditures significantly in election years. As discussed earlier in the paper, the absence of an election-year increase in total expenditures in election years in established democracies in general is probably related to the fact that voters punish such increases at the polls, as found in Brender and Drazen (2008). In contrast, we found no evidence that election-year increases in total expenditures or deficits significantly affect reelection probabilities in new democracies. Since increasing overall expenditures or deficits is not an effective tool to gain votes in established democracies (in fact, it reduces the probability of re-election), leaders may rely on changes in the composition of spending to help election efforts. This result is consistent with models of incumbents using the spending composition (Drazen and Eslava, 2009) or targeting special interest groups (Drazen and Eslava, 2008) to gain votes without changing the deficit.

In the fifth box we distinguish between predetermined elections (elections that took place in the original year scheduled when the previous elections took place) and endogenous (early) elections. We find that the positive election year effect in established democracies is due to elections that took place in their predetermined year, indicating that some preparation is probably needed to adjust the expenditure composition in the way that would affect voters in the desired way.[24]

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[24] In our sample of elections, 61 percent are defined as predetermined.

Table 15: Election Year Effects on Changes in Expenditure Composition - Political Characteristics

	Replaced Leader				Replaced Leader in Election Year			
	Exp. Growth[1]		No Exp. Growth[1]		Exp. Growth[1]		No Exp. Growth[1]	
	Cat9_1	Cat12_1	Cat9_1	Cat12_1	Cat9_1	Cat12_1	Cat9_1	Cat12_1
	1	2	3	4	5	6	7	8
Box 1								
Election Year in Established Democracy[2]	0.521*	0.514*	0.643**	0.635**	0.542*	0.512*	0.604*	0.570*
	[0.055]	[0.057]	[0.031]	[0.032]	[0.075]	[0.088]	[0.062]	[0.072]
Election Year in New Democracy[2]	-0.939**	-0.874*	-0.661	-0.628	-0.908*	-0.864*	-0.689	-0.683
	[0.036]	[0.055]	[0.222]	[0.261]	[0.062]	[0.081]	[0.238]	[0.254]
Presidential Control[3]	0.219	0.207	0.273	0.233	0.189	0.176	0.261	0.221
	[0.701]	[0.721]	[0.685]	[0.735]	[0.740]	[0.761]	[0.699]	[0.749]
Presidential Control * Election Year	-0.453	-0.467	-0.753	-0.713	-0.255	-0.252	-0.676	-0.630
	[0.484]	[0.486]	[0.308]	[0.356]	[0.693]	[0.707]	[0.363]	[0.417]
Box 2								
Election Year in Established Democracy[2]	0.619**	0.631**	0.725**	0.730**	0.679**	0.678**	0.718**	0.708**
	[0.028]	[0.027]	[0.017]	[0.018]	[0.041]	[0.045]	[0.041]	[0.049]
Election Year in New Democracy[2]	-0.945*	-0.817	-0.786	-0.741	-0.885	-0.773	-0.771	-0.746
	[0.065]	[0.118]	[0.214]	[0.254]	[0.107]	[0.168]	[0.251]	[0.278]
Presidential * Election Year	0.139	0.070	0.457	0.454	0.137	0.074	0.432	0.436
	[0.800]	[0.901]	[0.526]	[0.542]	[0.803]	[0.895]	[0.549]	[0.559]
Box 3								
Election Year in Established Democracy[2]	0.582*	0.625**	0.737**	0.795**	0.640*	0.673*	0.720*	0.767**
	[0.054]	[0.043]	[0.032]	[0.025]	[0.063]	[0.059]	[0.054]	[0.049]
Election Year in New Democracy[2]	-0.912**	-0.791*	-0.586	-0.510	-0.854*	-0.745	-0.590	-0.529
	[0.035]	[0.074]	[0.260]	[0.348]	[0.068]	[0.122]	[0.290]	[0.362]
Majoritarian * Election Year	0.254	0.073	0.219	0.013	0.244	0.066	0.218	0.015
	[0.609]	[0.883]	[0.666]	[0.980]	[0.618]	[0.894]	[0.664]	[0.977]
Box 4								
Election Year in Established Democracy[2]	0.542*	0.549*	0.698**	0.707**	0.632*	0.625*	0.716**	0.711*
	[0.055]	[0.056]	[0.027]	[0.028]	[0.059]	[0.067]	[0.045]	[0.052]
Election Year in New Democracy[2]	-0.991**	-0.911**	-0.701	-0.674	-0.904*	-0.837*	-0.678	-0.667
	[0.027]	[0.047]	[0.183]	[0.222]	[0.062]	[0.094]	[0.232]	[0.260]
Vote_pres * Election Year	-0.343	-0.335	-0.633*	-0.644*	-0.246	-0.232	-0.607*	-0.619*
	[0.273]	[0.305]	[0.056]	[0.057]	[0.425]	[0.474]	[0.063]	[0.065]
Party_parl * Election Year	-0.225	-0.165	-0.082	0.008	-0.139	-0.079	-0.050	0.032
	[0.329]	[0.512]	[0.750]	[0.978]	[0.544]	[0.754]	[0.848]	[0.909]
Box 5								
Predetermined EY in Established Dem.[2]	0.958***	0.946***	1.202***	1.186***	1.028***	1.007**	1.193***	1.166***
	[0.004]	[0.006]	[0.002]	[0.003]	[0.008]	[0.012]	[0.005]	[0.008]
Predetermined EY in New Democracy[2]	-1.038**	-1.005*	-0.745	-0.774	-0.973*	-0.949*	-0.744	-0.784
	[0.044]	[0.055]	[0.234]	[0.231]	[0.073]	[0.086]	[0.264]	[0.249]
Eearly EY in Established Dem.[2]	0.080	0.106	0.114	0.151	0.156	0.170	0.126	0.146
	[0.825]	[0.766]	[0.771]	[0.693]	[0.688]	[0.659]	[0.764]	[0.725]
Early EY in New Democracy[2]	-0.626	-0.439	-0.223	-0.064	-0.543	-0.371	-0.193	-0.057
	[0.319]	[0.495]	[0.769]	[0.936]	[0.413]	[0.587]	[0.806]	[0.944]

[*]P values are in the parenthesis. The equations also included controls for cases where there was an additional leadership change in t, and the economic and political variables that appear in Table 5. The regressions in Box 4 also include the share of votes received by the president in a presidential system (the largest party's share of seats in parliament in a parliamentary system). *,** and *** indicate statistical significance at the 1,5 and 10 percent level, respectively.

[1] Indicates whether the equation included a control for expenditure growth.

[2] An interaction between binary variables indicating whether the observation is an election year and whether the country belongs to the relavant category.

[3] A binary variable with a value of 1 in a presidential system when the president's party is the largest party in government and in parliament.

8. Conclusions

Our basic conclusion is that leaders can change the composition of government expenditure, but that change takes time. This no doubt reflects the combination of several factors: there is a learning process after taking office, including learning how to navigate the

budget process; there are special interests who continue to push for the same programs under new leaders; and there are legislative or bureaucratic roadblocks that make change difficult. Perhaps this is not surprising – there is a learning curve for any activity, politics included. And, the competing interests that characterize politics make it extremely difficult to effect large changes in policy.

What may be perhaps more surprising is how long it appears to take for leaders to significantly change the composition of government expenditure, three to four years in our data, and, what seems like the relatively small change attributable to a change in leadership –less than one percent in the four years after the change, relative to an overall composition change of eight to nine percent on average over four years. Or, perhaps this is not surprising, since major policy shifts or structural changes generally take many years to implement effectively. From a longer historical perspective, four years may not seem long.

The length of time it takes and the magnitude of change has a clear implication for many countries, especially parliamentary democracies where governments may fall before the end of their full term: when government turnover is rapid, it is more likely to find that leaders have little effect on expenditure composition, rather than to observe chaotic changes. Even if the average tenure of governments is not very short, for example, two to three years, change in leaders may have little effect over time. The case of Israel is illustrative. Between 1996 and 2008 Israel had five election campaigns, four of which resulted in a leadership change. During that *twelve-year* period the 9 categories expenditure composition index changed by 6.7 percent – much less than the average 9% *four-year* change in the entire sample.[25] The common wisdom in Israel is that each government is coming in with its new reform agenda but by the time an action plan is ready the government is replaced so the status quo prevails.

Our results cannot distinguish whether the relatively small and delayed effect of leaders on the composition of public expenditures is because they do not *want* to change it more and more quickly or because they cannot. We note however that where incentives may be especially large, for example in election years, leaders do tend to change the composition more than in other years.

As we noted in the introduction, expenditure composition is only one measure of

government policy and we cannot conclude whether our results on the effect of leaders hold true for other measures of policy. It is well worth exploring, but that requires construction of different datasets and a different paper. Our results suggest to us that the "null hypothesis" for the study of other broad policy measures is that leadership change has no significant effect on policy change in the near-term.

And, as we further noted in the introduction, expenditure composition is an important aspect of policy in itself and changes in composition may indicate the direction of policy change in general. We hope that our results are another step in the complex question of how leaders matter for economic policy, as well as the question of how electoral incentives shape policy choices.

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[25] The average of Cat9_4 in Israel during this period was 2.6% compared to 8% for the sample as a whole and 5.8% in the developed countries.

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Data Appendix

Our sample consists of democracies for which data on expenditure composition were available. The data used in this study were collected from several sources covering economic, fiscal and political variables. We also used information on institutional characteristics of countries, the timing of elections and data related to the party association and career circumstances of country leaders. The data sources we used are listed in Table A-1.

The Sample

Central government expenditure data were collected from the *GFS* (Government Finance Statistics). They are available for the years 1972-2003 but for many countries the covered period is shorter. We restrict our sample to the period for which GFS data are available, even though election years and election results data are available for a longer period.

We limit our sample to democracies by including only the years in which the country has a non-negative score in the *POLITY IV* level of democracy index[26]. That index is calculated as the sum of the scores of each country in each year on two scales: the degree of democracy (a 0 to 10 scale) and the degree of autocracy (a 0 to -10 scale).

The information on leaders and changes in national leadership were collected from World Political Leaders 1945-2008 (http://www.terra.es/personal2/monolith/00index2.htm) and World Statesmen (http://www.worldstatesmen.org/). Leader identification is based on the Presidential variable, described below. In presidential systems the leader is the president and in parliamentary systems the leader is the prime-minister.

Information on election dates was collected from the Institute for Democracy and Electoral Assistance (IDEA) dataset[27] "Voter Turnout Since 1945" and supplemented by data from the ERA (Election Results Archive) (http://cdp.binghamton.edu/era/) and the CIA's "World Factbook".[28] In

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[26] POLITY IV Project Home Page (http://www.systemicpeace.org/polity/polity4.htm)
[27] International IDEA (http://www.idea.int/vt/)
[28] Additional sources used to complement the data on election dates were: **Wikipedia**, the free encyclopedia (www.wikipedia.org); **African Elections Database** http://africanelections.tripod.com/index.html).

Presidential systems, we used only presidential elections and in Parliamentary systems only parliamentary ones. The identification of the political system was according to whether the chief executive responsible for economic policy is elected directly by the public (*Presidential*) or by parliament (*Parliamentary)*, as in Persson and Tabellini (2002). For example, France is defined as parliamentary since the government and the prime minister are dominant in determining economic policy, rather than the president. (Though the prime minister is formally chosen by the president and then elected by the legislature, he generally he comes from the majority party in the latter.) These definitions are based on the variable SYSTEM in the *DPI* dataset[29].

Fiscal Years

In countries in which the fiscal years are not the calendar years, we adjusted all the data to fit the fiscal years. For example, in Canada the fiscal year starts on April 1st and ends at March 31st the following year. Hence, elections in March 2009 would be in the 2008 fiscal year. Data about fiscal years are from the *GFS* books, supplemented by IFS data when information is missing in the GFS.

Expenditure Composition Data

Expenditure composition data for Consolidated Central Government were used where available and Budgetary Central Government otherwise. Data for the years 1990-2003 were taken from the GFS CD and data for the years 1972-1989 were taken from the GFS Historical Data CD. These were supplemented by GFS yearbooks.

GFSM 2001 accounting was applied retroactively to GFS data from 1990 and on. The expenditure data on the GFS CD, namely the GFS data from 1990 and on, are reported by the IMF according to GFSM 2001 accounting. As a result the definitions of the GFS CD differ from the GFS Historical Data CD for several of the expenditure categories we use. In order to calculate the changes in expenditure composition between data points reported according to the same accounting system, we used expenditure data from the GFS yearbooks for the years 1990-1993[30]. These data, reported according to the same definitions as the historical GFS, were used to calculate the changes in compositions for the

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[29] Database of Political Institutions - http://go.worldbank.org/2EAGGLRZ40
[30] We used the volumes from the years 1995-1997.

years 1990-1993 (which are calculated relative to 1986-1989). In contrast, when calculating the changes in the following years – relative to 1990-1993 – we used the GFS CD.

Many of the countries in our sample switched from Cash to Accrual reporting in the GFS between the years 1995-2002. In this switch, several countries also changed some of their reporting definitions, creating analytical inconsistencies. To base the calculation of the changes in expenditure composition between data points on the same accounting system, we used expenditure data from the GFS yearbooks for the years 1995-2002[31] for the countries that switched systems and did not maintain reporting of consistently defined series. These data were used to calculate the changes in compositions for the years in which the switches occurred and the three subsequent years. In cases where such bridging data were unavailable, we excluded the observation.

Expenditures are reported in 12 categories: General Public Services (_82A..HZG), Defense (_82B..HZG), Agriculture, Forestry, Fishing and Hunting (_82HB..HZG), Fuel and Energy (_82HD..HZG), Mining, Manufacturing and Construction (_82HC..HZG), Other Economic Services [Economic Services (_82H..HZG) - Agriculture, Forestry, Fishing and Hunting, Fuel and Energy, Mining, Manufacturing and Construction], Housing and Community Amenities (_82F..HZG), Health (_82D..HZG), Recreation, Culture and Religion (_82G..HZG), Education (_82C..HZG), Social Protection (_82E..HZG) and Other [Subtracting the sum of the above 11 categories from Total Expenditure (_82..HZG)].

For most countries all 12 categories were available; however for some countries 3 categories of Economic Services [Agriculture, Forestry, Fishing and Hunting; Fuel and Energy; Mining, Manufacturing and Construction] were not available. For those countries we used 9 expenditure categories: General Public Services (_82A..HZG), Defense (_82B..HZG), Economic Services (_82H..HZG), Housing and Community Amenities (_82F..HZG), Health (_82D..HZG), Recreation, Culture and Religion (_82G..HZG), Education (_82C..HZG), Social Protection (_82E..HZG) and Other [Subtracting the sum of the above 8 categories from Total Expenditure (_82..HZG)].

We built the variable "Change in Expenditure Composition" by first dividing expenditures in each of the 12(9) categories by Total Expenditure to get percentages. We then took the absolute value of the change in percentages between the variable in the current observation and the same variable 1,2,3 or 4

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[31] We used the volumes for the years 1998-2006

years before (for Cat12(9)_1,2,3 or 4 respectively), summed up the absolute values over all 12(9) categories and divided by 2 (in order to prevent double counting of expenditure changes).

EXP_i_0 is the value of Expenditure on category i in the current observation and EXP_i_{-x} is the value of Expenditure on category i x years before.

TXP_0 is the value of Total Expenditure in the current observation and TXP_{-x} is the amount of Total Expenditure x years before.

$$Cat12\_x = \sum_{i=1}^{12} \left| (EXP\_i_0 / TXP_0) - (EXP\_i_{-x} / TXP_{-x}) \right| / 2 * 100$$

$$Cat9\_x = \sum_{i=1}^{9} \left| (EXP\_i_0 / TXP_0) - (EXP\_i_{-x} / TXP_{-x}) \right| / 2 * 100$$

For example, if Cat9_1 equals 3, this means that three percent of expenditure shifted between categories between this year and the previous year.

If an observation lacked data in any of the above 12(9) categories in the current or previous years it was dropped from the dataset. The observation was also dropped if there was a break in the series between the current observation and the observation 2, 3 or 4 years before (for Cat12(9)_1,2,3 or 4 respectively).

To avoid a dominant effect of extreme observations (outliers) on the results, in the final dataset we included only observations in which *Cat12(9)_X* fell within the following range:

Cat9_1<25   *Cat9_2*<27   *Cat9_4*<30   *Cat12_1*<28   *Cat12_2*<33   *Cat12_4*<30

For developed countries we implemented a stricter restriction of Cat9_1& Cat12_1<18 which is about 6 times the sample average (Table A-3).

A list of the country years which are included in each sample in the dataset is provided in http://econweb.umd.edu/~drazen/ and http://www.nber.org/data-appendix/w15368 . The number of observations dropped due to the constraint on the change in expenditure composition is reported in Table A-2 and the list of observations dropped is also reported in http://econweb.umd.edu/~drazen/.

Replaced Leader

Rep_lead – A binary variable receiving the value 1 if the leader on the last day of the fiscal year is different from the leader in the previous observation, and the value 0 if the leader is unchanged. The calculations are based on the leader definition above.

Ey_rep_lead – A binary variable receiving the value 1 if the current observation is an election year **and** the leader on the last day of the fiscal year in the current observation is different from the leader in the previous observation.

Political alignment

The political alignment variables for each country in each year are based mainly on the variable EXECRLC in the *DPI* dataset. We adjusted the data from calendar to fiscal years where necessary, because DPI data are as of January 1st each year while ours are as of the last day of the fiscal year. We supplemented the data with information from Worldstatesmen.org and "World Political Leaders 1945-2008", using coding of parties in the DPI to add political alignment for years before 1975. The political alignments we used are: L-Left, R-Right, C-Center and U-Unaffiliated.

The political alignment variables are written in the general form "XY"

CHIEF_XY – A binary variable receiving the value 1 if the current leader's political alignment is X or Y. Where we examine only one specific alignment X or Y is dropped.

X_to_all – A binary variable receiving the value 1 if the previous leader's political alignment was X and the current leader has a different political alignment.

Ch_align - a binary variable receiving the value 1 if the current leader's political alignment is different from that of the previous leader.

Political Strength Variables

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The political strength variables for each country in each election year are mainly based on *DPI* data. These variables (1GOVSEAT, PERCENT1, PERCENTL in *DPI*) are available for the period 1975-2004. For the other years: 1972-1975, we used data from *IDEA* and completed missing information from *ERA*.

PARTY_STR - the percent of seats in the parliament held by the leader's party on the last day of the fiscal year in the current observation. It receives the value 0 in a presidential system (in cases where data are from *IDEA* it is the proportion of the public's votes received by the party). It was standardized in each sample by subtracting its average in that sample and then dividing by its standard deviation in that sample.

VOTE - the percent of votes for the current president in the first round of the most recent elections, the current leader being the leader on the last day of the fiscal year in the current observation; receives the value 0 in a parliamentary system. It was standardized in each sample by subtracting its average in that sample and then dividing by its standard deviation in that sample.

Economic variables

<u>Economic growth</u>

The economic growth calculation is based on: ***GDPPC***- real per-capita GDP for each country in each year, which is taken from the "World Development Indicators" (WDI) dataset of the World Bank.

Using ***GDPPC*** we calculate: ***GDPPC_gr*** in the following way:

GDPPC$_0$ is the value of ***GDPPC*** in the current observation and ***GDPPC$_{-X}$*** is the value of ***GDPPC*** X years before:

- ***GDPPC_gr_X*** $= \left(\dfrac{\text{GDPPC}_0}{\text{GDPPC}_{-X}} - 1 \right) * 100$; which is the total GDPPC growth in percentage points

over the last X years.

To avoid a dominant effect of extreme observations (outliers) on the results, in the final dataset we included only observations in which ***GDPPC_gr_X*** fell within the following range:

15>***GDPPC_gr_1***>-15 (1=1% growth)   20>***GDPPC_gr_2***>-20 (1=1% growth)

30>***GDPPC_gr_3***>-20 (1=1% growth)   40>***GDPPC_gr_4***>-15 (1=1% growth)

The number of observations dropped in each sample due to this restriction is reported in Table A-2 and the list of observations dropped is reported in http://econweb.umd.edu/~drazen/.

<u>Inflation</u>

INF is the average year-on-year CPI percentage change for each country in each year, which is taken from the IFS database (series code _64..XZF).

Using *INF* we calculated *INF_avg_1,2,3,4* and *INF_avg_1,2,3,4sq*, in the following way:

INF_0 is the value of *INF* in the current observation and INF_{-i} is the value of *INF* i years before:

- $INF\_avg\_X = \left(\sqrt[X]{\left[\prod_{i=1-X}^{0} \left(1 + \frac{INF_i}{100} \right) \right]} - 1 \right)$; which is the average inflation rate over the last X years.

- $INF\_avg\_Xsq = \left(\sqrt[X]{\left[\prod_{i=1-X}^{0} \left(1 + \frac{INF_i}{100} \right) \right]} - 1 \right)^2$; which is the square of the average inflation rate over

the last X years.

In the final dataset we excluded observations in which *INF_avg_X* was in the following range:

20<*INF_avg_1* (1=100% inflation)   2<*INF_avg_4* (1=100% inflation)

The number of observations dropped in each sample due to this restriction is reported in Table A-2 and the list of observations dropped is reported in http://econweb.umd.edu/~drazen/.

<u>Expenditure growth</u>

The real expenditure growth calculation is based on Total Expenditure from the GFS and *INF* from the IFS.

TXP_0 is the value of Total Expenditure in the current observation and TXP_{-i} is the value of Total Expenditure i years before:

We calculate **EXP_gr_X** as follows $= \left\langle \left\{ (\text{TXP}_0/\text{TXP}_{-X}) / \left[\prod_{i=1-X}^{0} \left(1 + \frac{\text{INF}_i}{100} \right) \right] \right\} - 1 \right\rangle * 100$; which is the

growth in total expenditure over the last X years divided by the total inflation over the last X years.

EXP_gr_X is therefore expressed in percentage points – if **EXP_gr_2** equals 3 this means there has been 3 percent real growth in the total expenditure over the last 2 years.

New vs. Established Democracies

New_Democracy – A binary variable, for each country in each year, receiving the value 1 for the period until the 4th election after a country with a negative *polity* value in the *POLITY IV* dataset shifted to non-negative values, not counting the elections in the transition year. Otherwise, the country is defined as an *Established Democracy* and the variable receives a value of 0.

Established – A binary variable, for each country in each year, receiving the value 1 if the country is defined as an *Established Democracy* in that year.

Developed vs. Less Developed Countries

Developed – A binary variable, for each country, receiving the value 1 for OECD economies that were members of the organization during the entire sample period.

Less_Developed – A binary variable, for each country, receiving the value 1 for all the countries that are not defined as developed.

Proportional vs. Majoritarian Electoral Rules

The *DPI* provides information, in each country and in each year, whether candidates for presidency or parliament are elected based on the total share of votes received by their party or on the majority of votes in each voting zone (e.g., district). In the former case the electoral system is defined in the *DPI* as *Proportional* representation (PR in the *DPI*) and in the latter as *Majoritarian* representation.

Prop – A binary variable, for each country in each year, receiving the value 1 in a country with a *Proportional* electoral system, and 0 otherwise.

Maj – A binary variable, for each country in each year, receiving the value 1 in a country with a *Majoritarian* electoral system, and 0 otherwise.

Presidential vs. Parliamentary Constitutional Rules

Based on the constitutional rules defined above we calculated the following variables:

Pres - A binary variable, for each country in each year, receiving the value 1 in a country with a *Presidential* system, and 0 otherwise.

Parl - A binary variable, for each country in each year, receiving the value 1 in a country with a *Parliamentary* system, and 0 otherwise.

Population over the age of 65

The percentage of the population over age 65 for each country in each year is taken from the WDI dataset of the World Bank.

War

The War variable is based on The Heidelberg Institute of International Conflict Research's COSIMO database (http://www.hiik.de/en/kosimo/index.html). It is a binary variable receiving the value 1 if this country in this year has a conflict with an "Intensity of Conflict" rating of 4=War in the database.

Government size

The Government Size for each country in each year is constructed by dividing Total Expenditure from IFS (series GF_*countrynumber*_cB_BA_2) by GDP from the IFS.

Number of Parties in Government

The *DPI* provides information, in each country and in each year, about the 3 largest parties in government and opposition and provides aggregate information regarding all other parties in government and opposition.

Number of Parties in Government – 1, plus 1 if the DPI lists the existence of a 2nd largest Government Party, plus 1 if the DPI lists the existence of a 3rd largest Government Party, plus the number of parties listed in the DPI under House-Other Govt. Parties.

Presidential Control

The *DPI* provides information, in each country and in each year, as to the party affiliation of the chief executive, the names of the 3 largest parties in government and in opposition and the number of seats in parliament each party holds.

Pres_Control – A binary variable, for each country in each year, receiving the value 1 in a country with a *Presidential* system in which the president's party is the largest party in government and in parliament and 0 otherwise.

Table A-1: Data Sources

Source Name	Code	Dataset Producer	Date	Variables	Available Years
International Financial Statistics	IFS	International Monetary Fund	2006	central government total expenditure and total revenue and grants; Inflation	1960-2003
Government Financial Statistics	GFS	International Monetary Fund	2006	central government total expenditure, expenditure by category and total revenue and grants	1972-2003
World Development Indicators	WDI	The World Bank	2005	GDP per capita in constant 2000 US$, GDP in constant 2000 US$, Population over 65	1960-2003
POLITY IV	POLITY	University of Maryland	2003	Level of Democracy index	1800-2003
Database of Political Institutions	DPI	The World Bank	2004	political system, term limits, election results and the allocation of seats in parliament, election system, political alignment.	1975-2004
Voter Turnout Since 1945 to Date	IDEA	Institute for Democracy and	Current	election years, election results	1945-2006
The Center on Democratic Performance	CDP	Binghamton University	Current	election years, election results, election dates	1974-2004
Electionguide.org	IFES	International Foundation for	Current	election dates	1998-2005
World Political Leaders	ZPC	Zárate's Political Collections	Current	leaders' names, dates of accession and their party association	1945-2008
The World Factbook	CIA	Central Intelligence Agency	Current	election dates, frequency of elections in a country, political system	1960-2008
Worldstatesmen.org		Ben M. Cahoon	Current	leaders' names, dates of accession, and their party association	1945-2008

Table A-2: Numbers of Observations Dropped by Variable Limitation and Dataset *

	9 Expenditure Categories				12 Expenditure Categories			
	1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years
Change in Expenditure Composition	7	9	4	1	5	7	3	0
Change in GDP Per Capita	3	9	7	9	3	9	7	9
Average Inflation	5	-	-	14	4	-	-	14

* The listed limitations are cumulative, therefore the number of observations dropped in each line assumes that observations that fail a previous constraint had already been dropped.

Table A-3: Descriptive Statistics of the Change in Expenditure Composition by Country Characteristics*

Change in Expenditure Composition [1]		9 Expenditure Categories				12 Expenditure Categories			
		1 year	2 years	3 years	4 years	1 year	2 years	3 years	4 years
All Countries	mean	4.473	6.317	7.747	7.926	5.144	7.105	8.577	8.754
	stdev	3.890	4.778	5.764	5.030	4.352	5.185	6.089	5.431
Developed	mean	2.958	4.267	5.370	5.811	3.196	4.664	5.672	6.256
	stdev	2.602	2.943	3.824	3.511	2.446	3.085	3.410	3.417
Undeveloped	mean	6.292	8.966	10.917	11.099	7.294	10.065	12.311	12.507
	stdev	4.373	5.132	6.364	5.295	4.945	5.657	6.712	5.734
New Democracies	mean	6.124	8.968	10.925	10.741	6.990	9.990	12.290	12.235
	stdev	4.362	5.326	6.559	5.442	4.852	5.730	6.805	6.120
Established Democracies	mean	3.701	5.330	6.506	7.073	4.277	5.918	7.179	7.779
	stdev	3.385	3.964	4.895	4.572	3.802	4.433	5.150	4.795
Presidential	mean	6.195	9.105	11.135	11.201	7.293	10.154	12.591	12.706
	stdev	4.434	5.281	6.675	5.490	5.044	5.736	6.955	5.980
Parliamentary	mean	3.686	5.204	6.294	6.665	4.129	5.771	6.856	7.290
	stdev	3.333	3.870	4.624	4.214	3.562	4.296	4.735	4.394
Majoritarian	mean	4.225	5.703	6.604	6.854	4.797	6.479	7.143	7.449
	stdev	3.597	4.325	4.485	3.498	4.221	4.992	4.686	3.740
Proportional	mean	4.539	6.599	8.030	8.209	5.252	7.294	8.992	9.164
	stdev	3.964	4.793	6.007	5.328	4.389	5.231	6.381	5.805

* For detailed information on the construction of the variables and definitions of country characteristics see the data appendix.

[1] The percentage change in Expenditure Composition within 9 or 12 categories during the period.

Table A-4: Majoritarian New Democracies in the Sample

	9 Categories			
	Cat9_1	**Cat9_2**	**Cat9_3**	**Cat9_4**
Bangladesh	2002-2003	2003	**-**	**-**
Chile	2002-2003	2003	**-**	**-**
Ethiopia	1996-1999	1997-1999	1998-1999	-
Iran	1998-2001	1999-2001	2000-2001	-
Malaysia	1973-1978	1974-1978	1975-1978	1976-1978
Mauritius	1981-1982	1982	-	-
Mongolia	1993-1994, 1996-1998, 2001-2002	1994, 1997-1998, 2002	1997-1998	-
Nepal	1998-2001	1999-2001	2000-2001	2001
Thailand	1975, 1979-1990	1980-1988	1981-1988	1982-1989

	12 Categories			
	Cat12_1	**Cat12_2**	**Cat12_3**	**Cat12_4**
Bangladesh	2002-2003	2003	**-**	**-**
Chile	2002-2003	2003	**-**	**-**
Ethiopia	1996-1999	1997-1999	1998-1999	-
Iran	1998-2000	1999-2000	2000	-
Malaysia	1974-1975, 1978	1975, 1977	1977-1978	1977-1978
Mauritius	1981-1982	1982	-	-
Mongolia	1993-1994, 1996-1998, 2001-2002	1994, 1997-1998, 2002	1997-1998	-
Nepal	1998-2001	1999-2001	2000-2001	2001
Thailand	1975, 1979-1990	1980-1988	1981-1988	1982-1989