Do Parties Matter for Fiscal Policy Choices?*

Per Pettersson♣

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Abstract

In this paper I test whether parties matter for fiscal policy choices, i.e., government spending and level of taxes. It is part of conventional wisdom that the Left spends and taxes more than the Right. However, there are very few convincing empirical studies that show this to be the case. I argue that this might reflect either the data sets used, or the employed methodology. By using a very large cross-section and time-series data set from Swedish local governments, N=274 and T=21, I avoid many of the difficulties with cross-country comparisons. I find significant and sizeable partisan effects; left-wing parties spend and tax more than right-wing parties. These effects are particularly large where the same party has had a long tenure in office. On average, left-wing parties have 13 percent higher real spending per capita and 7 percent higher income taxes than do right-wing parties. I also show that ignoring parameter heterogeneity could lead to biased or meaningless estimates of partisanship effects. In particular, this issue concerns research, which are based on the use of OLS or FGLS estimators.

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♣ Institute for International Economic Studies (IIES), Stockholm University, S-10691 Stockholm, Sweden. e-mail: per.pettersson@iies.su.se

1. Introduction

In this paper I will investigate whether parties matter for policy choices. It is part of conventional wisdom that the Left spends and taxes more than the Right. However, there are very few convincing empirical studies that show this to be the case. From a theoretical point of view, there is also a debate whether parties should matter for policy outcomes.

In the theoretical literature, Hotelling (1929), Black (1958) and Downs (1957) emphasized the tendency of parties in a two-bloc system to converge toward the center. In these models it is assumed that parties only care about winning. But even if one makes the additional assumption that parties also care about policy outcomes, Calvert (1985) shows that there is still "almost" complete convergence. However, Alesina (1988) argue that the tendency for policy divergence is much stronger than it appears in Calvert's work if candidates are unable to credibly commit to carry out their campaign promises.

The absence of a conclusive theoretical answer to the question whether parties matter makes it ultimately an empirical issue. However, even here we are faced with conflicting results. Blais, Blake and Dion (1993) review the evidence. Their focus is mainly on the literature that deals with the overall size of national governments and their conclusion is that the empirical literature does not offer a clear answer as whether left-wing parties spend more than right-wing parties.[1] There have also been other studies

[1] Blais et al. (1993) evidence is based on the political science literature. But there is also mixed evidence from the political economic literature. Alesina et al. (1997) find no partisanship effects on deficit, while Roubini and Sachs (1989) report that countries with a higher percentage of left-wing governments have significantly higher long-run government spending to GNP ratios. However, Roubini and Sachs evidence is only based only on a cross-section regression (N=13) where they have used an estimated long run target

focusing on the sub-national level, in particular from the American states. For example, Garand (1988) and Gilligan and Matsusaka (1995) find no support for the partisanship hypothesis while Alt and Lowry (1994) and Besley and Case (1995) find systematic differences between Democrats and Republicans.[2] To conclude, these mixed findings are troublesome for models that posit that different parties simply have different given preferences over spending and taxation choices.

In this paper I will argue that these mixed findings might reflect either the data sets used in the empirical tests, or the employed methodology.

The first question we need to ask before embarking on the empirical analysis is "whether we have found the best available data for the purpose".[3] In this paper I will utilize data from Swedish local governments. This buys me several advantages to previous studies. First I have data for 274 local governments over a 21-year period. Thus, the total number of observations (5754) is much larger than in any previous study and this allows me to use much more flexible econometric model specifications. Previous studies are mainly based on cross-country data. The major problem with national level comparison is the fact there are always fewer cases available than the number of plausible relevant differences between the cases. In other words, there is a serious degree of

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value of the share of government spending in GNP as the dependent variable. These estimates are however consistently higher than the actual figures, in particular for the countries with a high proportion of left-wing governments.

[2] Besley and Case (1994) look at the behavior of U. S. governors and find that states run by a Democratic governor spend and tax more than states with a Republican governor. Alt and Lowry's (1994) use the American state governments as a testing ground. Their empirical evidence is based on a hypothetical situation; "how parties would behave if they had sufficient unified control to have brought fiscal policy to desired levels and believed they would govern indefinitely". However, the partisanship difference is not significant for observed actual levels of spending.

[3] Hamermesh (1999) argues that we too often "mindlessly accept the data that are given us as representing the economic concept that we seek to include in our estimates".

freedom problem. Therefore, the usual approach in the empirical work is to assume parameter homogeneity; namely that all countries are characterized by the same regression equation at all points in time. For cross-country comparisons, the parameter homogeneity assumption seems questionable.

Second, since Swedish local governments operate within a common political framework there is much less of a problem classifying parties as Left or Right in a commensurable way.

Third, the fiscal policy variables, expenditures and taxes, are more or less under the control of the unit of my analysis. In cross-country studies, however, there could be a problem to isolate the discretionary part of policy choices. For example, many studies use data from the general government financial account. But these include social security funds and regional and local government balances. Thus, this type of data mixes the decisions on fiscal policy from several levels of government.

Fourth, since Sweden has one of the most party centered election systems among the OECD countries,[4] it should be easier to isolate the effects of parties on policy choices. To use a candidate based election system, such as the U.S. system, where the parties are relatively weak would lead do additional complications about individual vs. party effects.[5]

To investigate whether parties matter for fiscal policy choices also raises some methodological questions. These questions have largely been ignored in previous work or else have not been properly addressed. One issue is the previously mentioned parameter

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[4] See Johansson and Möller (1998, s. 39).

homogeneity assumption. From both a theoretical and statistical point of view this assumption is questionable. Another methodological question is how fast we should expect parties to make a difference for fiscal policy outcomes? Should we expect a change in the party composition of government to induce an instantaneous change in policy orientation, or is it likely to take a long time before the shift occurs? To the extent that to govern is to inherit previous commitments, we would expect parties to make a larger difference in the long run.[6] A third issue concerns the measurement of party preferences. Previous studies have used a dichotomous as well as continuous partisanship variables. I will argue, from a theoretical point of view, that one should use the dichotomous one.

Before embarking on the empirical analysis it is necessary to counter a possible objection to the whole exercise. This is the claim that, because Swedish local governments have limited autonomy, it is misconceived to look at expenditure as determined by local political factors. It is argued that local government is largely an agent of the center. The case I make against the agency claim is both derived from my data analysis and that the Swedish local governments have the constitutional right of self-government.[7]

The main empirical result from this paper is that parties matter for policy choices. Left-wing parties spend and tax more than right-wing parties. There is quite a substantial

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[5] In the Unites States there is also the additional complication that policy outcomes are the product of a complex interaction among the two houses of the Congress (State legislature) and the President (Governor).

[6] Several theoretical papers that show that the options available to a newly elected government may be restricted because of the actions taken by previous incumbents (see Persson and Tabellini (1997) and the references cited therein). In an empirical study, using parts of this data set, Pettersson (1999) finds that the

difference between the two parties, in particular where the parties have had a long tenure in office. The short-run difference is in the range of 1 to 4 percent for spending, and in the range 0.5 to 2 percent for income taxes depending on the specification. The long-run effect is much larger, in particular where the left wing party has had a long tenure in office. The difference is 13 percent for spending and 7 percent for taxes. These do not seem like trivial effects.

Moreover, I also show that some of the methodological issues that have largely been ignored by previous research have a large impact on the results presented in this paper. In particular, ignoring parameter heterogeneity could lead to erroneous conclusions about the partisanship effect. For example, I show that using improper pooling techniques, i.e., the OLS or the FGLS estimator, could lead us to draw the wrong conclusion that right-wing governments spend and tax considerably more than do left-wing governments.

The paper is organized as follows. Section 2 presents a simple theoretical model and derives the hypothesis to be tested. Section 3 discusses some methodological problems that have been largely ignored in previous work. Section 4 describes the data. Section 5 presents the results. Finally, section 6 concludes.

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level of debt is used strategically by an electoral vulnerable incumbent in order to affect the policies of its successor.

[7] See the appendix about Swedish local governments and their freedom of action.

2. A Basic Model

In this section I layout a basic model and derive the hypotheses that will be tested in this paper. The model is taken from Persson and Tabellini (1999), but they built on the papers by Calvert (1985) and Alesina (1988).

Each voter *j* in region *i* has the following preferences over private consumption c and publicly provided goods g:

$$w^j_i = c^j_i + H_i(g_i) \quad (1)$$

where $H_i' > 0$ and $H_i'' < 0$. Local government spending g_i, which is defined in per capita terms, is financed by taxing the income of every individual in region *i* at a common rate τ_i, bounded by $0 \leq \tau_i \leq 1$. Income differ across individuals which implies that their consumption differs according to

$$c^j_i = (1-\tau_i)\, y^j_i \quad (2)$$

We assume that y^j_i is distributed in the population of region *i* according to a distribution function $F_i(.)$. The expected value is $E(y^j_i) = y_i$. The median value of y^m_i in region *i* is defined implicitly as $E(y^m_i) = 0.5$. We also introduce the cost of transforming private outputs into public goods. We denote this relative cost as x. The local government budget constraint can now be written as

$$\tau_i\, y_i = g_i\, x_i \quad (3)$$

Solving for voter *j* in region *i* most preferred level of government spending, g^j_i, gives the following first order condition:

$$g^j_i = H^{-1\prime}_i[(y^j_i\, x_i)/y_i] \quad (4)$$

We start by assuming two exogenously given candidates in each region *i*, *P* =*L* and *R*. P_i*'s* income level is y^P_i, and we assume $y^L_i < y^m_i < y^R_i$. We interpret the two candidates as representing two different parties with different ideological positions, one left-wing and one right-wing. When setting policy candidate *L* sets g^L_i to maximize his expected utility: $E[w^L_i(g_i)] = p^L_i\, w^L_i(g^L_i) + (1- p^L_i)\, w^L_i(g^R_i)$, where p^L_i is the probability that candidate *L* is going to win the election in region *i*.

Candidate *R* solves a symmetric problem. The equilibrium outcome of this game differs with respect to the possibility of commitment to a fixed party platform or not.

We first consider the commitment case. The only equilibrium outcome of this is that both candidates announce the median voter's preferred policy, i.e., $g^L_i = g^m_i = g^R_i$. Thus, the positive implication of this model is that both parties implement the same level of expenditures and taxes. In other words, parties do not matter for policy outcomes.

We now consider the no commitment case. Suppose that party *L* is elected. Then *L* sets g^L_i given that $p^L_i = 1$, and likewise *R* sets g^R_i given that $p^L_i = 0$. Thus, in this case the positive implication is that the size of government is systematically correlated with the identity of government. Right-wing governments choose lower spending and taxes than do left-wing governments.

3. Methodological issues and the choice of empirical method

The objective of this paper is to test whether parties matter for policy choices using cross-section and a time-series data (or panel data) from Swedish local governments. Making a first order approximation of equation (4), the f.o.c of the basic model, we could in principle estimate an equation of the form

$$g_{it} = \alpha + \lambda_i (y^L - y^R)_{it} + \delta_i y_{it} + x_{it}\beta_i + \varepsilon_{it},\ i = 1,\ldots,N;\ t = 1,\ldots,T \quad (5)$$

$$\varepsilon_{it} = \mu_i + \pi_t + \nu_{it},\ \nu_{it} \sim \text{IID}(0, \sigma^2_{\nu}) \quad (i)$$

with i denoting local governments (or municipalities) and t denoting time. g is government spending per capita, or the income tax rate since there is a one to one relationship between these variables via the local government budget constraint. The variable $(y^L - y^R)$ is going to be proxied by an indicator variable (dummy variable). We define $(y^L - y^R) = 1$ if there is a left-wing government and zero otherwise.[8] This is the main variable of interest, if its coefficient λ_i is positive and significant then we can conclude that parties matter for fiscal policy choices. y is the average income. x is a vector of other variables that might be thought to affect the costs of providing public goods. ε_{it} is an error term where μ_i denotes the unobservable unit effect and π_t the unobservable time effect.

The regression equation (5) raises some methodological problems that have been largely ignored or else have not been properly addressed in empirical tests of whether parties matter.

[8] The income variable of the two parties should not be interpreted literally. Instead one can think of that left-wing parties mainly represent low-income people and right-wing parties mainly represent those with high income. To identify a possible party effect I make use of a proxy variable: in this case a dummy variable.

To begin with, since we have cross-sectional and time-series data there is a question of the proper pooling technique. This problem is rarely discussed in the empirical literature that tries to test whether parties matter for fiscal policy choices.[9] The standard approach is to assume coefficient homogeneity, namely the assumption that all cross-sectional units are characterized by the same regression equation. If this assumption is not valid this may lead to false inference.

Another methodological question concerns how one should classify parties as Left or Right and how to measure party preferences.

A third question is how fast we would expect parties to matter for fiscal policy outcomes. To the extent that to govern is to inherit previous commitments we would expect parties to make a bigger difference in the long-run. In other words, if fiscal policy outcomes are history dependent one must pay attention to dynamics and how one should measure the short-run and the long-run responses from partisanship on fiscal policy choices.

In the rest of this section I discuss these methodological issues in more depth.

3.1. The homogeneity assumption

According to the theoretically derived regression equation (5), the parameters should be allowed to differ between cross-sectional units. These variable coefficient models have not gained wide acceptance in empirical work; this is partly because of degrees of freedom problem. For example, Alesina et al (1997) write in a footnote "the estimates of the coefficients could differ across countries, therefore making the use of a

[9] This problem is also seldom discussed in other cross-sectional and time-series studies.

variable-slopes and variable intercepts model more appropriate. Given the loss of degrees of freedom involved, this procedure was not adopted." The coefficient homogeneity assumption seems implausible for many applications,[10] in particular in cross-country comparisons, and can potentially lead to inconsistent and highly misleading estimates of the coefficients. For example, Robertson and Symons (1992) show that imposing parameter homogeneity when the regression coefficents should vary across units could lead to severe biases even for relatively small parameter variations.[11] Nevertheless, the standard assumption made in the empirical literature is that all units are characterized by the same regression equation at all points in time.

In the political science literature there are basically two approaches (e.g. see Beck and Katz 1995, 1996). One is to use ordinary least square (hereafter OLS) with "panel corrected standard errors". The other method is to use feasible generalized least squares (hereafter FGLS), where the disturbance is assumed to capture any differences over time and units. Then, the two types of estimators, OLS and FGLS, are derived from different assumption about the error term. More formally, this approach modifies (5) as $\lambda_i = \lambda$, $\delta_i = \delta$ and $\beta_i = \beta$ for all i, and (i) as:

$E(\varepsilon_{it})=0,\ Var(\varepsilon^2_{it}) = \sigma^2 \text{ and } Cov(\varepsilon_{it},\varepsilon_{jt'}) = 0 \text{ for } t \neq t' \text{ or } i \neq j$ (ii)

$E(\varepsilon_{it})=0,\ Var(\varepsilon^2_{it}) = \sigma_i^2 \text{ and } Cov(\varepsilon_{it},\varepsilon_{jt'}) = 0 \text{ for } t \neq t' \text{ or } i \neq j$ (iii)

$\varepsilon_{it} = \rho\varepsilon_{it-1} + \nu_{it}$ (iv)

$\varepsilon_{it} = \rho_i\varepsilon_{it-1} + \nu_{it}$ (v)

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[10] See Mairesse and Griliches (1990).

[11] A graphical illustration of the possibility of a heterogeneity bias could be find in the introduction to Hsiao (1986).

Assumption (ii) is the OLS estimator, while assumption (iii) and (iv) or (iii) and (v) are two different types of FGLS estimators. The two types differ with respect to the assumption of the autocorrelation coefficient, i.e., common or unit specific. Beck and Katz (1995,1996) criticize the use of the FGLS estimators. Instead, their recommendation is to use OLS parameter estimates but replace the OLS standard errors with panel-corrected standard errors (hereafter pcse).

In the political economics literature, a common approach (e.g. see for example Alesina, Roubini and Cohen 1997 or Besley and Case 1995) is to allow intercepts to vary over units and time but not slope coefficients. Thus, this approach also modify (5) as $\lambda_i = \lambda$, $\delta_i = \delta$ and $\beta_i = \beta$ for all i, but let (i) be unchanged. This model is known as the fixed effect model (hereafter FE).

3.2. Party classification and measures of party preferences

How should one measure partisan effects on fiscal policy outcomes? The positive implication from the theoretical model is that the size of government is systematically correlated with the identity of government. Right-wing governments choose lower spending and taxes than do left-wing governments. Thus, we should use an indicator variable, which allows us to separate different governments according their ideological stance. Let $(y^L - y^R)_{it} = 1$ if there is a left wing government or $(y^L - y^R)_{it} = 0$ if there is a right wing government in municipality i at time t. In principle, we should allow the partisanship effect λ_i to differ between municipalities. However, in order to identify a possible party effect and its magnitude we must impose the assumption that $\lambda_i = \lambda$ in

equation (4).[12] Thus we must be able to argue that qualitatively effect of party on policy choices is comparable between municipalities.[13] For example, holding all other factors constant, there should be a high similarity in policy choices between a left wing government in municipality *i* to that in municipality *k*. This assumption seems reasonable for two reasons. The first reason is that Swedish local governments operate within a common political framework. The other reason is that Sweden has one of the most party centered election systems among the OECD countries.[14] Thus, by using data from Swedish local governments one possibly avoids the problem of matching policies in cross-country data, that is, to compare like with like between countries.[15] Moreover, one also avoids the problem with party effects vs. individual legislator effects.[16] Nevertheless, there is a caveat with this data set. The theoretical model assumes that there is a two party system. However, the Swedish electoral system is based on proportional representation but nevertheless I find it reasonable to make the approximation as if it were a two-party system since there has traditionally been two main opposing party blocs, the socialist and the non-socialist bloc.[17]

There has also been other ways of measuring the impact of party on policy choices, in particular in the political science literature. One of the most favored variables is the proportion of a government's legislative seats belonging to the Left. From a

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[12] Thus the assumption I make in the basic model is that $y^L_i = y^L$ for all i and likewise $y^R_i = y^R$ for all i.
[13] The problem is similar to postulating that there are qualitative differences regarding sex, race, color, religion etc.
[14] Johansson and Möller (1998, s. 39).
[15] See the discussion of cross-country comparison in Alesina et al (1997).
[16] Individual behavior has been investigated in the literature of congressional voting. Poole and Rosenthal (1991), among others, present evidence that senators from the same state but different parties have significantly different voting records. However this literature does not look at fiscal policy outcomes.
[17] Alesina et al (1997), for example, also treat Sweden as a two bloc system.

theoretical point of view it is doubtful whether this is the correct measure.[18] Moreover, a large majority may have no more impact on policy than a small majority.[19] In particular in a proportional representation system like the Swedish one, where a simple numerical majority is all that is required to monopolize the reins of power. In such a system, the length of a party's tenure in office is more likely to be more important than size of its majority.

3.3 Dynamic issues and short run vs. long run party effects

There are good reasons to believe there is inertia in fiscal policy outcomes. For example, there are several theoretical papers that show that the options available to a newly elected government may be restricted because of the actions taken by the previous incumbent.[20] In an empirical study, using part of this data set, Pettersson (1999) finds that the level of debt is used strategically by an incumbent government, who is not likely to be reelected, in order to affect the policies of its successor. Other reasons for inertia could be the regulation that the central government imposes on the sub-national governments, or the incremental routines of budget making (e.g. see Wildavsky 1974).

One way of dealing with this issue is to use an autoregressive model, i.e., to include a lagged dependent variable in equation (5).[21] Since equation (5) is derived from a

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[18] Smith (1997) has a discussion of the measurement of party effects in the U.S. context. He argues that the proportion of seats is a better measure than an indicator variable since it is more in line with the conceptualization of parties as undisciplined. I have also tried this variable and the results are qualitatively similar to dichotomous one. See section 5, Table 11.

[19] See Kiewiet and McCubbins (1991, 187).

[20] See Persson and Tabellini (1997) and the references cited therein.

[21] Another way is to introduce autocorrelation in the error term, such as the FGLS estimator. Andersson and Hsiao (1982) and Maddala (1987) suggest a test whether we should use autocorrelation in the errors or a lagged dependent variable. With the inclusion of a lagged dependent in a panel data context there are some estimation problems. There is by now a sizeable literature on different estimation techniques (e.g. see

static model, we must more or less include the lagged dependent variable in an ad-hoc fashion.[22]

If there is inertia in fiscal policy outcomes then we must also pose the question: how fast do parties make a difference? Hence, it would be useful to separate the short-run and the long-run effects of political parties on fiscal policy outcomes. In order to make this distinction we must be careful of our choice of estimating procedure.

Applied studies using panel data find that the estimators based on the cross-sectional component of the data tends to give long-run estimates while those based on the time-series component of the data tends to give short-run estimates.[23]

Therefore, the regression equation (5) and the specification of the error term (i) tend to give short-run estimates since this type of estimator mainly exploits the time variation in the data. To get the long-run estimates in a dynamic heterogeneous panel, following Pesaran and Smith (1995), one should use a specification in which each variable is expressed as time means for each unit. This estimator is known as the between

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Baltagi (1995) and the references cited therein). For example, Judson and Owen (1999), using a Monte Carlo approach, compare the bias of different dynamic panel data estimators. Their conclusion is to use GMM or Anderson-Hsiao estimator for large T panels since the bias of the FE-estimator could be sizeable even when T=20. However, this bias concerns the parameter of the lagged dependent variable, is not clear-cut from their study, which of the compared estimators performs best concerning the bias of the parameters of the other regressors. Since the main interest of this paper is the party effect and not the lagged dependent variable per se, it is not obvious which estimator to use.

[22] Some papers (e.g. Borge and Rattsö 1995, Bergström, Dahlberg and Johansson 1999, and Alt and Lowry 1999) include the lagged dependent variable by using the analogy with a stock adjustment model. In this type of model the assumption is that the desired level of the dependent variable Y^*_t is dependent on the current level of the explanatory variables X_t. Then it is postulated an partial adjustment process $Y_t - Y_{t-1} = \gamma(Y^*_t - Y_{t-1})$ and $0 < \gamma < 1$. Thus this equation specifies that the change in Y will respond only partially to the difference between the desired stock of Y and the past value of Y, with the rate of response being a function of the adjustment coefficient γ.

[23] See Baltagi and Griffin (1984).

estimator. In this way one would get consistent estimates of the long-run effects, [24] unless the time dimension is too short.

In summary, in this section I have discussed some methodological issues that have been largely ignored or else have not been properly addressed in empirical tests of whether parties matter. My purpose of this methodological discussion is to show that these issues actually have an impact on the results presented in this paper and ignoring them could lead to erroneous conclusions.

4. Data

My objective is to test whether parties matter for policy outcomes using data on Swedish local governments. As the dependent variables, I will use current direct general expenditures and the personal income tax rate.[25] Expenditures are expressed in per capita terms and in 1991 years prices and the tax rate is expressed in percent.[26] As a backdrop to the investigation, Table 1 presents summary statistics for the spending and the income tax rate during the sample period 1974-1994. These statistics provide a condensed history of municipality budgets.

A more and less steady upward trend in expenditure per capita and tax rates can be seen from Table 1. Real spending has increased with a factor 1.8 while the tax rates

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[24] Pesaran and Smith (1995) show that the FE estimator does not give consistent estimates of the long-run effects in a dynamic heterogeneous panel.

[25] I have also used total expenditure and find similar results. However, Statistics Sweden (SEB) has changed its definition of this variable during my sample period, therefore I feel more confident reporting the results from current direct general expenditures. The difference between total and current direct expenditures is mainly that investments are included in the former. Roughly 85 percent of total spending is classified as current direct spending.

[26] I have used the implicit GDP deflator. The deflator is constructed by taking the ratio of GDP at current market prices to GDP at fixed market prices.

have increased with a factor 1.4. The standard deviation for spending starts at 19 percent of the mean and declines to roughly 14 percent. Thus, it seems that the municipalities are more similar regarding spending today than previously. However, the standard deviation for taxes is roughly at 7 percent of the mean during the whole period. The maximum spending is typically more than twice the minimum, while the maximum tax rate is a factor 1.8 larger than the minimum.

The main focus of this study is on partisanship effects on fiscal policy choices. To measure the partisanship effect I make use of a dummy variable, that is a variable that is equal to one when there is a left-wing majority in parliament, and zero otherwise.[27] Table 2 summarizes the number of left and right-wing governments every election period during the sample period. Thus of the total of 5754 (274×21) observations from local governments there was a left-wing majority 2430 (810×3) and a right-wing majority 2412 (804×3) of the times.

There is a caveat in the interpretation of this partisanship variable. At the local level, there are several small parties not included in the two major blocs, the socialist or the non-socialist bloc, and sometimes these parties hold the balance of power. I call these kinds of constellations undefined blocs.[28] These undefined blocs create a problem because there is no general information about the constellation of parties this bloc is constituted of. Therefore, I have to include a separate indicator variable for this group of

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[27] The socialist bloc includes the Leftist Party and the Social Democratic Party. The non-socialist bloc includes three parties: the Conservative Party, the Centrist Party and the Liberal Party, from 1974 until 1988. Since 1988 it includes a fourth party: the Christian Democratic Party. In 1991 election there was a fifth part included in the non-socialist bloc: the New Democratic Party.

[28] This classification is compiled from the distribution of seats in local councils. If either of the blocs receive more than 50 percent of the seats it is defined accordingly, otherwise it is an undefined bloc.

municipalities (912 of the observations) so that the interpretation of party measure for the left-wing majority could be correctly interpreted as the difference between Right and Left majorities.[29]

It could be interesting to know the Pearson correlation coefficient between the two dependent variables and the indicator variable of the left wing majority. The correlation between spending and the indicator variable is 0.25 while the correlation between taxes and the indicator variable is 0.17.

I also include other explanatory variables in the regression equation (5). Apart from the fixed effects (both time and unit effects), the party indicator and the average income I include variables that tries to measure the cost of providing local public goods as suggested from the basic model. These variables are the proportion of the population between the ages 0 to 15, the proportion of the population over age 65, population density, and the municipality population size. Some of these variables can also be seen as a control of the mandatory part of municipality spending. In particular the ages structure since the main expenditures of Swedish municipalities are education, childcare and the care of the elderly and these expenditures therefore fall more heavily on municipalities with a large fraction of young or elderly people. The population density and the population size are included because they capture the possibility that there are potentially congestion effects or scale economies in the provision of local government services. Another explanatory variable that might be included is intergovernmental grants. However, this variable is not exogenous with respect to fiscal decisions since the largest

[29] My empirical results are robust to the inclusion or exclusion of this extra indicator variable. However, my results are slightly stronger if I include it.

part of the intergovernmental grants during the sample period was matching grants.[30] Therefore, it should not be apart of the explanatory variables.[31] Table 3 presents descriptive statistics of the explanatory variables.

[30] About 80 percent of the total grants were matching grants while 20 percent was grant-in-aid. Even the grant-in-aid program was determined by the fiscal behavior of the municipalities. For a description of the grant-in aid system in Sweden see Aronsson and Wikström (1996).

[31] To see this we can rewrite the government budget constraint (3) as $\tau_i y_i = g_i x_i + g_i s$, where s is the rate of governmental subsidy, which is common to all municipalities. Then we can rewrite the f o c as $g^j_i = H^{1\prime}_i[(y^j_i (x_i+s)/y_i]$. Since I have include time effects in (5) I will implicitly control for s (and for time varying s) in the empirical analysis. Nevertheless, if some parts of the governmental grants is non-matching and municipality specific, then my estimates of the party effect could possible be biased by not including governmental grants as an explanatory variable. Therefore I re-run all my regression by including it as an explanatory variable. I find virtually the same results as reported in the paper. These results are available upon request.

5. Results

In this section I report evidence whether parties matter for policy choices. I will also show that if one does not properly address the methodological issues raised in section 3, it will lead to biased inference and possibly wrong conclusions about both the quantitative and qualitatively effects of partisanship.

But before I focus on the specific findings, I will make some general comments on the results from the different methodologies of pooling cross-section and time series data. To begin with, I allow for both varying intercept (fixed unit and time effects) and slope coefficients. It might seem excessive also to allow for different slope coefficients since my sample is so homogenous to start with. However, the purpose is to show that my results concerning the partisanship effect are robust even for the most flexible specification. A halfway house is to use the FE estimator, allowing for different unit and time effects. This estimator seems to do a good job picking up the heterogeneity in my sample and at the same time avoiding the pitfalls of the less flexible estimators such as the OLS and the FGLS.

5.1 Short-run effects of partisanship on fiscal policy

Table 4, 5, 6 and 7 show the results from the short-run fiscal effects of partisanship. Table 4 and 5 present the results from the effect of partisanship on spending and Table 6 and 7 on taxes. In all these tables I allow both intercepts and slope coefficients to differ between municipalities in various degrees.

Before I focus on the partisanship variable, several broad observations can be made about the regressions in table 4 to 7. First, the regressions account for 90 to 95

percent of the variation in expenditures and 92 to 97 percent of the variation in taxes depending on the specification. This is suggestive of that the main fundamental explanatory variables have been captured. Secondly, income and population density both has significant and negative effects on expenditures and taxes. Population size has mainly a negative effect on the two policies, while the demographic variables overall has a more or less positive effect (although there are some exceptions).

Looking first at expenditure policy, Table 4 and 5 (The difference between Table 4 and 5 is that lagged spending is included in Table 5). Each column is a regression where I potentially allow the slope coefficients to differ between municipalities for the explanatory variables. In columns II through VI (Table 4) and II through VII (Table 5), I only allow one slope coefficient to differ at a time while in last column in each table they are all unconstrained. As a comparison, the first column in each table shows the FE estimator (i.e., only the fixed unit effects and time effects are allowed to differ). The main result to note, in the top row of each table, is that the partisanship effect is positive and highly statistically significant in all regressions (except for the last column in each table, which I will discuss below). From these two tables we can see that there are strong partisanship effects. Left spends and taxes more than Right. In Table 4, not controlling for lagged spending, the difference is between X to 1134 SEK per capita (roughly 1 to 4 % of average spending) depending on the specification. For the specifications with lagged spending, Table 5, the difference is between X to 517 SEK per capita (roughly 0.5 to 2 % of average spending). It is only in the most flexible specification that the effect is not statistically significant from zero. However, considering that there are 1665 and 1939

explanatory variables in each of these specifications respectively, there is no surprise that the standard deviation is large.

Next we turn to income taxes. We replicate the same battery of statistical techniques as used to analyze expenditures. Table 6 and 7 show the results from partisanship effects on the level of income taxes. Again, the main result to note, in the top row of each table, is that the party effect is positive and highly statistically significant in all regressions (except for the last one Table 7). The range is between 0.18 to 0.30 percentage points (roughly 1 to 2 % of the average tax rate) for the specification without a lagged dependent variable and 0.02 to 0.13 percentage points for the dynamic one points (0.1 to 0.8 % of the average tax rate).

Finally, I will make some general remarks on the dynamic specification, i.e., including a lagged dependent variable. From Table 5 and 7, we can see that the lagged dependent variable is strongly significant in all regressions and that the coefficient of the party indicator variable is affected by its inclusion. We can make a formal of test of the dynamic specification along the lines of Andersson and Hsiao (1982) and Maddala (1987). Using this test, I can not reject that we should not include a lagged dependent variable. Thus, dynamics seem to be important and it also has an impact on the quantitative effects of partisanship.

5.2 Long-run effects from partisanship on fiscal policy

Table 8 presents the long run estimates. Parties make a bigger difference in the long-run. From this table we can see that the coefficients of the long-run partisanship parameter are at least twice as large as their short-run counterparts for the spending

regressions and at least three times as large for tax regressions. In particular, the partisanship effect is much larger for parties with a long tenure in office. For example, we can compare the partisanship effects between municipalities, which have had the same party in charge during the sample period.[32] This long-run effect can be seen from Column V and VI. In this case, the left-wing governments spend on average 3340 SEK per capita (which is 13 percent of average spending) more than, and have an income tax rate that is 9 percentage points (which is 7 percent of the average tax rate) higher than do right-wing governments.

5.3 Pitfalls using OLS or FGLS estimators

Next we will consider the parameter homogeneity model that have figured prominently both in the political science and in the political economic literature. I will show that the parameter homogeneity assumption is highly questionable and can lead to erroneous conclusion about both the quantitative and the qualitatively effect of partisanship.

I begin by presenting the results from the OLS and the FGLS estimator. Table Tables 9 present the result from OLS estimator while Table 10 presents the results from the FGLS estimator. In the OLS case, I have made the panel data correction of the standard errors as suggested by Beck and Katz (1995a).

What is noticeable from tables is that coefficient of partisanship effect is negative and significant in all the FGLS regressions and negative but not significant in one of the OLS regressions. This is indeed surprising in light of the previous findings, but as for

[32] There have been a total of 114 municipalities where there has not been any change of power during the

example Hsiao (1986) illustrates this type of bias can arise if one does not properly account for the heterogeneity in panel data. To backup this claim, we can make some formal test of parameter homogeneity. For example,[33] an F-test of joint significance of fixed unit and time effects is strongly rejected for all regressions in Table 9 and 10. Moreover, we can also test whether the slope coefficient should differ, i.e, $\beta_i=\beta$ for all i. Table 4 to Table 7 presents the F-tests conditional on that only one slope coefficient at a time is allowed to differ. This restriction is more or less rejected in all specifications.

The other OLS regressions where the coefficient estimates are positive, column I to 3 in Table 9 also beg some comments. To include a lagged dependent variable in the OLS regression was suggested by Beck and Katz (1995b) as superior alternative than to use the FGLS estimator to model dynamics. It is well known (or should be at least) that using OLS with a lagged dependent variable in a panel data context renders the OLS estimator biased and inconsistent.[34] Moreover, it seems that the OLS estimator without a lagged dependent variable does not make a distinction between short and long-run effects of partisanship. In comparison to the previous results, the estimates are both much lower than the long-run estimates and much higher than the short-run estimates.

5.4 Extension and further robustness checks

In this section I will make some extensions and further robustness checks of my results. To begin with, I will show that my results are robust to a different measure of partisanship preferences. In section 2 I argued that the theoretically correct way of

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period 1974 to 1994. Of these 69 where left-wing and 45 right-wing governed

[33] Baltagi (1995) has a whole chapter of different tests for individual and time effects.

[34] For example, see Trognon (1978) for the asymptotic bias in dynamic panel data models.

measuring partisanship preferences was to use a dichotomous variable. Nevertheless, many studies have used a continuous variable such as the proportion of legislative seats belonging to the Left. I have also used this variable and all of the results previously presented are qualitatively unchanged. Table 11 shows the results from the FE estimator when I make use of this measure.[35] From this table we can see that the coefficient is positive and highly statistically significant in all specifications.

Another robustness check is to test for parameter stability, that is, structural breaks at certain point in time. This is particularly important when one considers evidence for a relatively long time period (21 years). To investigate this issue I re-specify equation (5). Now I allow the slope parameters to vary over time but not over units, except for partisanship variable. I still use fixed time and unit effects. Tables 12 and 13 show the results. We can see from these two tables that the results of the partisanship effect on fiscal policy variables are robust to varying slope coefficients over time.

[35] Due to space constraints I have chosen to only present the results from the FE estimator. The other results are available from the author.

6. Conclusions

The main finding of this paper is that parties matter for fiscal policy outcomes in a large panel data set from Swedish local governments. Left wing parties spend and tax more than right wing parties. The short-run difference is in the range of 1 to 4 percent for spending, and in the range 0.5 to 2 percent for taxes depending on the specification. The long-run effect is much larger, in particular where the left wing party has had a long tenure in office. The difference is 13 percent for spending and 7 percent for taxes. These do not seem like trivial effects.

In this paper, I also argue that the lack of convincing empirical support for partisanship differences in previous studies is possible due to the data sets used or the employed methodology. For example, Hamermesh (1999) argues that we too often "mindlessly accept the data that are given us as representing the economic concept that we seek to include in our estimates". His advice is that we first should ask the seemingly obvious question "whether we have found the best available data for the purpose" before embarking on the empirical analysis. Cross-country studies are fraught with the difficulties of comparing parties in a commensurable way. Moreover, Persson and Tabellini (1999) argue that different electoral system have different incentives regarding fiscal policy outcomes, which makes the identification of a possible partisanship effect even more difficult. To use data from individual countries with a weak party system, such as the U.S, could also be problematic since one have to deal with individual legislator effects vs. party effects. In this paper I utilize data from Swedish local governments. This buys me several advantages to previous studies. First I have data for 274 local

governments over a 21-year period. Thus, the total number of observations (5754) is much larger than in any previous study. Second, Swedish local governments operate within a common political framework so there is much less of a problem classifying parties as Left or Right in a commensurable way. Third, Sweden is one of the most party centered election systems among the OECD countries. Thus, this data set is highly suitable for the question asked in this paper.

In this paper, I also show that the some of the previously used methodologies for pooling cross-section and time-series data lead to erroneous results. In particular, ignoring parameter heterogeneity would lead to erroneous conclusions about the partisanship effect. For example, I show that using improper pooling techniques, i.e., the OLS or the FGLS estimator, could lead us to conclude that right-wing governments spend and tax considerably more than do left-wing governments.

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Appendix: Swedish Local Governments and their freedom of action

The public sector in Sweden has three levels: national, regional (county) and local (municipal). Local self-government is exercised at both the county and the municipality level. In 1997, Sweden was divided into 23 counties and 288 municipalities. In this paper we focus on the behavior of the municipalities.

Local governments play an important role in the Swedish economy, both in terms of the allocation of functions among different levels of government and in terms of economic significance. They are, for example responsible for the provision of day care, education, care of the elderly, and social welfare services. In trying to quantify their economic importance, one can note that

- During the 1980s and the 1990s, the total consumption of the local governments constituted approximately 20 percent of GDP.
- During the same period, the total expenditures of local governments amounted to roughly 25 percent of GDP.
- The local governments are the single biggest employer in the economy (approximately 25 percent of all employed are employed by the local governments)
- The local governments have a large stock of debt (roughly 30 percent of GDP).

There is in Sweden a very long tradition cherishing local self-government. This principle of local-self government is written into the Swedish Constitution. The decision making power of local governments is exercised by elected assemblies, municipality councils. The members of the councils are elected for three-year terms. The elected

representatives are responsible for the administration, implementing and the drafting of decisions. In principle, politicians thus control Swedish local government at all stages.

Local authorities have the constitutional right to set their own personal income tax.[36] In 1994, the average personal income tax was about 19 percent but the range was between 13 percent and 22 percent. On average, 57 percent of their revenues come from the income tax. Fees, loans and other sources constitute 21 percent of total revenues, while intergovernmental grants make up 22 percent. Thus, roughly 80 percent of local government revenues are in principle at their own discretion.

Swedish municipalities have the statutory rights to borrow money. The domestic and international credit markets decide the limits and terms of such loans. For example, some local governments have been borrowing money from abroad and they have therefore been credit rated at rating firms such as Standard & Poor. A consequence of their right to borrow is that there is large cross-sectional variation of the level of debt. For example, in 1994 the average level of debt was 14900 SEK per capita and the standard deviation was 6200.[37] The minimum level of debt was 4000 and the maximum 49400 SEK per capita

Local government operations could be divided into mandatory and voluntary areas. Examples of mandatory tasks are education and social services. Examples of voluntary tasks are cultural affairs, recreational programs and technical operations such as energy distribution. Murray (1985) estimated that about 44 percent of the expenditures are to be considered obligatory. However, there are large differences in the freedom of

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[36] There have been some restrictions in the right to set taxes during the 1990s.
[37] 100 SEK is about $12 dollars.

action in running a mandatory operation due to variations in the constraints imposed by legislation. Thus, Local governments could decide on least 56 percent of their own expenditures. To put this statement in perspective we can look at the cross-sectional variation in expenditures. During the period 1974 to 1994, the average expenditures was about 28 000 SEK per capita in real terms and the standard deviation roughly 5200. Thus, their is quite a bit of cross-sectional variation.

Finally, the State plays no part in either monitoring or approving local government accounts. However, there has existed a balanced budget requirement, but this requirement was only a prospective or beginning of year balance and there are several studies that show that this is not an effective constraint on deficit behavior.[38]

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[38] For an evaluation of the effect of balanced budget requirements on Swedish local governments, see Murray (1985) and Lane and Back (1991). The conclusion from their studies is similar to the evidence from the U.S. Bohn and Inman (1996) conclude that beginning of year balanced budget requirement is not an effective constraint on state deficits behavior.

Table 1. Municipality Expenditure per Capita and Tax Rates

	Direct current general expenditures[a]				Taxes[a]			
Year	Mean	Std d.	Min	Max	Mean	Std d.	Min	Max
1974	18281	3543	11888	36669	14.11	0.93	10.10	16.85
1975	18913	3404	12851	35899	14.57	1.01	10.10	17.00
1976	20108	3550	13745	37175	14.88	0.99	10.10	17.25
1977	21864	3755	15266	38737	15.12	1.01	10.60	17.50
1978	22651	3868	14932	40044	15.73	1.05	10.60	18.60
1979	24106	4088	15975	42357	15.86	1.09	10.60	18.60
1980	24366	4188	17080	42795	15.92	1.08	10.60	18.60
1981	25095	4266	17723	45138	16.06	1.09	10.60	18.60
1982	26163	4320	18259	47269	16.11	1.10	10.60	18.60
1983	26755	4320	18657	46695	16.21	1.09	10.60	19.60
1984	27145	4322	18512	46667	16.25	1.10	10.40	19.60
1985	27699	4533	19956	47641	16.27	1.12	9.70	19.60
1986	28348	4431	19602	46976	16.23	1.06	11.30	18.00
1987	29236	4580	21534	49812	16.26	1.09	10.90	18.00
1988	27461	3854	19305	41371	16.36	1.12	10.90	18.00
1989	27603	3940	19848	41934	16.41	1.09	11.40	18.00
1990	28773	4064	20063	43538	16.49	1.07	11.40	18.25
1991	29534	4292	19725	44058	16.52	1.05	11.40	18.00
1992	34116	4632	22289	48025	19.03	1.30	13.20	21.70
1993	33828	4922	23032	47181	19.13	1.39	13.15	21.93
1994	33893	4810	22901	49910	19.14	1.38	13.15	21.93
74-94	26471	6089	11888	49910	16.32	1.71	9.70	21.93

Each row report summary statistics for 274 municipalities. Spending is expressed in 1991 SEK per capita.
a In 1992 there was a there was a care of the elderly reform in which the municipalities overtook most of the responsibilities for the care of the elderly that had previously been handled by the county councils.

Table 2. Partisanship summary

Election period[a]	# left-wing governments	# right-wing governments	# undefined governments
1974-1976	116	123	35
1977-1979	110	130	34
1980-1982	121	115	38
1983-1985	144	84	46
1986-1988	125	100	49
1989-1991	122	89	63
1992-1994	72	163	39
Sum 1974-1994	810	804	304

a. In Sweden there is an election every third year.

Table 3. Descriptive statistics for the explanatory variables

Variables	Mean	Standard d.	Min	Max
Proportion young, 0-15	0.21	0.028	0.13	0.37
Proportion old, 65+	0.17	0.045	0.016	0.41
Mean income	73778	12488	15943	162960
Population size	27799	45523	3480	692954
Population density	107	360	0.28	3700

Average income is expressed in per capita terms and in 1991 prices.

Table 4. Effect of partisanship on the level of spending: a static specification

Dependent variable	Spending	Spending	Spending	Spending	Spending	Spending	Spending
	I	II	III	IV	V	VI	VII
Left-wing majority	1116 (6.12)	1135 (5.65)	1122 (5.83)	970 (5.74)	798 (4.52)	1002 (5.99)	()
Proportion young 0-15	19519 (6.29)	Interacted with unit effects	10012 (2.41)	5160 (1.14)	-6745 (-1.77)	4748 (1.06)	Interacted with unit effects
Proportion old 65+	3571 (1.04)	7735 (1.80)	Interacted with unit effects	-18972 (-4.19)	-4064 (-1.04)	-20269 (-4.47)	Interacted with unit effects
Population size	-0.18 (-6.50)	-0.17 (-3.72)	-0.12 (-3.41)	Interacted with unit effects	-0.21 (-4.66)	-0.10 (-2.29)	Interacted with unit effects
Income	-0.04 (-5.81)	-0.04 (-5.09)	-0.05 (-6.48)	-0.03 (-4.20)	Interacted with unit effects	-0.03 (-4.11)	Interacted with unit effects
Population density	-17.10 (-6.35)	-12.93 (-3.30)	-15.28 (-6.80)	-55.02 (-7.00)	-11.50 (-2.88)	Interacted with unit effects	Interacted with unit effects
Unit specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-test: $\beta_i=\beta$ All slope coefficients are the same		F=12.16 Rejection of null hypothesis	F=9.89 Rejection of null hypothesis	F= 10.82 Rejection of null hypothesis	F=8.80 Rejection of null hypothesis	F= 10.56 Rejection of null hypothesis	
R^2	0.8965	0.9204	0.9191	0.9262	0.9220	0.9260	
# of obs.	5724	5724	5724	5724	5724	5724	5724

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.
F(273,5180) critical value 1.15

Table 5. Effect of partisanship on the level of spending: a dynamic specification

Dependent variable	Spending	Spending	Spending	Spending	Spending	Spending	Spending	Spending
	I	II	III	IV	V	VI	VII	VIII
Left-wing majority	436 (3.25)	517 (3.48)	490 (3.19)	471 (3.27)	339 (2.72)	377 (2.77)	343 (2.76)	()
Lagged spending	0.77 (47.46)	Interacted with unit effects	0.70 (35.74)	0.71 (37.60)	0.66 (33.41)	0.69 (35.51)	0.66 (33.46)	Interacted with unit effects
Proportion young 0-15	11459 (5.16)	7514 (2.23)	Interacted with unit effects	6706 (2.38)	7795 (2.22)	4238 (1.53)	7927 (2.25)	Interacted with unit effects
Proportion old 65+	2672 (1.26)	-2998 (-1.05)	5609 (1.86)	Interacted with unit effects	-5250 (-1.70)	272 (0.11)	-5367 (-1.74)	Interacted with unit effects
Population size	-0.07 (-3.98)	-0.09 (-3.93)	-0.08 (-2.60)	-0.06 (-2.59)	Interacted with unit effects	-0.08 (-3.51)	-0.02 (-0.59)	Interacted with unit effects
Income	-0.007 (-1.48)	-0.010 (-2.91)	-0.009 (-1.64)	-0.010 (-2.38)	-0.007 (-1.31)	Interacted with unit effects	-0.007 (-1.30)	Interacted with unit effects
Population density	-7.15 (-4.16)	-7.72 (-4.40)	-5.57 (-1.72)	-8.08 (-4.21)	-17.49 (-2.40)	-9.20 (-4.14)	Interacted with unit effects	Interacted with unit effects
Unit specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-test: $\beta_i=\beta$ All slope coefficients are the same		F=1.88 Rejection of null hypothesis	F=1.73 Rejection of null hypothesis	F= 1.73 Rejection of null hypothesis	F=1.81 Rejection of null hypothesis	F= 1.67 Rejection of null hypothesis	F= 1.77 Rejection of null hypothesis	
R^2	0.9482	0.9528	0.9516	0.9517	0.9535	0.9524	0.9534	
# of obs.	5480	5480	5480	5480	5480	5480	5480	5480

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.
F(273,4906). critical value 1.15

Table 6. Effect of partisanship on the level of taxes: a static specification

Dependent variable	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes
	I	II	III	IV	V	VI	VII
Left majority	0.25 (6.61)	0.31 (8.08)	0.27 (7.27)	0.25 (7.28)	0.18 (5.10)	0.26 (7.41)	()
Proportion young 0-15	5.50 (6.83)	Interacted with unit effects	4.36 (4.29)	0.83 (0.81)	-1.10 (-1.06)	1.21 (1.18)	Interacted with unit effects
Proportion old 65+	4.20 (5.16)	3.51 (3.55)	Interacted with unit effects	2.78 (3.11)	4.27 (4.69)	2.72 (3.10)	Interacted with unit effects
Population size	-0.00001 (-2.16)	4.55e-06 (0.52)	-4.67e-06 (-0.60)	Interacted with unit effects	-5.41e-06 (-0.72)	-0.00001 (-1.24)	Interacted with unit effects
Income	-6.99e-06 (-4.00)	-5.55e-06 (-3.15)	-8.09e-06 (-4.14)	-5.91e-06 (-3.46)	Interacted with unit effects	-5.83e-06 (-3.49)	Interacted with unit effects
Population density	-0.003 (-6.27)	-0.002 (-2.91)	-0.002 (-5.63)	-0.02 (-3.49)	-0.002 (-3.55)	Interacted with unit effects	Interacted with unit effects
Unit specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-test: $\beta_i=\beta$ All slope coefficients are the same		F=11.57 Rejection of null hypothesis	F=10.53 Rejection of null hypothesis	F= 16.24 Rejection of null hypothesis	F=8.89 Rejection of null hypothesis	F= 16.64 Rejection of null hypothesis	
R^2	0.9209	0.9441	0.9424	0.9484	0.9437	0.9487	
# of obs.	5724	5724	5724	5724	5724	5724	5724

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.
F(273,5180)

Table 7. Effect of partisanship on the level of taxes: a dynamic specification

Dependent variable	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes	Taxes
	I	II	III	IV	V	VI	VII	VIII
Indicator for the Left majority	0.10 (4.16)	0.13 (4.96)	0.11 (4.34)	0.11 (4.18)	0.10 (4.02)	0.07 (2.72)	0.11 (4.32)	()
Lagged taxes	0.78 (74.43)	Interacted with unit effects	0.71 (57.54)	0.71 (56.83)	0.67 (50.99)	0.70 (54.79)	0.67 (50.51)	Interacted with unit effects
Proportion young 0-15	2.89 (5.81)	2.68 (4.87)	Interacted with unit effects	2.31 (3.90)	1.16 (1.73)	1.44 (2.19)	1.25 (1.87)	Interacted with unit effects
Proportion old 65+	0.99 (2.10)	1.24 (2.35)	0.93 (1.58)	Interacted with unit effects	1.31 (2.28)	1.54 (2.84)	1.22 (2.11)	Interacted with unit effects
Population size	-1.01e-06 (-0.40)	-2.85e-06 (-0.80)	-3.37e-06 (-0.87)	1.78e-07 (0.05)	Interacted with unit effects	-6.03e-06 (-1.62)	-0.0002 (-3.63)	Interacted with unit effects
Income	-2.16e-07 (-0.24)	-2.39e-06 (-2.57)	-1.01e-06 (-0.99)	-1.86e-06 (-1.91)	-2.05e-06 (-2.13)	Interacted with unit effects	-1.89e-06 (-1.98)	Interacted with unit effects
Population density	-0.001 (-5.32)	-0.001 (-4.17)	-0.008 (-1.97)	-0.0008 (-3.77)	-0.015 (-7.06)	0.0007 (-3.25)	Interacted with unit effects	Interacted with unit effects
Unit specific effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
F-test: $\beta_i=\beta$ All slope coefficients are the same		F=2.09 Rejection of null hypothesis	F=1.86 Rejection of null hypothesis	F= 2.03 Rejection of null hypothesis	F=2.90 Rejection of null hypothesis	F= 1.62 Rejection of null hypothesis	F= 2.70 Rejection of null hypothesis	
R^2	0.9702	0.9732	0.9729	0.9730	0.9742	0.9731	0.9743	
# of obs.	5480	5480	5480	5480	5480	5480	5480	5480

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.
F(273,4906)

Table 8. Long-run effects of partisanship on spending and taxes

Dependent variable	Spending	Taxes	Spending	Taxes
Variables	I	II	III	IV
Indicator for the	2476	.87	3341	.87
Left majority	(6.16)	(7.18)	(5.19)	(4.38)
Proportion	-125169	-16.46	-67624	-25.18
young 0-15	(-7.25)	(-3.16)	(-2.12)	(-2.56)
Proportion	-54170	-6.88	-15237	-9.25
old 65+	(-4.98)	(-2.09)	(-0.77)	(-1.52)
Population	.022	1.22e-06	.04	-7.46e-07
size	(5.58)	(1.01)	2.89	(-0.16)
Income	.034	-.00004	.09	-.000035
	(1.09)	(-4.96)	(1.71)	(-2.15)
Population	-1.37	-.0008	-3.55	-.002
density	(-2.27)	(-4.60)	(-1.44)	(-2.64)
R^2	0.5993	0.4844	0.6184	0.6450
# of obs.	5754	5754	2457	2457

Average income is expressed in per capita terms and in 1991 prices.

Table 9. The OLS estimator with panel corrected standard errors

Dependent variable	Spending	Spending	Taxes	Taxes
	I	II	III	IV
Left-wing majority	2003 (14.67)	224 (4.00)	0.44 (10.25)	-0.02 (-.98)
Lagged dependent variable		0.93 (155.42)		0.94 (142.52)
Proportion young 0-15	-48888 (-10.20)	7165 (3.85)	2.22 (1.45)	3.37 (5.67)
Proportion old 65+	13881 (4.36)	7715 (6.57)	15.00 (14.51)	3.13 (8.01)
Population	0.027 (11.65)	0.002 (2.22)	2.36e-06 (3.64)	2.23e-07 (1.15)
Income	0.26 (29.35)	0.02 (7.76)	0.00006 (16.92)	0.00001 (10.28)
Population density	-2.99 (-9.72)	-0.38 (-2.85)	-0.002 (-16.86)	0.0002 (-6.13)
Unit specific effects	No	No	No	No
Time effects	No	No	No	No
R^2	0.4278	0.9085	0.2862	0.8641
# of obs.	5724	5480	5724	5480

Average income is expressed in per capita terms and in 1991 prices.

Table 10. The FGLS estimator

Dependent variable	Spending	Spending	Taxes	Taxes
	I	II	III	IV
Left-wing majority	-1199 (-7.17)	-1058 (-7.10)	-0.92 (-18.45)	-0.89 (-18.45)
Proportion young 0-15	-71825 (-13.53)	-81903 (-16.06)	-3.03 (-1.57)	-5.62 (-3.17)
Proportion old 65+	4629 (1.35)	-6705 (-2.06)	13.68 (11.32)	12.96 (11.56)
Population	0.04 (9.46)	0.03 (7.32)	3.94e-06 (3.52)	4.01e-06 (4.00)
Income	0.07 (16.41)	0.08 (18.10)	0.00002 (13.90)	0.00002 (14.88)
Population density	-0.95 (-2.03)	-1.26 (-2.18)	-0.001 (-9.49)	-0.002 (-9.82)
Unit specific effects	No	No	No	No
Time effects	No	No	No	No
R^2	-	-	-	-
# of obs.	5724	5724	5724	5724

Average income is expressed in per capita terms and in 1991 prices.

Table 11. Proportion of left-wing seats

Dependent variable	Spending	Spending	Taxes	Taxes
	I	II	III	IV
Proportion of left-wing seats	9089 (6.87)	4050 (4.29)	2.52 (8.19)	0.84 (4.26)
Lagged dependent variable		0.77 (47.43)		0.78 (74.00)
Proportion young 0-15	17637 (5.72)	10533 (4.69)	4.87 (6.13)	2.72 (5.47)
Proportion old 65+	3332 (0.99)	2518 (1.19)	4.11 (5.15)	0.96 (2.04)
Population	-0.18 (-6.11)	-.066 (-3.74)	-9.12e-06 (-1.69)	-1.60e-07 (-0.06)
Income	-0.036 (-5.58)	-0.0060 (-1.34)	-6.64e-06 (-3.84)	-1.08e-07 (-0.12)
Population density	-16.32 (-6.08)	-6.76 (-3.87)	-0.0031 (-5.95)	-.0010 (-4.88)
Unit specific effects	Yes	Yes	Yes	Yes
Time effects	Yes	Yes	Yes	Yes
R^2	0.8964	0.9482	0.9213	0.9702
# of obs.	5724	5480	5724	5480

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.

Table 12. The variable intercept ,and time varying slope coefficient model

Dependent variable	Spending	Taxes
Variables	I	II
Indicator for the Left majority	715 (4.27)	0.20 (5.33)
Proportion young 0-15	Interacted with time effects	Interacted with time effects
Proportion old 65+	Interacted with time effects	Interacted with time effects
Population size	Interacted with time effects	Interacted with time effects
Income	Interacted with time effects	Interacted with time effects
Population density	Interacted with time effects	Interacted with time effects
Unit specific effects	Yes	Yes
Time effects	Yes	Yes
R^2	0.9108	0.9252
# of obs.	5724	5724

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.

Table 13. The dynamic, variable intercept ,and time varying slope coefficient model

Dependent variable	Spending	Taxes
Variables	I	II
Left majority	290 (2.33)	0.10 (3.99)
Lagged dependent variable	Interacted with time effects	Interacted with time effects
Proportion young 0-15	Interacted with time effects	Interacted with time effects
Proportion old 65+	Interacted with time effects	Interacted with time effects
Population size	Interacted with time effects	Interacted with time effects
Income	Interacted with time effects	Interacted with time effects
Grants	Interacted with time effects	Interacted with time effects
Population density	Interacted with time effects	Interacted with time effects
Unit specific effects	Yes	Yes
Time effects	Yes	Yes
R^2	0.9532	0.9719
# of obs.	5450	5450

Average income is expressed in per capita terms and in 1991 prices.
White standard errors were used in calculating *t*-statistics.