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ABSTRACT

Political Fragmentation and Projected Tax Revenues: Evidence from Flemish Municipalities

by Stijn Goeminne, Benny Geys and Carine Smolders *

The level of revenues pocketed by a government during the fiscal year often deviates from that projected by this government in its budget. Despite a flourishing literature on, for example, the technical or procedural determinants of such forecast errors, little is yet known about how political stratagems may affect forecast errors. In the present paper, we analyse whether differences in the level of government fragmentation are useful in explaining local government tax revenue forecast errors – controlling for various other factors. Using data on 242 Flemish municipalities for the period 1992-2002, we find that two-party governments are more optimistic than single-party governments. In contrast to our initial expectations, governments with at least three parties are significantly more careful (or less optimistic) in their revenue projections than single- or two-party governments.

Keywords: Revenue projections, forecast accuracy, local taxation, Flemish municipalities, government fragmentation

JEL Classification: D72, H72, H79

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ZUSAMMENFASSUNG

Politische Zersplitterung und erwartete Steuereinnahmen: Empirische Belege aus flämischen Gemeinden

Die Einnahmen einer Regierung während eines Steuerjahres weichen oft von den vorherigen Budgetkalkulationen dieser Regierung ab. Diese Prognosefehler sind zwar schon bezüglich ihres technischen und institutionellen Kontextes empirisch erforscht worden, allerdings fehlt es bisher an Kenntnissen, was den Effekt politischer Variablen betrifft. In der vorliegenden Veröffentlichung wird untersucht, ob die politische Fragmentierung der lokalen Regierungen einen wichtigen Faktor zur Erklärung von Prognosefehlern darstellt, dabei immer kontrollierend für verschiedene andere Elemente. Unsere empirische Analyse von 242 der 308 flämischen Gemeinden im Zeitraum 1992-2002 zeigt erstens, dass Regierungen mit zwei Parteien eher optimistisch ihr Budget planen. Sie setzen mehr Einnahmen voraus, als sie während des Steuerjahres bekommen. Im Gegensatz zu unserer Hypothese zeigt die Analyse aber auch, dass ab 3 Parteien in einer Regierung die Überschätzung der Einnahmen geringer wird.

1. Introduction

Theoretical and empirical research shows that differences in the political and institutional characteristics of governments are important determinants of the (fiscal) policies they pursue. A central role in this respect is often given to government fragmentation, that is, to the extent in which power is dispersed over different parties or politicians. For example, in their path-breaking work, Roubini and Sachs (1989a, b) show that weaker (i.e. more fragmented) governments tend to face larger budget deficits and debts. This lack of (fiscal) austerity in fragmented governments is often explained by pointing to their higher spendthrift. Compared to one-party governments, fragmented governments tend to have higher spending levels, which leads to their inferior budgetary outcomes (e.g. Volkerink and de Haan, 2001 and Perotti and Kontopoulos, 2002). In the present paper, we focus on the revenue rather than the expenditure side. Moreover, we take the analysis one step back by looking at government behaviour at the time of drafting the budget (instead of concentrating exclusively on actual spending or revenue data). Specifically, we examine whether fragmented governments tend to be systematically more optimistic (than one-party governments) about expected revenue levels. Such behaviour leads to negative budgetary 'surprises' during the fiscal year and 'unexpected' deficits post hoc, thus providing an alternative explanation for the higher budget deficits of fragmented governments.

Three possible reasons can be advanced why government fragmentation would lead to more optimistic revenue forecasts. Firstly, highly fragmented governments facing a balanced budget requirement and the impossibility to spend money that was not entered into the budget (such as is the case at the Belgian local government level) can help accommodate their higher spendthrift by an 'optimistic bias'. Indeed, "some commentators have suggested that budget estimates are inherently sensitive to political pressures which, it is presumed, sacrifice accuracy in order to mitigate the need to undertake program cuts" (Plesko, 1988, 483). Secondly, though related, a rosy estimate may facilitate decision-making on the budget. As reaching agreement is more difficult under highly fragmented governments, easing the 'war of attrition' (cfr. Alesina and Drazen, 1991) through optimistic assessments of future revenues may be most needed under such circumstances. Finally, when parties fear to lose their position in the ruling majority after upcoming elections, they may want to curtail the policy options of their successors by incurring fiscal deficits and debts (cfr. "strategic use of debt" models by Persson and Svensson, 1989; Alesina and Tabellini, 1990 and Tabellini and Alesina, 1990). As parties in a coalition government are likely to be less certain about future power than one-party governments, they may have a larger incentive to be (over)optimistic with respect to budgeted revenues (thereby creating fiscal deficits post hoc and restricting the options of future governments).

We are not the first to regard the accuracy of the government's budget forecasts. Still, though some scholars regard European countries (e.g. Bisschoff [2004] on German Länder; Lago-Peñas and Lago-Peñas [2004] on Spanish municipalities and Serritzlew [2005] on Danish municipalities), most of the literature focuses on the US (e.g. Bretschneider and Gorr, 1987; Rubin, 1987; Plesko, 1988; Bretschneider *et al*., 1989; Cassidy *et al*., 1989; Shkurti and Winefordner, 1989; Miller, 1991; Mocan and Azad, 1995; Auerbach, 1995, 1999; Deschamps, 2004; Voorhees, 2004 and Reddick, 2004).[1] Given the characteristics of the party system in the US, this precludes a thorough analysis of the effect of government fragmentation on (local) government revenue forecast accuracy. The present paper addresses the latter issue –

[1] In addition, several scholars indirectly analyse the gap between budgeted and actual revenues by considering the adequacy of tax collecting bodies using a tax technology function (e.g. Mayshar, 1991; Hunter and Nelson, 1995; Young *et al*., 2001; Esteller-Moré, 2005).

i.e. whether political fragmentation leads to politically-motivated manipulation of the budget – using a panel dataset on 242 Flemish municipalities for the period 1992-2002.

The remainder of the paper is structured as follows. Section 2 reviews the literature on (revenue) projection errors and presents the theoretical basis for our main research hypotheses. The Flemish institutional background is clarified in section 3. Section 4 introduces the empirical analysis. The main findings are summarized in section 5.

2. Literature and hypotheses

Under- or overestimation of revenues can be due to inadequate forecasting, inefficient revenue collection or both. Hence, to explain revenue forecast errors, we should determine the elements that undermine the government's ability and willingness to make adequate assessments of their future revenue streams and/or those that lead to inefficient revenue collection. Most authors studying the quality of tax projections mainly point to the influence of the technical aspects of the budgeting and tax collection process. These elements are discussed in sections 2.1 and 2.2 respectively. However, in this paper, we draw attention more explicitly to the effect of political-institutional characteristics of governments – and especially their level of fragmentation. These political economy explanations of revenue forecast bias are more extensively considered in section 2.3.

2.1. The role of procedures or information in the budgeting process

The accuracy of budget (or economic) forecasts is likely to depend on the procedures and technique used to reach the forecast. While some jurisdictions rely on 'expert' judgments and opinions (i.e. an "intuitive" approach), others use extrapolative or trend analysis (i.e. an "incremental" approach) or even deterministic and econometric analysis (i.e. a "causal" approach) (see Reddick, 2004). Although it appears plausible that more sophisticated techniques lead to more accurate forecasts, the results from empirical research are not consistent. For example, Mocan and Azad (1995) show that more advanced techniques indeed reduce forecast error, but Bretschneider *et al*. (1989) find the opposite to be true. Voorhees (2004), finally, finds no significant relationship at all. This empirical ambiguity suggests that the supremacy of one technique over another may depend on organizational and environmental factors, such as the capacity of the government to use the different techniques and the availability and quality of data.

Deviations from projected tax revenues may also result from building forecasts on (what turn out to be) erroneous assumptions. This can first of all arise from unpredictable changes in tax laws after the budget was made up (Plesko, 1988; Miller, 1991; Auerbach, 1995). Next to such policy-related errors, one can also distinguish between economic and technical errors (CBO, 1997). Economic errors are those attributable to inaccurate forecasts of macroeconomic variables (i.e. economic growth, inflation, unemployment, interest rates). Technical errors are residual forecast errors (induced by for example changing tax compliance behaviour or tax base mobility).[2] Importantly, the impact of these various sources of forecast error depends on the way they are related to the tax portfolio. As far as the uncertainty about, say, tax base mobility is specific to a given tax ('idiosyncratic risk'), diversification of the tax portfolio might be a useful strategy to accommodate this problem. Yet, governments are also facing general shocks (e.g. war, economic slowdown, disasters, …), which affect tax revenues generally. In contrast to idiosyncratic risks, tax structure diversification does little to abate

[2] Auerbach (1999) rightly states that the distinction between economic and technical errors is somewhat arbitrary. For example, revisions to macroeconomic forecasts that are anticipated at the time of revenue forecasting but are not yet official may be incorporated as a technical element.

these risks.[3] From an empirical point of view, little is known about the importance of these various types of forecasting errors. Plesko (1988) attributes forecast errors in the receipts, outlays and deficit estimates of the two American budget-forecasting offices (CBO and OMB) over the period 1974-1987 mostly to policy-related errors. Auerbach (1995) rather points to the inadequate estimate of taxpayer responses to tax initiatives (or technical errors) in a study of revenue forecast errors in the US over the period 1982-1993.

Finally, given that information is incomplete at the forecasting stage, projection errors also depend on the risk attitude of decision makers towards the (uncertain) occurrence of a (negative) disruptive event. If the government is risk averse, it is likely to assume the event will take place and to lower its revenue forecast accordingly. In case the event actually takes place the budget balances; if it does not, revenues are underestimated. Risk-loving decision-makers on the contrary are likely to disregard the possible occurrence of the disruptive event. When the event occurs, revenues are overestimated, while in the absence of the event the projections are correct. Note in this respect that most of the literature portrays revenue underestimation as a standard practice resulting from a human response to uncertainty (Rubin, 1987; Bretschneider and Gorr, 1989).

2.2 The tax collection process

Revenue projections may be above actually pocketed revenue levels when the tax administration fails to adequately collect the tax liabilities. As such, revenue forecast bias is related to tax administration performance. The extent to which they succeed in garnering the maximum possible amount of tax liabilities depends first of all on the tax technology function. Mayshar (1991) identifies the major components of this function to be the number of tax inspectors and general staff, the stock of capital and the marginal statutory tax rate. While the first two elements are likely to increase the amount of revenues collected, the last component is likely to decrease tax collections (due to a higher effort on the part of taxpayers to evade payment of their taxes).

Interestingly, more recent research indicates that the tax administration's effort to reduce tax non-compliance may also be affected by the government's budgetary and electoral concerns. Esteller-Moré (2004), for example, finds that Spanish regional governments more actively engage in enforcing tax rules when facing or expecting a larger deficit. When, on the other hand, the share of unconditional grants in total revenues increases, regional efforts to collect taxes decrease. Young *et al*. (2001, 201) report "the fraction of individual income tax returns audited [by the IRS] is significantly lower in districts that are important to the president electorally and that have representation on key congressional committees". This supports the finding of Hunter and Nelson (1995, 53) that the IRS "shifts enforcement away from states represented by legislators who sit on committees with oversight responsibility for the IRS".

2.3 Political fragmentation and revenue projection bias

The previous two explanations point to forecasting errors resulting from mainly technical aspects in the budgeting and tax collection process. Yet, even in the absence of the distorting factors noted above, tax projections might still not be accurate. In fact, we argue that political-institutional characteristics of the government may affect (or incite) revenue forecast errors. To date, only few studies take such elements into account and thereby mostly focus on electoral and ideological effects (e.g. Bretschneider and Gorr, 1987; Cassidy *et al*.,

[3] This relates to the difference between the risk related to an individual asset and the risk affecting the market as a whole in portfolio management theory (in financial economics).

1989; Ohlsson and Vredin, 1996; Bischoff, 2004; Serritzlew, 2005; Paleologou, 2005). As mentioned in the introduction, we focus on the effect of government fragmentation on forecasting behaviour. To the best of our knowledge, this has only been briefly taken up by Serritzlew (2005). Still, several scholars have previously addressed whether "political party dominance" affects forecasting accuracy (e.g. Rubin, 1987; Bretschneider and Gorr, 1987; Bretschneider *et al*. 1989; Cassidy *et al*., 1989; Shkurti and Winefordner, 1989; Mocan and Azad, 1995; Voorhees, 2004; Paleologou, 2005). However, in a two-party setting such as the US or the UK (where all these studies focus on), it is unclear to what extent this "dominance" also captures ideological differences between the parties. Moreover, this two-party setting precludes a test of whether the number of parties in the government as such affects forecasting accuracy. It is exactly the latter relation that is central to the present analysis.

Specifically, we hypothesize that fragmented governments are susceptible to be more optimistic about future revenues. Three arguments can be thought of to support this contention: government weakness, the 'war of attrition' and strategic use of government policy.

The weak government hypothesis

Over the past 15 years, a growing body of empirical evidence has developed in support of the "Weak Government Hypothesis" (WGH; Roubini and Sachs, 1989a, b). This hypothesis states that weaker – i.e. more fragmented – governments tend to follow less restrictive fiscal policies leading to higher levels of expenditures as well as higher debts and deficits (for recent evidence, see Ricciuti, 2004 and Borge, 2005; for a review, see Ashworth *et al*., 2005). To finance this higher spendthrift, fragmented governments require more revenues and may therefore be tempted to increase their financial leeway be being more optimistic in their revenue projections (see also Voorhees, 2004).

This effect is likely to be especially strong in our setting (i.e. the Flemish municipalities) due to two restrictions on local budgetary decision-making. Firstly, no expenses are allowed unless they are written into the municipality's budget. That is, to execute an expenditure plan in year t, it must be taken up in the budget drafted in year t-1. While this does not imply that expenditure shocks cannot occur, such additional spending should first be written into the budget through so-called budget amendments (which have to be approved by a majority of the local council) (see also footnote 5). Secondly, Flemish municipalities are obliged to present a balanced budget. As this rule does not imply a statutory obligation to close the fiscal year with a balanced account, the balanced budget requirement is rather "weak" (cfr. Poterba, 1995) and unrealistic revenue estimates can lead to ex-post budget deficits. Both these specificities together make that optimism over revenue streams allows fragmented governments to implement a higher level of expenditures at time t without needing to worry about a need to balance the budget ex post. Moreover, optimistic revenue forecasts carry a lower political cost in terms of votes lost at election time (at least in the short term) compared to an increase in taxation. As politicians can be expected to act in a way to minimize the political costs of their actions (see e.g. Hettich and Winer, 1984, 1988), over-estimation of future revenues is more likely to occur than, say, increases in tax rates.[4]

It is important to note here that we do not impose an explicit objective by fragmented governments to consciously overestimate tax revenues to accommodate their higher expenditures (i.e. we do not assume a desire for deficits in fragmented governments). The politicians drafting the budget may well believe in achieving the budgeted level of revenues. Indeed, the 'cognitive dissonance' literature argues that people have preferences over their states of beliefs and select sources of information to confirm these 'desired beliefs' (see e.g.

[4] Poterba (1994) explicitly points to the use of such 'cosmetic accounting' to satisfy balanced-budget rules. For an overview of the impact of balanced-budget rules on fiscal policies, see Poterba (1995).

Akerlof and Dickens, 1982). In other words, people like to believe what they want to be the(ir) truth. Or, in our story, politicians desire a certain level of revenues (which is likely to be higher for fragmented governments) and they are convinced to realize (at least) that revenue level. This conviction is built on arguments that support the achievement of this revenue level while other arguments that reject these beliefs are disregarded.

War of attrition

In their pioneering work, Alesina and Drazen (1991) model fiscal decisions within coalition governments as a 'war of attrition'. For example, in the event of an (exogenous) shock that deteriorates the government's budgetary situation, a stabilization process will be initiated in which each group of the coalition attempts to wait the others out. The reason is that waiting until the others capitulate allows a party to pass the largest part of the negative effects of the stabilization effort to the other parties (and their electorate). The lower the degree of political cohesion (or, the more fragmented the government), the later is the expected date of stabilization (see also Bulow and Klemperer, 1999 and Martinelli and Escorza, 2007).

This idea of different parties struggling to reach agreement over (fiscal) policy decisions can straightforwardly be applied to the analysis of revenue forecast biases. Indeed, an optimistic estimation of government revenues is likely to have a positive impact on the budget debate as the common pool of resources seemingly expands. Consequently, more coalition members are able to introduce policies into the budget that satisfy their electorate, which eases the drafting of the budget. Increasing the common pool of resources by an optimistic assessment of future tax revenues could thus prevent difficult budget negotiations. Alternatively, and arguably more in line with the original argumentation of Alesina and Drazen (1991), it may be more difficult for fragmented governments to agree on necessary fiscal adjustments in the budget. Optimism about future revenues then is a means to shift the burden of these adjustments to the future and might ease the current budgeting process. Since Alesina and Drazen (1991) state that large coalitions find it particularly hard to reach agreements, politically fragmented governments can be expected to be more optimistic about their tax revenues than single party governments. As before, no intention to overestimate tax revenues needs to be present.

Note, however, that it might become more difficult to ease the war of attrition by enlarging the common pool through (possibly subconscious) optimistic estimations when the number of coalition partners becomes large. The reason is that there clearly is a limit to being optimistic. Thus, even though politicians are likely to select their sources of information to fit their desired beliefs (cfr. "cognitive dissonance" theory, Akerlof and Dickens, 1982), this is unlikely to lead to ever-increasing optimism without losing credibility about the budget towards the electorate and the opposition. This loss of reputation or credibility may be perceived as a cost to over-estimations (or over-optimism) (cfr. Lago-Peñas and Lago-Peñas, 2004) and might lead to a non-linearity in the fragmentation effect.

Strategic use of debt

There is also the possibility that politicians deliberately overestimate tax revenues. The reason is that incumbents are usually uncertain about their return to power following future elections. Given this uncertainty, they may be tempted to affect policies carried out by their successors through fiscal decisions made in the current legislative period (see e.g. Persson and Svensson, 1989; Alesina and Tabellini, 1990; Tabellini and Alesina, 1990; Petterson-Lidbom, 2001). For example, "by leaving debt to the future, today's government can force its successor to 'pay the bills' and spend less on the public good that is worth nothing to today's government" (Alesina and Tabellini 1990, 409).

These 'strategic use of debt' models offer another interesting framework to expect a stronger bias towards overestimation in fragmented governments. In fact, whether or not the current government engages in such a strategic debt game depends on the likelihood of getting into office during the next period.[5] Given that parties in a coalition not only have to 'win' the elections, but also need to survive the ensuing coalition negotiations, they are on average less certain of future power than parties that do not share power (Ashworth *et al*., 2006). Hence, their shorter time horizon may lead coalition governments to be more sensitive to the strategic use of debt. We thus expect fragmented governments to more strongly (and consciously) engage in 'cosmetic accounting' (by means of overestimating revenues) while drafting the budget.

However, this relation is not straightforward. Indeed, a higher number of coalition members may imply that a larger share of the parties in the local council is also taken up in the local government. This increases the possibility that at least one of the coalition members participates in the next government (as there remain few alternative ways of forming a majority government) (cfr. Allers and Elhorst, 2005). It would be hard to believe that current coalition members unanimously agree to reduce the policy options of the following government when at least one of them is likely to be seated in this government. Clearly, in this situation the strategic use of fiscal policy looses its 'attraction' (and overestimation of tax revenues may be reduced rather than increased).

3. Institutional setting

As mentioned, our analysis concentrates on tax projections in Flemish municipalities. The present section wishes to familiarize the unacquainted reader with some characteristics of Flemish local governments and their functioning. We more specifically draw attention to the local system of government (and the level of government fragmentation) (section 3.1) and the local budgetary process (with special attention to revenue forecasts) (section 3.2).

3.1. Local government system

Local governments in Belgium (and thus also Flanders) have a parliamentary system consisting of the local council (the legislative body) and the College of Mayor and Alderman (the executive body). The number of seats in each of these bodies depends on the size of the municipality: while the College consists of 2 to 10 members, the council comprises of 7 to 55 politicians. These are elected once every 6 years and can be indefinitely re-elected (i.e. there are no term limits). The composition of the College is determined by the party (or parties) holding a majority position in the council. They appoint the aldermen and propose a mayor from among their councillors (the mayor is then officially appointed by the King). Local power thus rests (nearly) completely in the hands of the parties holding a majority position in the local council. We should also note that a multi-party College reflects the absence of a clear majority in the council (unlike in, for example, Norway, where the College reflects seats

[5] Incumbents can probably relatively adequately judge their chance of returning to power in Flanders. Firstly, elections at the various levels of government are held at different points in time such that electoral fortunes can (partly) be gauged from the electoral fate of one's party on other political levels. Secondly, most Flemish municipalities witness discussions (and even preliminary agreements) about coalition formation prior to the elections. In fact, such discussions took place in 85.2% of the Flemish municipalities prior to the municipal elections of 1994 while in 67.4% of the municipalities a preliminary agreement about the (possible) distribution of local power was reached prior to the elections of 2000 (Ackaert *et al*., 2001).

in the council; cfr. Tovmo, 2007).[6] This is important as it implies that – in most cases – all parties in the College matter for the decision-making process (since they are needed to reach the majority position in the council necessary to pass legislation).

Seats in the council are allocated using a system of proportional representation (PR), such that each party is allocated seats in proportion to the votes it obtains in the elections. It is well established that PR-systems tend to generate more fragmented political landscapes. The number of parties competing in elections and in the government is generally larger than under plurality rule (Duverger, 1954/1972). Table 1 depicts the number (and share) of Flemish municipalities where the College of Mayor and Alderman consists of one, two, three or more parties (following the elections of 1988, 1994 and 2000). We also display the average number of parties that obtains representation in the College.

TABLE 1: Size of College of Mayor and Alderman in Flanders (N=308)

	1989-1994	**1995-2000**	**2001-2006**
1 party	140 45.5%	120 39.0%	96 31.2%
2 parties	136 44.8%	149 48.4%	162 52.6%
3 parties	27 8.8%	31 10.1%	43 14.0%
+ 3 parties	5 1.6%	8 2.6%	7 2.3%
Average number of parties	*1.67*	*1.77*	*1.87*

Note: Table taken from Ashworth *et al*. (2005, 400).

From Table 1 it can be seen that, in each legislative period, more than 80% of the Flemish municipalities have one or two parties in government. However, the importance of single party governments decreases over the period examined while the opposite is true for two-party coalitions. The increasing level of political fragmentation over the period 1989-2006 also shows from the fact that large coalitions (i.e. those holding three or more parties) are becoming more prevalent. Indeed, their number rose from the 8.8% in the 1989-1994 period to 14% after the municipal elections of 2000. Also, the average number of parties in the college rose from 1.67 to 1.87 over the entire period. From these data, one could argue that the level of political fragmentation is rather low in Flemish municipalities. It has, however, been recurrently shown that it nonetheless has a significant impact on local fiscal policy (e.g. Ashworth and Heyndels, 2005; Ashworth *et al*., 2005, 2006; Geys, 2006).

3.2. Budgetary process and revenue forecasts

The fiscal year runs parallel to the civil year in Belgium (from 1 January to 31 December). Prior to the fiscal year, a budget needs to be agreed upon. To this end, each local authority's financial department sets up a budget draft in August or September. This draft is discussed by the College of Mayor and Alderman and the proposed budget that develops from these discussions is brought before the local council for ratification. This in principle takes place on the first Monday of October (though only few municipalities actually meet this deadline). Only when the budget is endorsed before 31 December, it can be executed.

[6] In some limited instances, a party with a clear majority nonetheless decides to form a coalition. This is usually driven by the consideration that the majority position is too tight (e.g. no or one seat above the necessary – 50% – majority) (Ackaert, 1996; Buelens and Deschouwer, 2001).

The precise role of the various actors involved in this budgeting process cannot easily be put into general terms. Legally, there is only the stipulation that the presentation of the budget is a responsibility of the College. Still, this does not mean that the College also technically sets up the budget. Indeed, in most – if not all – cases the College is supported by the finance department of the municipality. Their role is nonetheless vague and highly dependent on the characteristics of a) the local finance department (such as size and experience), b) the alderman responsible for the municipal finances and c) their mutual cooperation. These relations and the relative impact of the various actors, however, tend to differ across municipalities.

Important for our purposes is that the budget builds on forecasts for different revenue sources. These forecasts, which are central to our empirical work, should be divided in two parts. Firstly, there are various revenue sources (such as intergovernmental grants or revenues from surcharges on federal or regional taxes) where local governments obtain an estimate of the revenue level from the higher-level government and simply take this up in their budget. Since the projection is then not made by the municipalities themselves, they cannot be held accountable for any bias in these projections (and we disregard these revenue streams in our analysis). Secondly, there exist a number of revenue sources where local governments make revenue projections on their own. This is mainly the case for purely *local* taxes (for which municipalities set the tax base as well as the tax rate independently and fully autonomously). Hence, if the local government is susceptible to make biased revenue projections, local tax revenue (accounting for 17% of total tax revenues and roughly 8% of total revenues) is the most accessible to do so. This is the reason why we focus on *local* tax revenues in the remainder of this paper. Tax revenue projections used in the empirical analysis are taken from the budget as approved by the local council.[7] Following the fiscal year, the annual account is drawn up. The collected local tax revenues we use in our analysis derive from this annual account.

4. Empirical analysis

To empirically assess the relation between government fragmentation and forecast error in tax projections, we use a panel dataset from 1992 to 2002 for 242 Flemish municipalities. Though there are 308 Flemish municipalities, data availability precludes the use of more than these 242 municipalities. This nonetheless leaves us with a large and previously unexploited dataset. The advantage of the dataset is that it comprises not only significant variation in the central explanatory variable (i.e. political fragmentation) over the municipalities cross-sectionally, but also over time (due to the two elections within the time frame: 1994 and 2000). In section 4.1 we provide a detailed account of the model's specification and the measurement of our variables. Section 4.2 presents the methodology and empirical results.

4.1. Model Specification

We estimate the following multivariate model to test our predictions (subscripts i and t referring to municipalities and time respectively):

[7] As mentioned, the budget as approved (preferably) before 31 December need not be the final budget. In the course of the fiscal year, some modifications can or must take place because of technical reasons or to balance the budget when exceptional events impose additional expenditures. Our analysis does not consider such modifications due to lack of data.

$$DFCT_{i,t} = a + b_1 DFCT_{i,t-1} + b_2 DFCT_{i,t-2} + b_3 TAXP_{i,t} + b_4 TAXN_{i,t} + b_5 DEF_{i,t-1} + b_6 POP_{i,t} + b_7 POPGR_{i,t} + b_8 FIRMGR_{i,t} + b_9 TREND_t + b_{10} FRAG_{i,t} + e_{i,t}$$

Our dependent variable (DFCT) equals the ratio of projected to realized local tax revenue of municipality i in year t and is calculated as:

$$DFCT_{i,t} = BT_{i,t} / CT_{i,t}$$

where: $BT_{i,t}$ = budgeted local taxes of municipality i for year t
$CT_{i,t}$ = collected local taxes of municipality i for year t

This variable can be interpreted as the percentage of budgeted revenues that is actually pocketed by the local government and is termed the *degree of foresight of collected taxes* (DFCT) in the remainder of the paper. When DFCT is higher (lower) than 1, tax revenues are overestimated (underestimated) in the municipal budget. As can be seen in Table A1 in appendix – where we provide summary statistics for all the variables in the model – Flemish municipalities have a tendency to (slightly) overestimate local tax revenues (as mentioned before, we focus on purely *local* taxes). On average, budgeted revenues from local taxes are about 5 percent higher than collected revenues (given that local taxes are approximately 8% of total revenues, this implies an overestimation of total revenues of 0.4%, ceteris paribus). Table A2 in appendix – providing more details about the distribution of the dependent variable over space and time – shows that both the mean and standard deviation increase over the period 1992-2002. Hence, not only is there a tendency towards more optimistic revenue projections, the variation in these prediction errors across municipalities also slightly increases over time (the same can be observed from the information on the interquartile distribution of DFCT in Table A2).

A lagged dependent variable is included in the model to account for possible slow adjustments in local government behaviour. We expect this variable to carry a positive sign indicating that mis-estimations of tax revenues in any given year are not magically resolved in the following years. Preliminary work showed that two lagged terms of our dependent variable are necessary to remove all autocorrelation from the residuals. We expect both these lagged terms to present a positive coefficient, such that $b_1 > 0$ and $b_2 > 0$. Since last year's tax forecast error is likely to weigh more heavily on this year's forecast error, we also hypothesize that $b_1 > b_2$.

Before we discuss the central explanatory variable of the model (i.e. political fragmentation), we first briefly go into the various control variables we included based on findings in the preceding literature. Firstly, we control for the importance of local tax revenues (TAXP). This is operationalised as local tax revenues divided by total revenues. In line with the tax technology function literature (e.g. Mayshar, 1991), we anticipate that municipalities deriving a larger share of their revenues from local taxation improve their tax administration performance. This increases collected revenues relative to budgeted revenues, such that we hypothesize a negative coefficient estimate on this variable (or $b_3 < 0$).

A second control variable takes into account the number of taxes a municipality levies (TAXN). This is operationalised as a simple count of all the different local taxes from which revenues are generated in a given year. It is clear that a larger number of taxes tend to make the budgeting process more complex. More tax legislation has to be scrutinized by the local tax administration, more tax bases have to be determined and so on. In line with findings from the literature on securities analysts' revenue forecast accuracy (e.g. Duru and Reeb, 2002), we expect that this complexity of the local tax system is associated with more optimistic budgets, or $b_4 > 0$. The reason is that diversification adds to the unpredictability of

income, which may well have an "incremental effect on optimism (…) due to additional opportunities for managerial discretion" (Duru and Reeb, 2002, 418).

Following Esteller-Moré (2005), we also control for the possibility that the tax administration's effort depends on the budgetary situation in the municipality. The more precarious this situation is, the higher the effort to collect tax revenues (and the stricter tax laws will be enforced). Therefore, we include the fiscal deficit as a share of total revenues incurred during the previous fiscal year (DEF). We expect Flemish municipalities (like their Spanish counterparts) to become more active in enforcing tax rules when facing a deficit during the previous year. Given that pocketed revenues then increase relative to budgeted revenues, we expect $b_5 < 0$.[8]

Next, population size (POP, in 1000 inhabitants) is introduced to control for the size of the municipality. This can have two opposing effects. On the one hand, it is likely to indicate more complexity and thus greater forecast difficulty. In line with the above argument, this is likely to lead to more optimistic estimations, such that $b_6 > 0$. It should be noted here that the correlation between population size and the number of local taxes in the municipality is moderately strong ($r = 0.43$). On the other hand, larger municipalities may benefit from economies of scale. They tend to have a larger (tax) administration such that tax administration performance is likely to increase. This increases collected revenues relative to budgeted revenues, leading to a negative coefficient estimate on this variable (or $b_6 < 0$). Taking both effects together, the sign of b_6 is a priori uncertain.

We furthermore control for the impact of tax base changes. Since local taxes are levied on both inhabitants and firms, the evolution in the number of inhabitants (POPGR) and firms (FIRMGR) may affect the local tax revenue forecast error. These variables are measured as year-on-year growth rates in population size and the number of firms respectively.[9] A negative coefficient is expected for both these variables. The reason is that inhabitants or firms leaving (entering) the territory stop (start) paying local taxes while the local government is unaware of the intention of individuals or firms to leave (enter) at the time of preparing the budget. Hence, a higher number of inhabitants or firms leaving (entering) decreases (increases) the amount of taxes collected by the municipality. As the amount of revenues as recorded in the budget remains fixed at the time of these population (or industrial) changes, a lower (higher) amount of collected revenues due to these changes leads to higher (lower) values of the dependent variable, such that $b_7 < 0$ and $b_8 < 0$.

The inclusion of a linearly increasing trend variable (TREND) accounts for the (slight) upward trend in the dependent variable. Experimenting with a dummy variable equal to one in the two election years in the sample (1994 and 2000) shows there is no significant election effect once controlling for the upward time trend. The same holds when we model an election cycle by including a variable measuring the time to the next election (ranging from 5 in the first post-election year to 0 in election years) and its squared values. Consequently, and unlike Ohlsson and Vredin (1996), Young *et al*. (2001), Bischoff (2004), Paleologou (2005) and Serritzlew (2005), we do not explicitly account for election effects in the final model.[10]

Finally, we introduce two different operationalisations to test our main hypothesis that fragmented governments have more optimistic tax revenue projections. The first –

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[8] Esteller-Moré (2005) also includes grants as a share of total revenues to account for a possible reduction in tax enforcement when a larger part of income is obtained through grants from higher-level governments. We exclude this variable in the present analysis as its introduction in a model containing TAXP (i.e. the share of local tax revenues in the municipality's total revenues) led to significant multicollinearity problems. Inclusion of TAXP gave a better overall fit of the model, hence the choice for this variable in the final model.

[9] Most local taxes are lump sum taxes. Hence, all inhabitants (and firms) must pay the same amount. As such, the change in the number of potential taxpayers provides an adequate proxy for the change of the tax base.

[10] Note also that we experimented with using year dummies instead of the time trend. This did not affect our results (and the fit of the model was better when using the linear time trend).

NUMCOAL – measures fragmentation as a simple count of the number of parties in the ruling coalition (i.e. in the College of Mayor and Aldermen). Given that optimism is unlikely to increase linearly in the number of parties (as one can expect this to lead to credibility problems; see above), we also test for a possible non-linearity in the effect of fragmentation by including a squared term of this variable. The second operationalisation intends to gauge the latter effect in a more elementary way by introducing two dummy variables for two party coalition governments (TWOPART) and 'large' coalitions (i.e. coalitions with three or more parties, LARGE) – with single party governments as the rest category.[11]

4.2. Methodology and results

It is well known by now that the standard approaches to panel data analysis are inappropriate in a dynamic setting. Both fixed and random effects estimators lead to biased and inconsistent estimation results in the presence of a lagged dependent variable (Baltagi, 1995). To remove this bias, it is necessary to provide a valid set of instruments for the lagged dependent variable. Arellano and Bond (1991) offer a solution to this problem by treating the model as a system of equations (viz. one for each time period) and developing a Generalized Method of Moments estimator that exploits the moment conditions for the equations in first differences. Specifically, the estimator is based on taking first differences of the model (to remove municipality-specific effects) and then instrumenting the lagged dependent variable in first differences with suitable lags of its own levels. In particular, values of the dependent variable lagged two periods or more can be used as instruments. The estimator developed by Arellano and Bond (1991) is generally called difference GMM (or GMM-DIF). It is ideal for short time series (such as ours).

However, an important obstruction to using GMM-DIF is that the lagged values of the dependent variable may be only weak instruments in the differenced regression. This could lead to severe finite-sample bias, especially when the series is very persistent (see Blundell and Bond, 1998). Given this, we employ system GMM estimation (GMM-SYS; Arellano and Bover, 1995; Blundell and Bond, 1998). This method combines the moment conditions for the equations in first differences exploited in the GMM-DIF estimator with additional moment conditions for the equations in levels. The introduction of these additional moments increases the efficiency of the estimation. Note also that we use the one-step rather than the two-step variant of GMM-SYS. Although the latter is asymptotically more efficient, two-step GMM estimation is found to lead to significant downward bias in the estimated standard errors (Arellano and Bond, 1991; Blundell and Bond, 1998).

Table 2 provides the estimation results. Six sets of results are given, which differ only in their measurement of the (core) government fragmentation effect. Columns (1) and (2) provide the most general results and look for a linear effect of political fragmentation via NUMCOAL. In columns (3) and (4), we test for possible non-linearity in the fragmentation effect by adding the squared term of NUMCOAL. Finally, in columns (5) and (6), the effect of fragmentation is estimated in a more elementary way by including two dummy variables: TWOPART (which is 1 for two-party coalitions) and LARGE (which is 1 when the coalition consists of three or more parties). The even columns maintain only the statistically significant variables and as such provide a more efficient estimation – while taking care not to compromise the diagnostic tests reported at the bottom of Table 2.

[11] The simple count of the number of parties outperformed the 'effective' number of parties (in which each party is weighed by its number of seats in the council, thus accounting for the relative size of the parties). Also, preliminary analyses indicated that the ideology of the ruling government (measured as a weighed average ideological position of the coalition parties on a Left-Right scale) was not significantly related to forecast accuracy. Hence, this variable was not retained in the final estimations.

TABLE 2: Estimation results using one-step system GMM (1992-2002)

Variable	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	0.431 ***	0.545 ***	-0.145	-0.116	0.392 **	0.425 ***
	(2.67)	(4.60)	(-0.38)	(-0.32)	(2.12)	(2.78)
$DFCT_{t-1}$	0.292 ***	0.267 ***	0.270 ***	0.256 ***	0.258 ***	0.253 ***
	(5.98)	(6.58)	(4.56)	(4.79)	(5.01)	(5.38)
$DFCT_{t-2}$	0.143 ***	0.137 ***	0.143 ***	0.142 ***	0.147 ***	0.148 ***
	(3.16)	(3.42)	(2.68)	(2.69)	(3.24)	(3.17)
TAXP	-0.042 **	-0.039 ***	-0.050 **	-0.051 ***	-0.050 ***	-0.054 ***
	(-2.41)	(-2.90)	(-2.37)	(-2.75)	(-2.81)	(-3.21)
TAXN	0.035 ***	0.029 ***	0.030 *	0.029 ***	0.026 *	0.027 ***
	(2.65)	(3.47)	(1.91)	(2.69)	(1.89)	(2.90)
DEF_{t-1}	-0.001	-	-0.00004	-	-0.0004	-
	(-0.40)		(-0.02)		(-0.30)	
POP	-0.003	-	-0.001	-	0.0003	-
	(-0.73)		(-0.12)		(0.07)	
POPGR	0.113	-	0.086	-	0.046	-
	(1.28)		(0.82)		(0.48)	
FIRMGR	0.031 **	0.028 ***	0.035 **	0.033 **	0.032 **	0.033 ***
	(2.36)	(2.63)	(2.25)	(2.33)	(2.46)	(2.61)
TREND	0.031 ***	0.024 ***	0.031 ***	0.026 ***	0.027 ***	0.025 ***
	(3.60)	(4.06)	(3.00)	(3.38)	(3.05)	(3.74)
NUMCOAL	-0.149 **	-0.132 **	0.670	0.745 *	-	-
	(-2.00)	(-1.99)	(1.41)	(1.69)		
$NUMCOAL^2$	-	-	-0.211 *	-0.228 **	-	-
			(-1.75)	(-2.03)		
TWOPART	-	-	-	-	0.045	0.064
					(0.36)	(0.55)
LARGE	-	-	-	-	-0.325 **	-0.319 **
					(-2.17)	(-2.78)
Sargan	37.33 (42)	49.27 (45)	23.64 (43)	24.48 (44)	34.07 (41)	32.48 (44)
AR(1)	-8.00 ***	-10.74 ***	-6.41 ***	-7.18 ***	-8.16 ***	-8.43 ***
AR(2)	-0.75	-0.83	-0.36	-0.30	-0.66	-0.54

Note: N = 2178; t-values between brackets; * significant at 10%, ** at 5% and *** at 1%. Sargan is the test for over-identifying restrictions and has a Chi^2 distribution with R degrees of freedom (R being the number of instruments minus the number of estimated parameters). AR(1) and AR(2) are the required tests for first- and second-order autocorrelation. None of these diagnostic tests indicates misspecification of the model.

Let us first look at the results for our central variable, viz. government fragmentation. Even though all three arguments quoted in section 2 suggest that government fragmentation is likely to lead to more optimistic tax revenue projections, our findings do not support this theoretical prediction. The overall effect is negative which indicates that the number of parties in the College of Mayor and Alderman reduces the share of collected revenues in total budgeted revenues. When we take into account the possible non-linearity advanced in section 2, we find that the negative effect is mainly driven by the larger coalitions. Coalitions with more than two parties are (much) more careful in their tax projections and – for a given level of pocketed revenues ex post – expect to receive less revenues.[12] Overall, it is clear that our findings do not support the central theoretical prediction from section 2.

[12] The results from the two-step GMM variant are broadly comparable to those presented although – as would be expected – significance levels are strongly inflated. To compensate this problem, we calculated a finite-sample correction to the two-step covariance matrix (derived by Windmeijer, 2005). Results using this

What might explain these deviant findings? Several possibilities can be thought of.

- The first is that broad-based coalitions might be more likely to follow fiscal policies representative of a larger part of the population (see e.g. Lijphart and Crepaz, 1991). They might thus be less prone to threats of minor interest groups, limiting increases in expenditures and thereby the need to present optimistic budgets. Note, moreover, that "an increase in the number of powerful groups [leads to] a dilution of power concentration" (Tornell and Lane, 1999, 32). Hence, increases in the number of coalition partners reduce the power of each of these in the fiscal appropriation process. This leads to lower levels of overspending when the number of coalition parties increases - thereby limiting the need to present optimistic budgets.
- Secondly, the struggle between parties in a larger coalition increases the power of the (normally non-partisan) head of the finance department over the actual budget. That is, if there is only one party in the local government, it might be able to sway the budget in its desired direction, while this becomes more difficult when the number of coalition partners increases (who might have opposing wishes), thereby increasing the power of the finance department. Since (s)he generally has no political motives to drive the budget in one or other direction (but might rather have an incentive to produce prudent forecasts, see e.g. Bretschneider and Gorr, 1989), over-optimism might well decrease with the number of parties in the coalition.
- Finally, as mentioned already in section 2, a higher number of coalition members might increase the probability that at least one of these returns in the next government (cfr. Allers and Elhorst, 2005). In such a situation, the strategic use of fiscal policy looses its 'attraction' since one might be reducing ones own policy options (if one should return in the following government). Consequently, overestimation of tax revenues may be reduced rather than increased in such a setting.

It is of interest to mention at this point that Ashworth *et al*. (2005, 2006) and Geys (2006) have previously also found a non-linear effect of government fragmentation on local government's (fiscal) decision-making. Especially interesting is the finding by Ashworth *et al*. (2005) that long-term local public indebtedness in Flemish municipalities reaches a maximum for coalitions of two parties and that more fragmented governments outperform such two-party governments. The pattern observed in our findings is similar (i.e. highly fragmented coalition governments outperform less fragmented coalition governments), but it is also slightly stronger (viz. highly fragmented governments outperform one-party majorities). Overall, the parallel between our findings and those provided for local public debt development in Ashworth *et al*. (2005) provides some support for the view – expressed in the introduction to this paper – that the differential forecasting behaviour of various types of government may provide an alternative explanation for their differences in budget deficits or debts. Indeed, taking both analyses together suggests that the specific pattern in local public debts (as analysed in Ashworth *et al*., 2005) can be related to the more cautionary revenue forecasting behaviour of more fragmented governments (as analysed here). Whether such a systematic relation between government fragmentation, revenue forecasting and (local) public debts caries over into different settings is clearly worth exploring in future research.

Importantly, the observed non-linearity does not seem to be particular to the Flemish setting. In fact, employing data on Danish municipalities, Serritzlew (2005) finds that expenditure overruns in the budgets for roads and care for the elderly are significantly lower when the city council is more fragmented (which, in our terminology, points to more careful budget estimations), while the need for a coalition government increases budget overruns in

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correction are somewhat weaker than those presented, though coalitions with more than two parties remain significantly more careful than less fragmented governments (results available upon request).

these two areas. This alludes to a non-linearity similar to the one we observe in our results. To the extent that there is indeed a systematic relation between revenue forecasting behaviour and public debts (or deficits), this should translate into a better financial performance of highly fragmented governments in the Danish setting (much like the one observed here for Flanders). As such results are not provided in Serritzlew (2005), it is left to future research in the field to assess the extent to which our results – and the ensuing alternative explanation for government debts and deficits – generalize over different settings, or what drives possible deviations.

Turning to the control variables, it can be seen that, with the exception of the variables that consider tax base changes, the estimated coefficients all have the expected sign. Firstly, both lagged dependent variables $DFCT_{t-1}$ and $DFCT_{t-2}$ are statistically significant in all equations. As expected, they have a positive coefficient indicating that local government behaviour is interdependent over time. Municipalities with high (low) ratios of budgeted to collected revenues are more likely to have high (low) values in following years. Also, last year's forecast error clearly weighs more heavily on this year's forecast error compared to that from two years before.

The effect of the share of local taxes in total revenues (TAXP) is statistically significant and in the expected direction. Indeed, municipalities deriving a larger share of their revenues from local taxation appear to increase their tax administration performance, which is in line with the tax technology literature (e.g. Mayshar, 1991). In addition, we find support for the hypothesis that increases in the complexity of the tax system – measured by the number of taxes in the municipality (TAXN) – lead to higher projected revenues compared to actually collected revenues (cfr. Duru and Reeb, 2002). Yet, and in contrast to findings by Esteller-Moré (2005), we do not find that the tax administration's effort depends on the budgetary situation in the municipality. Specifically, the coefficient for the fiscal deficit as a share of total revenues (DEF) has the expected negative sign, but is fails to reach statistical significance.

Like Rubin (1987), we find no effect from population size (POP). Finally, while we expected that the growth of population (POPGR) and firms (FIRMGR) would negatively affect our dependent variable, both variables have positive coefficients. The growth in the number of firms is even statistically significant in all equations. A possible explanation is that local governments overestimate expected firm movements. That is, the more firms move (ex post), the further the local government 'overshoots' the size of these movements in its (ex ante) expectations. As such, a positive coefficient estimate occurs. This tentative explanation calls, however, for further empirical analysis.

5. Conclusion

The present paper has its relevance for two research fields. On the one hand, it contained one of the first empirical analyses upon the relation between political fragmentation and fiscal policy that explicitly focuses on earlier stages in the fiscal process, i.c. the drafting of the budget. This extends previous research on the Weak Government Hypothesis that exclusively concentrated on actual revenue and/or spending levels. On the other hand, analyses of the government's forecast accuracy have strongly concentrated on technical aspects of the collection and budgeting process, but paid little attention to political-economic factors (such as government fragmentation) as potential explanations.

Using data of 242 Flemish municipalities over the period 1992-2002, our results indicated that the level of political fragmentation affects local government's revenue forecasting behaviour. Nonetheless, the findings did not support our theoretical predictions. In fact, our analysis disclosed that two party coalitions are slightly more optimistic than single

party governments (though this effect was not statistically significant), while coalitions with at least three parties are *less* optimistic. This deviant finding may have multiple explanations. For example, it could be argued that broad-based coalitions are less prone to threats of minor interest groups, thereby reducing the need to present (over)optimistic budgets (cfr. Lijphart and Crepaz, 1991). Power struggles among the coalition partners may increase the power of the municipality's finance department (which is unlikely to be prone to over-optimism). Finally, larger coalitions may imply that at least one of its members participates in future governments, limiting the attraction of the strategic use of fiscal policy.

Interestingly, and importantly, our results are consistent with the evidence in Ashworth *et al*. (2005) that, compared to single- and multi-party governments, two-party governments are associated with the highest levels of long-term local public indebtedness in Flemish municipalities. As such, our analysis suggests that the lower level of indebtedness of very fragmented Flemish local governments established in that paper can be related to their more cautionary revenue forecasting behaviour. Additionally, Serritzlew (2005) also indicates that highly fragmented local councils in Denmark are also prone to lower budget overruns (at least on parts of the budget). Clearly, future research will need to confirm these findings in different settings and/or at various levels of government, and indicate whether this systematic relation between government fragmentation, revenue forecasting and fiscal deficits is a general phenomenon.

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Appendix 1

Table A1: Summary statistics

Variable	Mean	Standard deviation	Minimum	Maximum
DFCT	1.048	0.207	0.261	2.865
TAXP	7.559	4.779	0.745	37.644
TAXN	15.091	7.262	2	46
DEF	6.632	7.778	-20.145	41.059
POP	20.529	34.450	0.963	465.783
POPGR	0.436	0.623	-3.216	3.531
FIRMGR	1.176	2.617	-71.161	12.614
NUMCOAL	1.734	0.714	1	5
ENPG	1.559	0.575	1	4.481

Table A2: Distribution of DFCT over municipalities and time

	1992	**1993**	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**	**2002**
Mean	0.989	0.921	1.041	1.050	1.052	1.062	1.065	1.057	1.088	1.096	1.109
StDev	0.136	0.171	0.143	0.206	0.176	0.194	0.224	0.189	0.222	0.245	0.263
Min	0.270	0.261	0.635	0.613	0.737	0.610	0.574	0.529	0.793	0.579	0.674
Max	1.713	1.433	1.758	2.422	2.087	2.482	2.716	2.229	2.728	2.865	2.779
25%	0.935	0.848	0.976	0.963	0.965	0.967	0.972	0.976	0.987	0.982	0.979
Median	0.981	0.941	1.005	1.005	1.010	1.011	1.009	1.014	1.027	1.032	1.026
75%	1.034	1.007	1.007	1.074	1.007	1.105	1.071	1.064	1.105	1.123	1.127
N	242	242	242	242	242	242	242	242	242	242	242