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Partisan Politics in Corporate Tax Competition

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Non-technical summary

The broad literature focussing on the effects of globalization and strategic interactions on corporate tax competition has widely neglected an impact of political factors. In this paper, we analyse the effects of political factors on corporate taxation and in particular the impact of partisanship.

In a first step we show in a simple theoretical Zodrow/Mieszkowski-style framework how political ideologies can impact on decisions on corporate tax rates. Assuming heterogeneous decision-makers driven by self-interest in the political outcome and a probabilistic voting model, two channels can be identified which point at different tax reaction functions of left-wing and right-wing politicians: differences in public good preferences as well as ideological biases in the perception of capital mobility. Both channels imply that right-wing incumbents set lower corporate tax rates.

In the empirical section we make use of highly sophisticated data on ideological positions. These are derived from the Comparative Manifesto Project (CMP) data set, which is based on the content analysis of party manifestos. This data enables much more sophisticated analyses of partisan politics than the data usually applied in public finance. Applying panel data for 32 European countries since 1979, we can detect a significant positive effect of left-wing legislatures on corporate tax rates. This effect, however, is diminishing over time. Beyond this ideological effect, we identify two further political factors which have interfered with the general pressure on cutting tax rates: the fragmentation of government, as well as the educational background of the respective head of government. Moreover, our analysis by means of disaggregated ideology measures reveals that especially the parties' attitude towards the welfare state is a most relevant factor which has a strong positive effect on corporate tax rates.

Das Wichtigste in Kürze

Die umfangreiche Literatur, die sich mit dem Einfluss der Globalisierung sowie von strategischen Interaktionen auf den Körperschaftssteuerwettbewerb beschäftigt, negiert weitestgehend einen Einfluss von politischen Faktoren auf die Unternehmensbesteuerung. In diesem Papier untersuchen wir den Effekt von politischen Faktoren, insbesondere des ideologischen Hintergrundes, auf die Unternehmensbesteuerung.

Zunächst wird in einem einfachen Modell, das auf dem Ansatz von Zodrow und Mieszkowski beruht, aufgezeigt, wie politische Ideologien einen Einfluss auf Entscheidungen über die Körperschaftssteuer nehmen können. Unter der Annahme von heterogenen Entscheidungsträgern, die von Eigeninteresse in Form von ideologischen Präferenzen getrieben werden, sowie einem Probabilistic Voting-Model, können zwei Kanäle identifiziert werden, die auf unterschiedliche Steuerreaktionsfunktionen von linken und rechten (konservativen) Politikern hindeuten: Unterschiede bezüglich der Präferenzen für öffentliche Güter sowie ideologische Verzerrungen in der Wahrnehmung von Kapitalmobilität. Beide Kanäle deuten darauf hin, dass linke Amtsinhaber höhere Unternehmenssteuern setzen dürften.

Im empirischen Teil nutzen wir eine innovative Datengrundlage zur Messung ideologischer Positionen. Diese stammt aus dem Datensatz des Comparative Manifesto Project (CMP), der auf der Inhaltsanalyse von Wahlprogrammen beruht. Diese Daten erlauben uns differenziertere Untersuchungen von ideologischen Effekten als die sonst in der finanzwissenschaftlichen Literatur verwendeten Daten. Unter der Verwendung von Paneldaten für 32 europäische Staaten seit 1979 können wir einen signifikant erhöhenden Einfluss von linken Parteien auf die Körperschaftssteuern nachweisen. Dieser Effekt nimmt jedoch im Zeitverlauf ab. Neben diesem ideologischen Effekt können wir zwei weitere politische Faktoren identifizieren, die dem Steuersenkungsdruck entgegengewirkt haben: die Fragmentierung der Regierungskoalition, sowie der Bildungshintergrund des jeweiligen Regierungschefs. Weiterhin zeigt unsere Untersuchung mittels disaggregierter Ideologievariablen, dass besonders die Parteiposition in Bezug auf den Sozialstaat einen höchst relevanten Faktor darstellt, der einen stark positiven Effekt auf die Körperschaftssteuern ausübt.

Partisan Politics in Corporate Tax Competition

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Abstract This paper studies the effects of political factors, mainly partisanship, on corporate taxes in the past 30 years – a period of intensifying competitive pressure in Europe. Extending the Zodrow-Mieszkowski model by decision-makers who have ideological preferences yields the hypothesis that left-wing leaders set higher corporate tax rates. In the empirical analysis, we introduce a sophisticated measure of ideology derived from content analysis of party manifestos into the literature dealing with partisan effects on tax policy. We can confirm our main hypothesis, but we also find evidence that this partisan effect declines in the course of time. Moreover, we are able to reveal that this effect is mainly driven by the legislatures' stance on welfare policies. Finally, we show that a higher degree of government fragmentation, as well as the leadership of a head of state with an educational background in law counteracts the general tendency to lower tax rates.

Classification: H25, H87, D78
Keywords: company taxation, tax competition, political ideology, partisan politics

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1 Introduction

Over the last years, a number of empirical studies[1] have been published that have significantly improved our understanding of corporate tax competition in the wake of globalization. These works mainly focus on the effects of globalization and strategic interaction with neighboring countries on the national level of corporate taxation. However, the effects of political factors on corporate taxation and in particular the impact of partisan politics have been widely neglected in the related literature. The purpose of our paper is to extend this existing literature in two directions. First, we extend the theoretical and empirical literature on international corporate tax competition by emphasizing the relevance of politics in explaining corporate taxation at the national level. Second, we propose the application of a sophisticated measure of political ideologies which allows for more elaborate analyses of partisan effects on public finance outcomes than the measures which are conventionally employed in the public economics literature.

Concerning the role of national decision-making processes in the international tax competition game, the related empirical works do not offer much evidence. Instead, the existing literature seems to insinuate that corporate tax competition is an almost automatic process in which governments inevitably lower their taxes due to the external pressure created by increasing capital mobility or tax cuts of neighboring countries. This view also gets its support from the theoretical literature, which is dominated by the Downsian approach to policy convergence, reflected in the assumption that policy makers refer to the median voter's utility as determinant for their decisions. In this paper, we extend the traditional tax competition model by assuming heterogeneous decision-makers driven by self-interest in the political outcome and a probabilistic voting model as introduced by Calvert (1985). Then, two channels can be identified which point to different tax reaction functions of left-wing and right-wing politicians: differences in public good preferences as well as ideological biases in the perception of capital mobility. Both channels imply that right-wing incumbents set lower corporate tax rates.

The existing empirical studies hardly take account of such political factors, while only a few of these papers control for political aspects such as the composition of government; robust evidence is scarce. This is surprising given the bulk of evidence for partisan politics, especially in expenditure policies. Moreover, most recent survey-based evidence by

[1] See, among several others: Slemrod (2004); Devereux, Lockwood, and Redoano (2008); Overesch and Rincke (2009b); Haufler, Klemm, and Schjelderup (2009); Heinemann, Overesch, and Rincke (2008).

Heinemann and Janeba (2009) and Osterloh and Heinemann (2008) hints at the relevance of political ideologies concerning related aspects of corporate tax policies, such as the perception of the restrictions imposed by tax competition on national tax autonomy and preferences for corporate tax harmonization in Europe. This low interest of the economic literature in the political determinants of corporate tax policy also stands in sharp contrast to the political science literature. This has mainly focussed on the question whether globalization has dampened the impact of partisan policies on fiscal policy and led to some kind of "policy convergence" of opposed political camps. Moreover, further factors that might influence corporate taxation at the national level have been widely ignored in the related economic literature, e.g., the importance of fragmentation of national governments as well as the educational background of heads of states; the latter has only most recently attracted some attention in the literature on fiscal policy outcomes. Thus, the aim of the empirical part of the paper is to unite these strands of literature in order to investigate the political determinants of corporate tax policies in Europe in the past 30 years, which exist beyond the widely analyzed factors related to globalization.

The methodological innovation of this paper is to integrate a sophisticated measure of political ideologies in the empirical public finance literature. As we will show below, it is vital to pursue high standards of data sources, as both relevant variables, corporate tax burden, and especially political ideology cannot be expressed by one catch-all variable. In this regard, we make use of two sophisticated data sets which overcome many drawbacks of earlier studies. First, we use forward looking measures of corporate tax burdens, which have become standard in the empirical analysis of strategic interaction in corporate tax competition, but did not find much application beyond this regard and none in the related works in political economics. Second, we apply data on ideological positions derived from the Comparative Manifesto Project (CMP) data set, which is based on the content analysis of party manifestos. This data enables much more sophisticated analyses of partisan politics than the data usually applied in public finance, which is almost exclusively built on the use of dummies reflecting party family classifications. Furthermore, the latter data has several disadvantages in panel analyses, which are resolved by our measure. In particular, it enables us to detect international differences of party ideologies and their changes over time. Moreover, we are able to disaggregate positions concerning different policy areas, which allows us a much more explicit analysis of partisan effects on fiscal policy than related research from public economics has been able to do.

The structure of our paper is as follows: section 2 presents the theoretical background for our analysis. In addition, the related empirical literature is stated. In section 3, we present the used data and, in particular, we discuss the application of data on political ideologies in explaining fiscal policy outcomes. The fourth section presents and discusses the empirical findings. Section 5 concludes.

2 Ideology in Corporate Tax Competition

2.1 Basic model

The early theoretical literature on corporate tax competition, originating from the seminal works by Zodrow and Mieszkowski (1986) and Wilson (1986), does not deliver clear predictions on potential influences of partisan politics. In this kind of model taxes are usually assumed to be determined by benevolent decision-makers who maximize the utility of a representative household or the median voter of the jurisdiction. Political ideologies are only relevant in the models of Persson and Tabellini (1992, 1994), which both claim that the median voter might have an interest to delegate tax policies to a politician with an ideological position different from his own one. Nevertheless, these models do not give leeway for partisan politics in corporate tax competition either, as the decision-maker still implements the policy preferred by the median-voter, and delegation is only owed to commitment problems in their two-period game structure. Consequently, differences in the political couleur of the decision-maker should have no effect on the policy outcome in all of these models.

Many subsequent works consider the individuals acting as decision-maker as being non-benevolent. However, in this literature non-benevolence is not modelled by a political ideology of the decision-maker which differs from that of the median voter, but by a predefined self-interest of the decision-maker, which is reflected in his striving for political rents. Non-benevolence is integrated in the early models by considering that the maximization of public revenue enters the decision maker's utility function (see Edwards and Keen (1996)). Only most recently models have emerged which consider politics in corporate tax competition more explicitly. Janeba and Schjelderup (2009) show that political institutions are decisive in answering the question whether tax competition is welfare improving when politicians are rent-seeking or have exogenous benefits from holding office.

Similarly, Eggert and Sørensen (2008) analyze this question in a probabilistic voting model under the premise that politicians seek reelection by distributing rents to employees of the public sector.

Beyond these approaches which link theoretical models of corporate tax competition to politics, the related theoretical literature is relatively scarce concerning the consideration of partisan politics. However, the inclusion of a political bias in a standard tax competition model is straightforward, as will be demonstrated in the following. To illustrate this, we use a model with n jurisdictions all inhabited by the identical number of citizens normalized to unity[2] which compete for completely mobile capital. For illustrative reasons, we make some assumptions about the functional form, which have become standard in the literature (see, e.g., Bucovetsky (forthcoming), or Brueckner and Saavedra (2001)). Following these works, we assume a quadratic production function for each jurisdiction, so that the output per capita in jurisdiction i depends on the locally employed capital per capita (k_i) and is defined as $f_i(k_i) = ak_i - \frac{b}{2}k_i^2$. The constant-return to scale technology is assumed to be identical for all jurisdictions. Each individual is initially endowed with a capital amount of $\bar{k}$, so that in the capital market equilibrium it has to hold that

$$\sum_{i=1}^{n} k_i \leq n\bar{k}. \tag{1}$$

Capital is assumed to be completely mobile. This implies that the net return of capital ρ (which is assumed to be positive) has to be equal in all jurisdictions, so that

$$\rho = a - bk_i - t_i = a - bk_j - t_j \tag{2}$$

for each $j \neq i$. Finally, following the papers stated above we assume that the utility function of the representative citizen in jurisdiction i has a linear form:

$$u_i = c_i + \alpha g_i \tag{3}$$

with $\alpha > 1$ denoting the marginal utility of public consumption (g_i) over the consumption of a private numeraire good (c_i). Private consumption originates from the compensation of a fixed factor employed in local production (whose supply is fixed to unity), plus

[2]The consideration of unequal sizes simply adds the standard result of higher corporate taxation in larger jurisdictions, which is well-known from Bucovetsky (1991), but does not affect the further results.

the interest payment received for the supply of the initial capital endowment, so that $c_i = f_i(k_i) - f_i'(k_i)k_i + \rho\bar{k} = ak_i - \frac{b}{2}k_i^2 - (a - bk_i)k_i + (a - bk_i - t_i)\bar{k}$. Public consumption is financed by a source tax on invested capital, so that the following public budget constraint has to hold: $g_i = t_i k_i$.

Using (1) and (2), we can derive the quantity of capital allocated to jurisdiction i subject to its own tax rate (t_i) and the vector of tax rates of the other jurisdictions, $j \neq i$, i.e. ($\{t_j\}$):

$$k_i = \bar{k} + \frac{1}{b}(\frac{1}{n}\sum_{j=1}^{n-1} t_j - (\frac{n-1}{n})t_i) \tag{4}$$

From this, we obtain the partial derivatives of the capital allocation in i and the interest rate with respect to the own tax rate, which are:

$$\frac{\partial k_i}{\partial t_i} = -(\frac{n-1}{n})(\frac{1}{b}) \tag{5}$$

and

$$\frac{\partial \rho}{\partial t_i} = -(\frac{1}{n}). \tag{6}$$

In the benchmark case, the decision-maker of each jurisdiction i takes the tax rates of his competitors as given and chooses his own tax rate in order to maximize the utility of his representative citizen. Differentiation of the utility function with respect to t_i and equating to zero gives us

$$(-b\frac{\partial k_i}{\partial t_i}k_i + \frac{\partial \rho}{\partial t_i}\bar{k}) + \alpha(k_i + t_i\frac{\partial k_i}{\partial t_i}) = 0. \tag{7}$$

Inserting the values of k_i, $\frac{\partial k_i}{\partial t_i}$ and $\frac{\partial \rho}{\partial t_i}$ as calculated above, we can now solve the expression for t_i. This delivers us the tax reaction curve as perceived by jurisdiction i, with its tax rate depending on the vector of all other tax rates $t = (t_1, ..., t_{n-1})$ as well as the total number of competing jurisdictions, n:

$$t_i = \frac{(1 - n + n\alpha)\sum_{j=1}^{n-1} t_j + b\bar{k}n^2(\alpha - 1)}{(n-1)(1 + n(2\alpha - 1))} \tag{8}$$

The resulting tax reaction function of i incorporates some stylized facts which are well-known from the related empirical literature on international corporate tax competition in Europe (which will be presented in the next subsection): the tax rate depends positively

on the competitors' tax rates ($\frac{\partial t_i}{\partial t_j} > 0$), which accounts for the well-established finding of strategic interaction in tax setting; the tax reaction function shifts downward with an increase in the number of competitors n, ($\frac{\partial t_i}{\partial n} < 0$). Given all t_j are equal, t_i declines in n which reflects the negative impact of globalization on corporate taxes. Based on this reaction curve, the Nash solution for all tax rates can then be determined as the intersection of the tax reaction curves of all n jurisdictions, which implies a symmetric solution.

2.2 Integrating ideological bias

Up to this point, our model is dominated by the Downsian view of political competition, which assumes that politicians in power are only interested in maximizing their chances of reelection. Then, they unambiguously choose the same tax rate t_i in order to maximize the median voter's utility (while taking his preference parameter α as given) without consideration of their own interests. In this framework, which is basically at the bottom of most theoretical contributions to the tax competition literature, the identity of the decision-maker, such as ideological background which is reflected in party affiliation, has no effect on the tax level. The tax rate is then only determined by the external factors as shown above.

An explanation for the actual relevance of partisan politics can be found in the model by Calvert (1985)[3]. His model assumes a self-interest of the candidates concerning the political outcome in combination with the assumption that candidates are uncertain about the reaction of the voters (i.e., a probabilistic voting model)[4]. For simplicity, assume that outcomes can be ordered in a one dimensional issue space, and citizens' (i.e., voters and candidates) preferences on the outcome are single-peaked. Then, two candidates with preferred outcomes at opposite sides of the median voter's preferred outcome face a trade-off when moving towards the median voter's position: at the one hand it increases their probability of winning which allows them the implementation of policy; at the other other hand, any move away from their optimal policy outcome reduces the utility which

[3]Some further explanations for deviations from the Downsian prediction of policy convergence exist, such as citizen-candidate models with entry costs (Osborne and Slivinski (1996)), or models of strategic extremism which emerges due to information imperfection (Carrillo and Castanheira (2008)) or due to abstention of voters (Glaeser, Ponzetto, and Shapiro (2005)). See Fiorina (1999) for an extensive survey on further approaches.

[4]Note that the models by Persson and Tabellini (2002, 2004) also assume that candidates are interested in the policy outcome, but the deterministic voting procedure still leads to policy convergence to the median voter's preferred outcome.

they derive from the implementation of policy. In the Nash equilibrium, partial convergence takes place, but the chosen platforms still differ from that of the median voter. The introduction of this kind of policy divergence into our simple tax competition model is straightforward, and leads to two different explanations for a political bias in corporate tax policy, (i) due to diverging preferences of incumbents, and (ii) due to diverging perceptions of capital mobility.

Concerning the former, we assume that the candidates' platforms reflect their preferences for public goods. In this regard, the ideological continuum which is consistently regarded as the most relevant in European national politics is the dichotomy of left and right: leftist politicians are expected to feel more committed to an electorate which is poorer than the average, so that they have a stronger interest in redistributive spending and a higher level of public spending (see, e.g., Benoit and Laver (2006)), and the right vice versa. This divergence of preferences for public goods spending enters our model via the variable α, which was in our basic model assumed to be the representative citizen's (or median voter's) preference for public goods. Due to the assumption of convergence to the median based on the Downsian model, this variable was assumed to be the same for every decision-maker notwithstanding his identity, e.g. his political affiliation. However, assuming a preference-motivated partisan effect on tax setting, we therefore have to insert a diverging preference parameter α^d for decision-maker d, with α^d defined over the ideological continuum. Due to the partial convergence assumption it has to hold that $1 < \hat{\alpha^r} \leq \alpha^r < \alpha^m < \alpha^l \leq \hat{\alpha^l}$, for m=median, r=right and l=left; the values with "hat" denote the most preferred parameters for the two parties, respectively. Consequently, the platform chosen by the leftist decision-maker yields a value for the parameter α which is between his optimal point $\hat{\alpha^l}$ and the median voter's preferred value α^m, and strictly higher than the value at the platform of the right-wing candidate, which is α^r.

Comparative statics of the tax reaction function (8) yields $\frac{\partial t_i}{\partial \alpha^d} > 0$. Therefore, we expect a more leftist politician, as he has a higher preference for public goods, to impose a higher tax on capital. However, it is important to point out that this ideological bias on corporate tax setting is exclusively driven by diverging partisan attitudes towards public expenditure. Any left-right discrepancies in other political areas, such as societal policies, should not have an impact on corporate taxes via this channel.

Secondly, partisanship can also have an impact on fiscal policy outcomes through different perceptions of the environment. In this regard, the mobility of capital ($\frac{\partial k_i}{\partial t_i}$) plays a crucial

role in the model presented above. As is customary in standard tax competition models, it is assumed that the decision-maker has complete knowledge of this elasticity. Such a strong assumption, however, is problematic, as in reality the elasticity is unobservable. Therefore, we assume that capital mobility enters the tax reaction function with a subjective error ϵ^d of the policy-maker d[5], so that the perceived elasticity which underlies the tax reaction function (8) becomes $\widetilde{(\frac{\partial k_i}{\partial t_i})}^d = \frac{\partial k_i}{\partial t_i} + \epsilon^d$. Inserting this into the tax reaction function gives us the new expression:

$$t_i^d = t_i - \frac{bn^2(n\sum_{j=1}^{n-1} t_j\alpha^2 + b\bar{k}(-1+n(1+\alpha(n\alpha-1))))\epsilon^d}{(n-1)(1+n(2\alpha-1))((n-1)(n-1-2n\alpha)+bn(1+n(\alpha-1))\epsilon^d)} \quad (9)$$

Partial derivation yields $\frac{\partial t_i^d}{\partial \epsilon^d} < 0$, thus a perception of higher mobility induces the choice of a lower corporate tax rate.

A partisan bias in corporate tax setting thus emerges in case biased perceptions of capital mobility are systematically linked to political platforms. This claim can be confirmed by most recent evidence from Heinemann and Janeba (2009). In a survey directed at parliamentarians of the German parliament (Bundestag), they disclose that left-wing and right-wing politicians differ significantly in their perceptions of capital mobility, with left ones assuming real capital to be less mobile and investing decisions to be less dependent on taxation than right-wing politicians perceive it.[6] Consequently, this channel again implies that left-wing decision-makers tend to levy higher corporate taxes than their right-wing counterparts.

Moreover, Heinemann and Janeba (2009) discuss that systematically biased perceptions might also be caused by the individual background of politicians. In particular, they argue that the educational specialization should contribute to the degree of information about globalization restrictions which directly impacts the mobility of capital. Most recent evidence from Dreher et al. (2009) shows that the educational backgrounds of heads of government indeed have a significant impact on policy outcomes, such as the implementation of market-liberalizing reforms. Although Heinemann and Janeba (2009) cannot identify a significantly different perception of German parliamentarians with a final degree in economics or business administration, the consideration of the educational

[5] With $\epsilon^d > -(\frac{n-1}{n})(\frac{1}{b})$, so that the reaction of capital on increasing taxes is in any case negative.

[6] The mechanism behind the finding, however, remains unclear, but it may be conjectured that politicians' perceptions on these matters are at least partly shaped by the direct contact with interest groups (e.g., entrepreneurs in the case of right-wing politicians), so that the bias could be attributed to different preferences of related interest groups.

background of the decision-makers constitutes a further promising approach for explaining differences in corporate taxation in Europe.

In sharp contrast to all these considerations, it is frequently objected that globalization has rendered ideological differences in national fiscal politics in general, and tax policy in particular, irrelevant.[7] Although empirical evidence concerning corporate taxation is scarce, this view is very popular among political scientists, such as Ganghof (2006: 141), who argues that "if socio-economic constraints are tight, parties' policy preferences are likely to converge. By extension, left and right governments will implement similar policies and left and right veto players will not have much difficulty agreeing on policy change". Following this objection, we would expect a decline in the course of time (or even a complete absence) of partisan effects in corporate tax policy – even in the face of still diverging "general" political platforms (which still have an impact on policy outcomes in other policy areas, but not in fiscal policies). Moreover, other strands of literature suggest that the partisan effect on corporate taxation might even be quite the opposite. This view can be justified by the argument from Cukierman and Tommasi (1998) that unpopular but necessary political decisions (such as which cuts in corporate taxation are to be regarded) are more easily implemented by "unusual characters".[8] In the same vein, Garrett (1995) claims that left-wing governments have to pay a "political premium" in form of lower corporate tax rates in order to attract investors.

The objective of the following empirical section is to disclose whether the partisan effects outlined above did in fact play a significant role in the European tax competition of the last decades.

2.3 Empirical findings of partisan effects

The impact of partisanship on fiscal policy has frequently been analyzed in the empirical public finance literature. However, the lion's share of empirical studies focusses on the expenditure side of the public budgets. The most recent panel-analysis for OECD countries in the 1980s and 90s by Potrafke (2009) reveals that left-wing governments spent more on social expenditures than their right-wing counterparts in times when globalization was proceeding faster; however, generally speaking, partisan effects weakened in the 1990s.

[7] This argument is elaborated in greater detail in Garrett (1998).

[8] One anecdotal example for this view is the tax reform in Germany in 2000, which was implemented by a left-wing coalition of social democrats and the green party after many years of inaction under a right-wing led coalition.

The work by Cusack (1997) using earlier data on OECD countries identifies the presence of partisan policies in expenditure policies as well.[9] Interestingly enough, with regard to expenditure policies, both works find evidence in support of the hypothesis that the effect of partisan politics has declined over time. However, out of the large number of related studies – a meta-study by Imbeau, Petry, and Lamari (2001) quotes 43 studies mainly focussing on expenditure policies – the work by Bräuninger (2005) has the highest relevance for our approach. This paper applies the same kind of data on ideological positions as we do and which will be discussed in greater detail in the data section. Furthermore, he shows that only ideological differences defined as programmatic preferences have an impact on the level and mix of expenditure.

In contrast to the literature concerning expenditure policies, taxation in general and corporate taxation in particular, has scarcely been analyzed directly in the economic literature on partisan politics.[10] This is remarkable, since a large number of papers with the objective of explaining the evolution of corporate taxation in the past decades has been published most recently. These papers, however, primarily focus on the impact of globalization on corporate taxation (by using different measures such as trade and financial openness, or sophisticated composite indicators), or they concentrate on the direct interaction of countries in the tax-setting game for mobile capital by applying sophisticated empirical techniques borrowed from spatial econometrics.

Some of these papers make use of political control variables (see Table 1 for an overview of recent works including political variables) – but by no means all of them, as even one of the most cited studies, Slemrod (2004), dismisses a possible partisan impact in its empirical model. The results concerning partisan effects are mixed: most do not discover any significant effect at all, and for those studies which do uncover an effect, the direction of the partisan effect is ambiguous. In these works, both left-wing and right-wing governments are found to provide a higher taxation of companies.

Remarkable differences can be detected for works published in journals either with a focus on economics or political science. First, some articles of the latter group offer a much wider spectrum of variables concerning political ideology (such as government fragmentation) and a more sophisticated measurement of ideology as discussed below, while the papers

[9] For earlier evidence in the same direction, see, e.g., de Haan and Sturm (1994).

[10] Few works focus on partisan effects on taxation at the subnational level. Reed (2006) finds evidence for partisan effects for US state legislatures on the personal tax burden, and Allers, de Haan, and Sterks (2001) for property taxation of Dutch municipalities.

Table 1: **Literature overview**

	Tax data	**Ideology variable**	**Time span**	**Countries**	**Result**
Economic journals					
Devereux, Lockwood, and Redoano (2008)	statutory rate, EATR, EMTR (Devereux and Griffith (2003))	dummy: right of the centre; right-wing and left-wing dummies interacted with majority in parliament (DPI data)	1982-1999	21 OECD countries	no significant impact
Ghinamo, Panteghini, and Revelli (2007)	statutory rate	number of government changes	1983-2003	114 countries	no significant impact
Heinemann, Overesch, and Rincke (2008)	dummy: Annual change in statutory rate	dummys: left, right, center, other (DPI data)	1980-2007	32 European countries	no significant impact
Schwarz (2007)	effective rates (MRT), microeconomic tax rate (BACH Database), EATR (Devereux and Griffith (2003))	share of social democratic ministers; effective number of parties (ENP)	1979-2000	20 OECD countries	in few specification effect of social democratic majority, direction ambiguous; ENP ambiguous
Adam and Kammas (2007)	effective rates (MRT)	center of government cabinet gravity (based on the 5-step scale by Castles and Mair (1984))	1970-1997	17 OECD countries	no significant impact
Dreher (2006b)	effective rates (MRT), EATR, EMTR (Devereux and Griffith (2003))	dummy: left governments (DPI data)	1970-2007	30 OECD countries	no significant impact
Hansson and Olofsdotter (2005)	statutory rate, effective rates (MRT), EATR (Devereux and Griffith (2003)	share of conservative party of legislative seats	1980-1997	OECD countries	conservative party effect mainly insignificant
Bretschger and Hettich (2002)	effective rates (MRT)	center of political gravity for electorate, legislature and cabinet (based on the 5-step scale by Castles and Mair (1984))	1967-1996	14 OECD countries	more conservative governments have lower tax rates
Political science journals					
Plümper, Troeger, and Winner (2009)	effective rates (MRT)	percentage of cabinet portfolios held by left and Christian Democratic parties, respectively	1975-2004	23 OECD countries	positive effect of social democratic majority
Basinger and Hallerberg (2004)	annual change in marginal rate, effective rate (MRT)	government position and ideological distance between veto players (based on expert placements, Laver and Hunt (1992))	1980-1997	OECD countries	no significant impact of own partisanship, some effect of ideological distance and competitors' partisanship
Hays (2003)	effective rates (MRT)	percentage of cabinet portfolios held by left parties interacted with globalization	1965-1996	17 OECD countries	no significant impact
Swank and Steinmo (2002)	statutory rate, effective rates (MRT)	percentage of cabinet portfolios held by left and Christian Democratic parties, respectively	1981-1995	13 developed countries	Christian democrat effect positive in some specifications
Garrett and Mitchell (2001)	effective rates (MRT)	percentage of cabinet portfolios held by left and Christian Democratic parties	1967-1992	18 countries	Christian democrat effect positive
Hallerberg and Basinger (1998)	change in top marginal rate, 1986 to 1990	government ideology based on expert judgements (Castles and Mair (1984)), dummy for more than one veto player	1986-1990	OECD countries	left governments more likely to cut tax rates, negative effect of number of veto players

from the economic literature almost exclusively rely on simple dummy variables which indicate the ideology of the government. Second, there is a tendency in the economic literature to apply a much wider spectrum of measures of corporate tax burdens than in political science, where usually the method proposed by Mendoza, Razin, and Tesar (1994) (*MRT* in the table) is applied. Their method, however, has several drawbacks for the analysis of the question at hand, as will be discussed in the data section.

2.4 Effect of government fragmentation

One further political effect that has been widely neglected in the economic literature on corporate tax competition is the relevance of government fragmentation. In contrast to this, political science literature pays much attention to the influences of veto power in decision-making. However, among the papers cited in Table 1, only two consider the inclusion of variables related to the fragmentation of governments in their regressions. This is remarkable, since the economic literature has for some time now confirmed the relevance of the so-called "weak government hypothesis" for fiscal policy (Roubini and Sachs (1989)), which claims in its original version that larger (in terms of the number of involved parties) and ideologically more heterogenous coalitions find it harder to balance their budgets after an external shock. In an application to taxation, Ashworth and Heyndels (2001) show that more fragmented governments need more time to realign their tax structures after an external shock has shifted it away from an ideal tax structure.

The relevance of these arguments for corporate tax competition is evident: they point to a higher persistence of corporate taxes under weak governments. As corporate tax cuts are usually a controversial undertaking, weak governments are expected to react less flexibly to a changing environment. During the period of investigation, the competition intensity increased markedly and almost all countries reacted to this by decreasing their tax burdens. This implies that weak governments have carried out less (or smaller) cuts of corporate taxation than more homogenous coalitions (inevitably leading to a – at least temporally – higher level of tax rates), which will be tested in the following sections as well.

3 Data

Both tax burdens as well as political ideologies are multi-dimensional concepts which cannot be expressed by the "one and only" index number. As the overview in Table 1 reveals, several different measures of corporate tax burdens and ideologies have been applied in the related literature. In the following, we will present and discuss the most appropriate concepts for the empirical operationalization of these two dimensions.

3.1 Measuring tax burdens

The empirical literature analyzing international corporate tax competition which has evolved in recent years (such as Devereux et al. (2008) or Overesch and Rincke (2009b)), has come along with more sophisticated methods of measuring corporate tax rates. In line with this, we employ statutory tax rates and effective tax rates as most appropriate tax measures for our analysis. It stands out from the earlier literature – especially that from political science – which mostly uses data on implicit tax rates calculated according to the method proposed by Mendoza et al. (1994). This measure determines an average tax rate by dividing tax revenues of pretax corporate profits, both based on data from national accounts statistics. A first obvious drawback of such implicit rates is the fact that they already reflect reactions to tax laws. Moreover, as discussed by Haufler et al. (2009) and Devereux et al. (2008), such implicit tax rates have the decisive disadvantage that changes in their values do not necessarily have to reflect changes in the underlying tax laws. These can also be caused by business cycle fluctuations or other factors which do not belong to the responsibility of the government, and for which it is empirically not entirely possible to control. Hence, this indicator even fluctuates regularly during years in which the national tax system is not subject to any legal change. This, however, implies for our analysis that these measures are misleading, as it is our primary concern to explain the impact of political factors on corporate taxation.

In our analysis we will employ two different types of measures: statutory corporate income tax rates (CITR) and effective tax rates. The obvious drawback of the use of the former is its complete neglect of the definition of the tax base. However, statutory tax rates are probably the most visible element of the national corporate tax system and hence an important element of tax policy. Moreover, they constitute the relevant variable for profit-shifting of multinational firms. However, the more accurate measures of tax bur-

dens as perceived by entrepreneurs are effective tax rates, which are usually calculated based on the approach by Devereux and Griffith (2003) for a hypothetical standardized investment project. Said measures do not only take the statutory tax rates into account, but also other taxes imposed on corporate income and the legal definition of the tax base, which is defined by national regulations concerning tax allowances or depreciation rights, for instance. The effective average tax rate (EATR) thus indicates the tax burden which an investor faces for a profitable investment project, whereas the effective marginal tax rate (EMTR) indicates the tax burden of a marginal investment.[11] Consequently, all of these measures are forward-looking in the sense that they reflect the tax burden which an investor faces for an investment decision in a particular year.[12] In brief, the relevance of these measures for our question at hand can be summarized as follows: variation of the CITR (which has fallen in almost all European countries in the observation period as discussed in the literature cited above) explicitly reflects differences in the level of the headline tax rate as set directly by the national tax legislature, whereas changes of EMTR reflect changes in the tax legislature either affecting the level of the CITR and other relevant taxes on capital, or the definition of the tax base, whereas the latter tends to counteract the former effect to a certain degree due to a tendency of broadening the tax bases (see Devereux and Griffith (2003)). A detailed descriptive overview of the tax data we apply can be found in Table 9 in the appendix.

3.2 Measuring ideology

The accurate measurement of political ideological is highly relevant for our empirical analysis – however, this aspect has until now not received much attention in the economic literature on partisan politics. A large proportion of studies measure the impact of a government's or legislature's ideological orientation on the policy output by including a dummy variable which indicates whether a left-wing or Christian democrat party leads the (coalition) government or not. As can be seen from Table 1, almost all studies related to our work apply this kind of data, which is obtained either from the Worldbank Database of Political Institutions (DPI), or from the ordinal ranking of party governments from

[11] As Devereux and Griffith (2003) discuss, the EATR is equal to a weighted average of the EMTR and the CITR. The empirical results for the EATR are similar to those of EMTR and CITR and will therefore not be reported in the following.

[12] In particular, we resort to the data calculated by Overesch and Rincke (2009a) and Overesch and Rincke (2009b). A more thorough description of the data and the assumptions underlying the calculation of EATR and EMTR can be found therein.

left-wing, centre-left, centre, centre-right and right-wing.

However, any "party family approach" is regarded as highly undertheorized in political science. Moreover, the disadvantages for our panel analysis are evident: (i) the use of these categorizations does not allow for international differences within party families (e.g., the British New Labour can be assumed to be much more centrist than their French Socialist counterpart), (ii) these categorizations do not allow for changes of party positions over time (which are frequent as will be discussed below), (iii) they do not allow for differentiations between single policy areas (however, a liberal position in economic policy is certainly not equivalent to a right-wing position in social policies, and vice versa). Among the more elaborate methods which exist in political science in order to estimate programmatic positions of political actors beyond simple categorization[13], we choose data based on the quantitative content analysis of party manifestos.

Further methods are as well quite common in political science, but exhibit marked disadvantages for our analysis. First, the analysis of the legislative voting behavior of politicians allows one to locate political actors on at least one policy dimension. This indicator has been applied in the related economic literature in the analysis of the attitudes of European parliamentarians towards corporate tax harmonization (Osterloh and Heinemann (2008)) and several studies of the U.S. congress originating from Poole and Rosenthal (1985). However, in parliamentary democracies with strongly disciplined parties, an analysis of roll call votes would sooner result in the extraction of a conflict line between the government and opposition camp than in an identification of policy dimensions within the parliament. Second, programmatic positions of parties can be derived from elite or mass surveys, as well as expert surveys. The latter have been conducted on an irregular basis, e.g., by Benoit and Laver (2006) and Laver and Hunt (1992). As shown in Table 1, this method has already found some application in related empirical research on corporate taxation. As already indicated, one important problem when referring to this approach is that expert surveys are temporally stable and can neither account for variations in the respective party policy positions nor for potential changes in the party-specific dimension saliencies. However, if we take the results of the two cited studies seriously, the programmatic orientation and issue saliency of parties did indeed change between the time periods in which both expert surveys were conducted.

[13]For an extensive review of the literature and more technical details on the methodologies, see Debus (2009).

Therefore, in this paper we shall refer to data based on the content analysis of party policy documents. In comparison to the other alternatives mentioned, the main advantage of an analysis of policy documents can be seen in the high degree of their availability. Prior to an election, nearly every party or party alliance publishes a program for government, in which its goals for the next legislative period are outlined. Moreover, because election programs normally have to be passed by a party congress or at least by a wider group of party elites, they should more or less reflect the mean of all intra-party groups weighted by their importance. Another aspect is relevant: the programmatic statements inside such pre-election programmes can be used as a starting point for future coalition negotiations and as a point of reference for the policy assertiveness in a coalition government formed later.

While different types of computerized content analyses exist[14], the most prominent data source on party preferences for various policy areas is the dataset of the Manifesto Research Group (MRG), which has been known since 1989 as the Comparative Manifesto Project (CMP). The work of the MRG and the CMP, respectively, resulted in the largest and most complex database, which includes saliencies on 56 policy issues, i.e., the emphasis of these issues which is measured as the share of quasi-sentences that are devoted to the issues. The data covers 3,018 election manifestos from 54 countries since 1945. We therefore use this dataset to quantify the policy preferences of each party represented in the government in the time span and country sample under consideration here. By doing so, we can account for changes in the general left-right placements and the explicit economic policy preference of political actors.

From the raw data on issue saliencies, it is possible to determine indicators for ideology by ascribing issues to certain broader categories such as left-right dimensions. For instance, an emphasis on "social justice" in the manifestos characterizes a more left-wing party, while an emphasis on "law and order" is characteristic for a more right-wing party. But while both enter the general left-right dimension, obviously only the former enters an economic specific left-right dimension. Whereas the general left-right dimension is already provided by the CMP dataset (see Budge et al., 2001), the manifesto dataset moreover allows for the determination of several more refined ideological indicators. We therefore

[14]One can distinguish between partly and completely computerized approaches. While the approaches mentioned first require the programming of a dictionary that contains some a priori defined signal words, fully computerized techniques like Wordscores or Wordfish require the full text of programmatic documents, which is not available for our country sample and time span (see, e.g., Debus (2009)).

refer to an operationalization of the economic left-right policy dimension provided by Cusack and Engelhardt (2002) (called 'myrl3' therein). This variable explicitly includes CMP categories that only deal with economic and welfare policy[15]. Additionally, we test our empirical methods with various other measurements of the (economic) left-right position of political parties. For instance, the Cusack and Engelhardt (2002) dataset also provides a measure of the degree of economic liberalism ('markecon'), as well as welfare policies[16]. To test for the robustness of the effect of our variable on the ideological orientation, we further created an additional index that covers non-economic social policy only(covering issues such as family values or immigration)[17]. From these measures for the party ideologies in advance of elections, we calculate the parliament's 'center of gravity', i.e. the position of each party represented in the parliament is weighted by its relative seat share. This allows for estimating the overall position of a legislature for both the left-right and the other policy dimensions. Moreover, we will add the DPI data discussed above to the empirical analyzes, for which the center of gravity of the government is determined equivalently based on the seat shares of the governing parties. Thus, we are able to compare the results obtained by our measures with those which are obtained by that of one of the most frequently used data sources for ideology applied in the related literature.

3.3 Further variables

In our empirical analysis we investigate an unbalanced panel consisting of up to 32 European countries in the period from 1980 to 2006.[18] Concerning the coverage, our panel is highly comparable with most recent empirical analyses of tax competition in Europe, such as Devereux et al.(2008) or Overesch and Rincke (2009b), thus rendering our re-

[15]The relevant right-wing categories are (CMP codes in parantheses): Free Enterprise (per401), Economic Orthodoxy (per414), Governmental and Administrative Efficiency (per313). Left-wing categories: Market Regulation (per403), Economic Planning (per404), Keynesian Demand Management (per409), Controlled Economy (per412), Nationalisation (per413), Social Justice (per503), Welfare State Expansion (per504).

[16]Calculated as (per401 + per414)/2, and (per503 + per504)/2, respectively.

[17]Right-wing categories: National Way of Life: Positive (per601), Traditional Morality: Positive (per603), Law and Order (per605), Social Harmony (per606), Multiculturalism: Negative (per608). Left-wing categories: Social Justice (per503), Way of Life: Negative (per602), Traditional Morality: Negative (per604), Multiculturalism: Positive (per607).

[18]The scope of our panel is restricted by the availability of tax data, which starts at the earliest in 1980 for some western European countries and for most eastern European countries in the beginning of the 1990s, as well as the availability of CMP data which is missing for some countries in the most recent years. See Table 9 for a detailed overview on the covered period.

sults highly comparable to this strand of literature. Our empirical model resembles this literature as well; in particular, we refer to it with regard to the choice of our control variables. These comprise the top personal income tax rates ($PITR$) as well as several national socio-economic characteristics, which are depicted in Table 8 in the appendix. One aspect which has high relevance in other papers focussing explicitly on the impact of globalization on corporate taxation is the choice of an appropriate globalization indicator. Usually, globalization is proxied by the two flow variables of trade openness and FDI flows, plus an index measuring capital market liberalization in some cases. In contrast to this, we will follow the approach of a compound index to measure globalization. In particular, we apply the KOF index of globalization, which is introduced by Dreher (2006a). This index does not only comprise these "standard" flow variables, but also a number of further variables reflecting aspects of economic, political and social globalization. The KOF indicator has the advantage that it reflects the long-term dynamics of globalization better than flow variables, such as FDI flows, which are often exposed to volatile patterns. It has already found some application in related works, e.g., Potrafke (2009) and Dreher (2006b). However, we suspect that the issue of reverse causality is relevant, as several of the flow variables (in particular, FDI flows) are affected by corporate taxation. Therefore, we alter the KOF index by subducting the flow variables component.[19]

Moreover, we include individual data on educational backgrounds of heads of government in our analysis. This is based on the hypothesis that the educational background might have an impact on corporate tax policy due to different perceptions of capital mobility as discussed in section 2. Here, we rely on the extensive data set collected by Dreher et al. (2009), who identify an impact of education on market liberalizing reforms. We extend their data set by several countries missing in their analysis.[20] In our analysis, we restrict ourselves to the inclusion of dummies for a final degree in economics as well as in law. While the first group has been identified in Dreher et al. (2009) as being significantly different in their political outcomes, lawyers are of interest as they constitute the by far largest group of heads of government (with a share of about one third of all

[19]Note that the remaining components of the KOF index are still a good proxy for the flow variables, the correlation is 0.42. Consequently, the transformation does not affect the effects of the other variables considerably.

[20]Unlike their analysis, we also include Switzerland, which does not have a single head of government in the traditional sense but a Federal Council consisting of seven members with equal rights. We calculate the values as the share of members with the respective educational background in the given year.

observations).[21]

Finally, we include a variable which captures the fragmentation of governments and hence proxies intra-governmental conflict. For this purpose, we assume that the absolute number of parties in a coalition government plays an important role in the determination of the willingness to make decisions. This is in line with the seminal literature on veto players originating from Tsebelis (1995), which regards the number of parties in a coalition as a major time-varying factor for the capacity to produce policy changes.

4 Empirical model and results

In the specification of our empirical model, we will refer closely to the most recent approaches in the public finance literature which were cited above. These approaches mainly rely on panel data approaches using fixed effects in order to cope with unobservable time-invariant characteristics, and put increasingly emphasis on estimating the direct interactions of countries in the choice of the tax level. However, empirical analysis at the interface of economics and political science regularly confronts the researcher with several difficulties which have to be considered in the choice of the optimal research design. These difficulties are described in detail in Kittel and Winner (2005) and Plümper et al. (2005) and will be further discussed in the following subsections.

One further important aspect is the choice of the appropriate lag structure in the model. In tax policy, new tax legislature concerning corporate taxation almost always comes into effect at the 1st of January of a given year. Therefore, tax rates at point t can only be ascribed to political decisions made in year *t-1* which rest on the political environment at that point of time. Hence, for our benchmark model we consider the first lags of all exogenous variables with the exception of the *PITR*, whose next-year value is assumed to be set simultaneously with corporate taxation in the preceding year. In addition, we will examine the lag of the effect of changes in legislature on changes in taxes more rigourously in a first difference specification, which will be introduced later in this section.

Finally, a standard problem which is inherent in the related empirical literature using the statutory tax rates is the serial correlation of tax rates, as these are usually infrequently adjusted. In the following, in those cases where this assumption is confirmed by the Wooldridge test, we follow Devereux et al. (2008) and present standard errors which are

[21] More disaggregate analyses of other educational backgrounds were tested, but did not deliver significantly different results, also partly due to low numbers of cases.

clustered by country.

4.1 Fixed effects estimation

In our benchmark specification we apply a fixed effects model which is close to the related literature. The use of fixed effects is reasonable since several time invariant factors can hardly be controlled for and thus we run the risk that an omitted variable bias interferes with our results[22]. We introduce the following specification as our benchmark model, with α_t representing the time fixed effects, η_i representing the country fixed effects and $Z_{i,t-1}$ the vector of socio-economic control variables:

$$\begin{aligned} Tax_{i,t} = \beta_1 + \beta_2 Ideology_{i,t-1} + \beta_3 Ideology_{i,t-1} \times Trend + \beta_4 NumberParties_{i,t-1} \\ + \beta_5 EducEconomics + \beta_6 EducLaw + \beta_7 PITR_{i,t} + Z_{i,t-1}\theta + \alpha_t + \eta_i + \epsilon_{i,t} \end{aligned} \tag{10}$$

We estimate the presented model with our three different measures for ideology (see Table 2), i.e. the general left-right dimension derived from the CMP data (*CMP*), the economic left-right dimension from the same source (*CMP econ*), and the general left-right dimension obtained from the DPI data (*DPI*). In all cases the ideology variable shows a negative sign, thus indicating a higher tax burden generated by left legislatures.[23] However, it can be seen that the impact of political ideology differs markedly depending on the choice of the variable. They are only statistically significant for the variables generated from the CMP data, i.e., the general left-right dimension as well as the economic left-right dimension, while the results for the DPI data are always insignificant. This reflects our expectation that only the CMP data allows a reasonable comparison across borders, as it allows for differences in ideological positions of national parties despite that they belong to the same party family. Interestingly enough, the effect is for all indicators more pronounced when the statutory tax rate is applied and not the EMTR (this pattern is similar for the following approaches). This is not surprising given the fact that the statutory tax rate is the most visible component of the tax system, so that we would expect that partisan politics play the strongest role concerning this part of the tax system. Moreover, the statutory tax rate is the relevant factor shaping incentives for profit

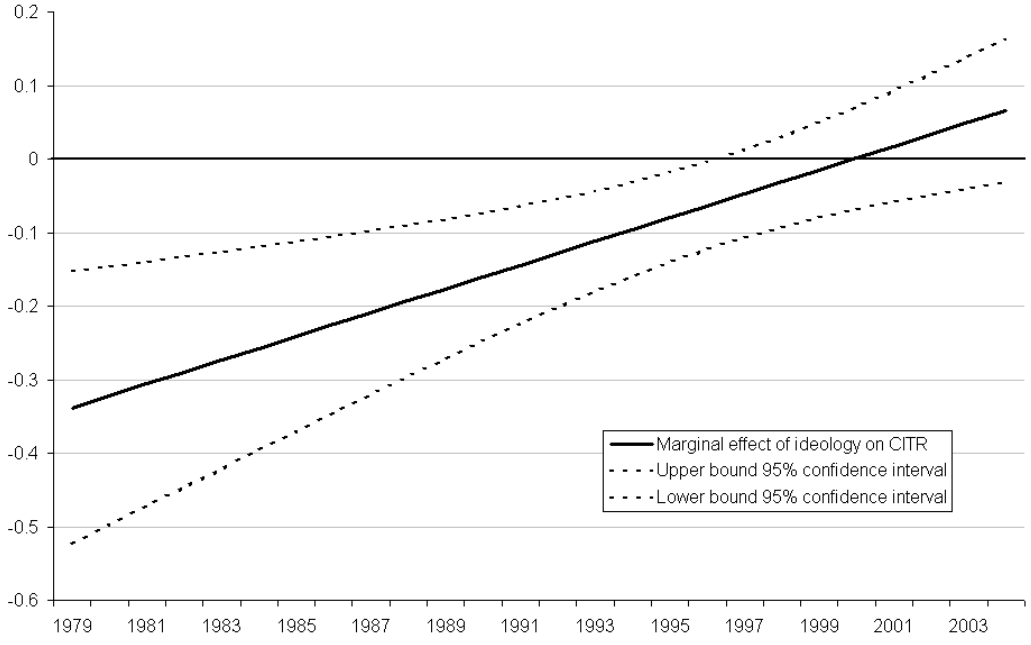
[22]The Hausman test supports the use of a fixed effects model and rejects a random effects model in all cases.

[23]Note that the coefficient β_2 is evaluated at the point where the value of the trend is zero, which is set at the year 1990. The marginal effects for other years result from $\beta_2 + \beta_3 \times trend$. For a discussion of the interpretation of lower-order coefficients in interaction models, see, e.g., Brambor et al. (2006) .

shifting activities of multi-nationals.

Moreover, a positive effect of the interaction of ideology and the time trend points to a diminishing impact of ideology, which is at least for the CITR highly significant. In figure 1, this effect is illustrated exemplary for the first specification of Table 2. The marginal effects and the bounds for the 95% interval are depicted for all years which are included in our analysis. As can be seen, the initial highly negative effect of ideology on the CITR becomes smaller over time, and finally becomes insignificant at the end of the nineties. This development is qualitatively the same for almost all of our regressions, indicating that the effect of ideology breaks down at some point in time.

Figure 1: Marginal effects of ideology (CMP) on CITR



Moreover, the number of parties has the expected positive effect on the tax measure, so that coalitions containing a larger number of political parties generate higher levels of corporate taxation. However, this effect is only statistically significant in two of the regressions on the EMTR. Moreover, we do not find an unambiguous result for the effect of the educational background in economics, while the coefficient for the lawyer dummy is positive throughout and significant in at least one case. However, the effects of these variables on the levels of taxation are not very robust, and a more short-term effect which has interfered with long-term influences cannot be dismissed. The short-term dynamics of tax setting will be examined more closely later on.

Table 2: **Estimation results – fixed effects**

Dependent variable	CITR			EMTR		
Ideology measure	CMP	CMP Econ	DPI	CMP	CMP Econ	DPI
Ideology_{t-1}	-0.177***	-0.070***	-1.094	-0.068*	-0.042**	-0.831
	(0.048)	(0.023)	(0.761)	(0.038)	(0.020)	(0.547)
$\text{Ideology}_{t-1} \times \text{trend}$	0.016***	0.006***	0.201**	0.001	0.002	0.187***
	(0.005)	(0.002)	(0.084)	(0.006)	(0.002)	(0.063)
$\text{Number parties}_{t-1}$	0.384	0.254	0.312	0.791*	0.731*	0.745
	(0.544)	(0.528)	(0.579)	(0.436)	(0.443)	(0.440)
$\text{Globalization}_{t-1}$	-0.421**	-0.304*	-0.337*	-0.230	-0.201	-0.161
	(0.170)	(0.174)	(0.169)	(0.162)	(0.175)	(0.156)
$\text{Educ Economics}_{t-1}$	-0.029	-0.358	-0.270	0.969	0.740	0.561
	(1.571)	(1.584)	(1.770)	(1.712)	(1.633)	(1.642)
Educ Law_{t-1}	1.754	1.309	1.376	3.097*	2.740	2.392
	(1.615)	(1.679)	(1.857)	(1.815)	(1.699)	(1.856)
$\text{GDP per capita}_{t-1}$	0.000	0.000	0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth_{t-1}	-0.200	-0.183	-0.194	-0.091	-0.092	-0.085
	(0.129)	(0.130)	(0.122)	(0.104)	(0.104)	(0.098)
$\text{Public consumption}_{t-1}$	-0.234	-0.234	-0.352	-0.350	-0.300	-0.340
	(0.441)	(0.430)	(0.450)	(0.357)	(0.353)	(0.368)
$\text{Population old}_{t-1}$	3.975***	3.544***	3.763***	0.983	1.104	0.944
	(0.839)	(0.881)	(0.909)	(0.746)	(0.813)	(0.681)
$\text{Population young}_{t-1}$	0.643	0.625	0.700	-0.781	-0.841	-0.718
	(0.774)	(0.788)	(0.808)	(0.687)	(0.664)	(0.687)
Population_{t-1}	-0.310	-0.412	-0.300	-0.081	-0.126	-0.103
	(0.719)	(0.661)	(0.548)	(0.787)	(0.749)	(0.725)
PITR_t	0.441**	0.562***	0.481**	0.407**	0.458**	0.435**
	(0.190)	(0.189)	(0.188)	(0.190)	(0.190)	(0.172)
Constant	-22.192	-24.850	-22.096	25.860	21.532	19.175
	(28.419)	(30.563)	(28.652)	(31.876)	(31.306)	(27.994)
Country FE	yes	yes	yes	yes	yes	yes
Period Dummies	yes	yes	yes	yes	yes	yes
Observations	500	500	500	500	500	500
R-squared	0.70	0.71	0.69	0.59	0.60	0.60

Standard errors robust to serial correlation and heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

In the regressions presented in Table 3, similarly to Devereux et al.(2008) we consider in addition to our other control variables the direct interaction of European states in their tax setting. Thus, for every year we include the average tax rate of the respective country's direct neighbors which is denoted as $NeighborTax_{i,t} = \sum^{j} \omega_{ij} Tax_{j,t}$, with j denoting the countries defined as neighbors of country i and ω_{ij} as the corresponding weighting matrix.[24] Due to the presence of spatial autocorrelation, we instrument this endogenous right-hand variable with the weighted average of the other control variables. It can be seen that this extension of the empirical model slightly drives down the significance of the "general left-right" ideology variable, but it stays significant at conventional levels for both specifications applying the "economic left-right" dimension.

Until now, we have relied on the general left-right dimension of political ideology as well as on the economic left-right dimension. However, as is well known from political science literature, such a unidimensional indicator falls short in explaining the underlying positions disaggregated by policy areas (see Benoit and Laver (2006) for a disaggregation

[24]We assume a uniform weighting of all direct neighbors. For the definition of direct neighborhood, we follow Altshuler and Goodspeed (2002).

Table 3: **Estimation results – fixed effects and interaction**

Dependent variable	CITR			EMTR		
Ideology measure	CMP	CMP Econ	DPI	CMP	CMP Econ	DPI
Ideology_{t-1}	-0.128**	-0.061***	-1.044	-0.014	-0.034**	-0.631
	(0.058)	(0.022)	(0.812)	(0.046)	(0.016)	(0.422)
$\text{Ideology}_{t-1} \times \text{trend}$	0.012**	0.004*	0.171*	-0.005	-0.001	0.159***
	(0.005)	(0.002)	(0.093)	(0.007)	(0.002)	(0.055)
$\text{Number parties}_{t-1}$	0.106	0.005	0.058	0.564	0.525	0.564
	(0.580)	(0.558)	(0.624)	(0.433)	(0.385)	(0.447)
$\text{Globalization}_{t-1}$	-0.366**	-0.306*	-0.295*	-0.196	-0.238	-0.145
	(0.172)	(0.173)	(0.168)	(0.153)	(0.169)	(0.154)
$\text{Educ Economics}_{t-1}$	-0.827	-0.878	-1.017	0.722	0.763	0.358
	(1.811)	(1.805)	(1.974)	(1.710)	(1.569)	(1.582)
Educ Law_{t-1}	1.980	1.787	1.666	3.540*	3.444**	2.798
	(1.734)	(1.792)	(2.019)	(1.839)	(1.653)	(1.897)
NeighborTax_t	0.475***	0.472***	0.517***	0.439***	0.449***	0.390***
	(0.140)	(0.151)	(0.127)	(0.096)	(0.095)	(0.075)
$\text{GDP per capita}_{t-1}$	0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth_{t-1}	-0.180	-0.179	-0.177	-0.027	-0.047	-0.027
	(0.126)	(0.127)	(0.124)	(0.095)	(0.091)	(0.092)
$\text{Public consumption}_{t-1}$	-0.070	-0.070	-0.117	-0.292	-0.228	-0.242
	(0.438)	(0.441)	(0.435)	(0.317)	(0.320)	(0.321)
$\text{Population old}_{t-1}$	3.862***	3.648***	3.692***	0.793	1.140	0.828
	(0.843)	(0.796)	(0.834)	(0.691)	(0.683)	(0.630)
$\text{Population young}_{t-1}$	1.089	1.007	1.162	-0.485	-0.616	-0.464
	(0.782)	(0.812)	(0.811)	(0.649)	(0.625)	(0.672)
Population_{t-1}	-0.704	-0.791	-0.752	-0.432	-0.469	-0.427
	(0.631)	(0.607)	(0.541)	(0.623)	(0.577)	(0.606)
PITR_t	0.467**	0.543***	0.496***	0.456**	0.455**	0.468***
	(0.181)	(0.191)	(0.178)	(0.180)	(0.187)	(0.163)
Constant	-56.423**	25.729	-44.181	18.396	60.620	16.690
	(21.244)	(54.337)	(27.721)	(28.043)	(53.372)	(24.055)
Country Dummies	yes	yes	yes	yes	yes	yes
Period Dummies	yes	yes	yes	yes	yes	yes
Observations	498	498	498	498	498	498
R-squared	0.84	0.84	0.84	0.82	0.82	0.83

NeighborTax_t was instrumented with the weighted average of the other control variables.
Standard errors robust to serial correlation and heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

based on expert survey results). Although a high correlation between the components of the left-right indexes can be expected, they do not necessarily point to the same direction as discussed above.

Since our data based on the CMP database allows us to construct elaborate ideology indicators, we can analyze the effects of ideological positions with regard to few delimited policy areas. This procedure enables us to reveal which specific elements of the general (or economic) left-right dimension are the driving forces of the partisan effects detected above. Based on the specifications which include the neighboring countries' tax rates, we apply three disaggregated ideology variables: two of the main components of the economic left-right dimension, i.e. welfare policies and the attitude towards free markets (*MarketEcon*), as well as non-economic social politics (*Society*), which capture elements of the general left-right dimension that do not encompass economic policies. The results, which are shown in Table 4, indicate that we only obtain significant results for the attitude towards welfare policies in all specifications (the *Welfare* dimension enters the left-right dimensions

negatively, so that a high value indicates a more pro-welfare, i.e., left-wing position). This result reveals that parties which put more emphasis on the welfare state did indeed generate higher taxation, but, interestingly enough, the other economic dimension does not show coefficients deviating significantly from zero. The indicator for social policies is at least significant in the specification applying the statutory tax rates, which indicates that the non-economic dimension has at least some explanatory content, although it is far lower than that of the economic indicator applied above.

Table 4: **Estimation results – disaggregated ideology measures**

Dependent variable	CITR			EMTR		
Ideology measure	Welfare	MarketEcon	Society	Welfare	MarketEcon	Society
Ideology_{t-1}	0.910**	-0.002	-0.306**	0.587*	0.346	-0.193
	(0.340)	(0.470)	(0.123)	(0.306)	(0.461)	(0.132)
$\text{Ideology}_{t-1} \times$ trend	-0.091**	-0.060	0.053***	-0.046	-0.091	0.035**
	(0.037)	(0.055)	(0.012)	(0.039)	(0.058)	(0.016)
NeighbourTax_t	0.337**	0.508***	0.554***	0.306***	0.409***	0.423***
	(0.150)	(0.156)	(0.127)	(0.104)	(0.085)	(0.094)
$\text{KOF globalization}_{t-1}$	-0.260	-0.265	-0.272*	-0.134	-0.126	-0.123
	(0.181)	(0.160)	(0.149)	(0.179)	(0.156)	(0.153)
$\text{GDP per capita}_{t-1}$	-0.000	-0.000	-0.000	-0.000	-0.000	-0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth_{t-1}	-0.202	-0.170	-0.159	-0.063	-0.022	-0.041
	(0.138)	(0.137)	(0.131)	(0.111)	(0.110)	(0.101)
$\text{Public consumption}_{t-1}$	-0.161	-0.275	-0.066	-0.283	-0.433	-0.233
	(0.390)	(0.398)	(0.444)	(0.332)	(0.326)	(0.338)
$\text{Population old}_{t-1}$	3.518***	2.425***	3.644***	1.039*	0.614	1.043*
	(0.767)	(0.922)	(0.804)	(0.608)	(0.503)	(0.589)
$\text{Population young}_{t-1}$	1.097	1.340*	1.199	-0.279	-0.089	-0.249
	(0.687)	(0.671)	(0.709)	(0.600)	(0.556)	(0.601)
Population_{t-1}	-0.600	-0.762	-0.410	-0.237	-0.420	-0.146
	(0.462)	(0.617)	(0.641)	(0.490)	(0.532)	(0.655)
PITR_t	0.513***	0.460**	0.498***	0.457**	0.363**	0.469**
	(0.172)	(0.190)	(0.178)	(0.187)	(0.176)	(0.183)
Constant	-37.430	-30.569	-50.061	24.156	59.380	6.951
	(22.429)	(60.187)	(21.678)	(19.412)	(50.033)	(18.270)
Country Dummies	yes	yes	yes	yes	yes	yes
Period Dummies	yes	yes	yes	yes	yes	yes
Observations	500	500	500	500	500	500
R-squared	0.85	0.83	0.84	0.82	0.81	0.81

NeighbourTax_t was instrumented with the weighted average of the other control variables.
Standard errors robust to serial correlation and heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

4.2 Providing for level effects

One drawback of earlier papers which do not find an effect of government ideology might be – in addition to the choice of possibly inadequate date as discussed above – the fact that these papers usually rely exclusively on the use of fixed effects estimation.[25] This is well-founded for the questions analyzed in these papers, as the application of fixed effects prevents unobserved time-invariant country-specific factors from interfering with the variable of interest. However, the estimation with fixed effects may not be appropriate

[25] Among the works summarized in Table 1, Schwarz (2007) is the only paper that estimates a specification without fixed effects.

in cases where theory predicts level effects of the independent variables on the dependent variable, as these effects would then be erased by the application of country-fixed effects (see the discussion in Plümper et al. (2005)). In our data set, one prime example is the size of the countries which is largely time-invariant so that robust findings cannot be expected from fixed effects estimations. However, the theoretical literature (see Bucovetsky (1991)) predicts a level effect on corporate taxation which can be expected to be found in a cross-country comparison, but by no means in the marginal variation of the variable over the time period within countries. This assumption can be confirmed by the results shown in Table 5 where we omit the use of country fixed effects. There, we find the expected positive effect highly significant, in contrast to the regressions using fixed effects in the preceding subsection. Similarly, level effects are also of importance for our analyses of partisan effects. In this regard, our CMP data on party ideology has the advantage of capturing these level effects since its scales are comparable across countries, so that differences in levels reflect actual differences in ideological positions between parties in different countries.

The coefficients of the ideology variable again point to a negative effect of right-wing legislatures on corporate tax burdens in all specifications. Again, we cannot detect significant partisan effects by means of the DPI data, while the indicators derived from the CMP are significant in all specifications. Moreover, the estimation without fixed effects allows us to add some time-invariant variables to our analysis. These comprise dummies for the membership in the EU and a communist past of a country which might have an impact on corporate taxation. Moreover, constitutional factors which are known from the cross-country analyses of Persson and Tabellini (2003), such as dummies for the presidential and the plurality system, are added. However, the results which are reported in Table 5 show that none of these time-invariant variables has a significant impact on the level of taxation.

Finally, in contrast to most evidence from the related literature, the modified KOF index is at least significant in the regression on the statutory tax rates and shows the expected negative sign.[26] This finding again reflects the importance of taking level effects in the explanatory variables seriously once there is a link to theory, as is also the case for our CMP data.

[26]Note that the application of the original values of the KOF index leads to significant results in all specifications.

Table 5: **Estimation results – no fixed effects**

Dependent variable	CITR			EMTR		
Ideology measure	CMP	CMP Econ	DPI	CMP	CMP Econ	DPI
Ideology_{t-1}	-0.125**	-0.041*	-0.530	-0.212***	-0.076***	-1.506
	(0.048)	(0.022)	(1.176)	(0.070)	(0.022)	(1.040)
$\text{Ideology}_{t-1} \times$ trend	0.015**	0.007**	0.117	0.002	0.003	0.141
	(0.006)	(0.003)	(0.116)	(0.010)	(0.002)	(0.096)
$\text{Globalization}_{t-1}$	-0.263**	-0.256**	-0.247**	-0.051	-0.092	-0.063
	(0.096)	(0.094)	(0.100)	(0.117)	(0.115)	(0.120)
$\text{GDP per capita}_{t-1}$	0.000	0.000	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
GDP growth_{t-1}	-0.128	-0.086	-0.106	-0.112	0.010	0.039
	(0.148)	(0.143)	(0.144)	(0.169)	(0.166)	(0.152)
$\text{Public consumption}_{t-1}$	0.296	0.330	0.264	0.077	0.052	0.060
	(0.226)	(0.224)	(0.234)	(0.217)	(0.245)	(0.232)
$\text{Population old}_{t-1}$	1.206**	1.124*	1.052*	0.043	-0.034	-0.121
	(0.575)	(0.554)	(0.609)	(0.559)	(0.634)	(0.604)
$\text{Population young}_{t-1}$	0.388	0.400	0.326	0.075	0.014	0.042
	(0.399)	(0.366)	(0.423)	(0.323)	(0.369)	(0.323)
Population_{t-1}	0.192***	0.188***	0.185***	0.155***	0.157***	0.149**
	(0.064)	(0.059)	(0.066)	(0.055)	(0.048)	(0.061)
PITR_t	0.231*	0.261**	0.243*	0.180	0.247*	0.202
	(0.124)	(0.117)	(0.120)	(0.137)	(0.139)	(0.131)
Presidential	-0.629	-1.645	-0.145	-3.945	-5.615	-5.574
	(3.635)	(3.550)	(3.901)	(5.510)	(6.034)	(6.823)
Plurality	-5.668	-5.723*	-5.501	-0.122	-0.663	-0.607
	(3.761)	(3.348)	(3.906)	(2.683)	(2.215)	(2.687)
Former Communist	-3.065	-1.655	-2.833	-0.429	-1.359	-0.519
	(3.570)	(3.486)	(3.556)	(3.159)	(3.500)	(3.767)
EU member	-1.497	-1.026	-1.123	-2.036	-1.760	-1.754
	(2.169)	(2.192)	(1.912)	(2.149)	(2.365)	(2.368)
Catholic	0.034	0.036	0.031	-0.003	0.014	-0.000
	(0.022)	(0.023)	(0.019)	(0.021)	(0.021)	(0.024)
Constant	8.165	5.708	10.531	8.938	10.512	10.693
	(13.844)	(12.535)	(14.387)	(15.027)	(15.997)	(16.975)
Country FE	no	no	no	no	no	no
Period Dummies	yes	yes	yes	yes	yes	yes
Observations	502	502	502	502	502	502
R-squared	0.69	0.70	0.68	0.58	0.58	0.55

Standard errors robust to serial correlation and heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

4.3 First difference specification

As discussed above, one main problem of our data is due to the serial correlation of many of the variables. Tax rates are adjusted only occasionally, as well as several of the other variables such as globalization which are also dominated by long-term trends. As Kittel and Winner (2005) point out, one attractive solution to this problem is the estimation of a model in differences. However, such a specification requires a completely different interpretation of the partisan effect which is measured: we no longer explain the effect of the decision-maker's ideological position on the level of taxation, but rather the *changes* in the level of taxation with *changes* in the ideological position of the legislature.[27]

This consideration clarifies why it is hard to achieve definite results using conventional measures of ideology such as left-right dummies in such a specification. With these measures, the value for government ideology does not change frequently, since changes occur

[27]Despite the theoretical attractiveness of the approach, it has only been applied in Basinger and Hallerberg (2004) in the related empirical literature.

only in cases where power is passed over from the left to the right or vice versa, so that these may fail to explain variations in the level of taxation. Our data, however, overcomes the problem. As party ideologies measured by the CMP data change with every election, the center of gravity shifts regularly. These changes can then also be caused by changes in the ideological positions of parties which stay in power or by changes in the strength of the coalition partners, even when the power stays in the hand of the left-wing or the right-wing of the political spectrum, respectively.

In this approach, we differentiate our left-hand side variable and our ideology variables, as well as all of our control variables which have been applied in the precedent analysis. Only two variables enter the regression in levels: first, we expect that a higher level of veto power within the governing coalition impacts the decision-making, so that *Number parties* enters the equation in levels. Second, we rely on *TaxGap* as a measure which reflects the direct competitive pressure from neighboring countries on the local tax setting in a given year. It is attained as the difference between a country's own level of taxation and the average of its direct neighbors for each of the two measures applied, respectively: $TaxGap_{i,t} = Tax_{i,t} - \sum^{j} \omega_{ij} Tax_{j,t}$, for all j which are defined as neighbors of i. Our estimations are then based on the following specification:

$$\begin{aligned}\Delta Tax_{i,t} = \beta_1 + \beta_2 \Delta Ideology_{i,t} + \beta_3 \Delta Ideology_{i,t-1} + \beta_4 \Delta Ideology_{i,t-2} \\ + \beta_5 NumberParties_{i,t-1} + \beta_6 TaxGap_{i,t-1} + \beta_7 \Delta PITR_{i,t} + \Delta Z_{i,t-1}\theta + \epsilon_{i,t}\end{aligned} \tag{11}$$

The results which are shown in Table 6[28] indicate that our measure of competitive pressure has the expected effect (tax cuts become larger in case the own tax level exceeds the neighbors' level). We include changes in ideology within the current year as well as in the two preceding years. The effect of concurrent changes is not significantly different from zero and confirms our assumption that taxes react with a delay to changes in the political environment. By contrast, the first lag is negative once again for the CMP data and highly significant for both tax measures, while the second lag of ideological changes also has a negative impact, but the coefficient is not significantly different from zero. This result again confirms the existence of a partisan effect on corporate taxation, which is reflected in the fact that a shift in ideology to the right – ceteris paribus – leads to a

[28]The differentiation eliminates the country fixed effects in the data. Hence, the null hypothesis of no fixed effects (i.e., the pooled model) cannot be rejected at standard significance levels anymore, so that the application of fixed effects will be dismissed in the following regressions.

Table 6: **Estimation results – specification in differences**

Dependent variable	ΔCITR		ΔEMTR	
Ideology measure	CMP	DPI	CMP	DPI
Δ Ideology$_t$	-0.010	0.046	-0.026	0.155
	(0.023)	(0.441)	(0.026)	(0.398)
Δ Ideology$_{t-1}$	-0.034**	0.118	-0.055***	0.106
	(0.016)	(0.324)	(0.021)	(0.301)
Δ Ideology$_{t-2}$	-0.035	0.498	-0.011	0.512
	(0.023)	(0.347)	(0.022)	(0.396)
Number parties$_{t-1}$	0.205**	0.180**	0.112	0.084
	(0.091)	(0.092)	(0.139)	(0.142)
Tax Gap$_{t-1}$	-0.041***	-0.044***	-0.066***	-0.070***
	(0.015)	(0.015)	(0.024)	(0.024)
Educ Economics$_{t-1}$	0.267	0.274	0.060	0.085
	(0.375)	(0.380)	(0.434)	(0.429)
Educ Law$_{t-1}$	0.655**	0.653**	0.817***	0.814***
	(0.302)	(0.306)	(0.285)	(0.293)
Δ KOF globalization$_{t-1}$	0.095	0.102	0.011	0.014
	(0.091)	(0.090)	(0.090)	(0.089)
GDP growth$_{t-1}$	0.004	0.014	0.044	0.063
	(0.048)	(0.050)	(0.039)	(0.041)
Δ Public consumption$_{t-1}$	-0.249	-0.276	-0.201	-0.225
	(0.199)	(0.167)	(0.149)	(0.142)
Δ Population old$_{t-1}$	-0.665	-0.277	-0.446	0.002
	(0.855)	(0.848)	(0.944)	(0.933)
Δ Population young$_{t-1}$	-0.214	-0.202	-0.508	-0.475
	(0.558)	(0.558)	(0.615)	(0.619)
Δ Population$_{t-1}$	0.135	0.250	0.529	0.616
	(0.652)	(0.657)	(0.582)	(0.610)
Δ PITR$_t$	0.338***	0.339***	0.241***	0.238***
	(0.108)	(0.109)	(0.087)	(0.088)
Constant	-1.648***	-1.661***	-1.418***	-1.467***
	(0.385)	(0.401)	(0.420)	(0.437)
Country FE	no	no	no	no
Period Dummies	no	no	no	no
Observations	467	461	467	461
R-squared	0.15	0.15	0.13	0.12

Standard errors robust to heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

cut of the corporate tax rate in the following year. The DPI data does not deliver any robust results in these estimations.

Finally, the coefficient for *number parties* has a positive sign and is significant at least in the specifications applying the CITR, which shows an adverse effect of larger coalitions on cuts of corporate taxation. And even more so, the effect of lawyers on tax changes is positive as before, but now highly significant in all cases. These findings give at least some indication that large coalitions as well as the leadership of a lawyer averted tax cuts to a certain degree and, thus, counteracted the tendency of lowering corporate taxes which prevailed in the period under investigation.

4.4 Possible endogeneity of ideology

Empirical research on partisan effects on fiscal policy regularly treats political ideology as strictly exogenous. At first glance, however, this assumption is questionable, as the legislature's and government's ideology is the stringent result of elections. Consequently,

it might be argued that changes in the external environment (in our case we might think of increasing pressure from tax competition as being relevant) impact policy outcomes through elections, which generate a new composition of ideology. Moreover, there is substantial evidence from political science that platforms of parties change systematically over time as a reaction to changes in the economic environment (Kim and Fording (2001)), which is of additional relevance for the time-variant CMP data we employ. Thus, one could argue that in the case of corporate tax policy, the declining competitiveness of a country due to the tax cuts of its neighbors might cause a gain in votes of right-wing parties (or a shift of left-wing parties to the right), and that the domestic tax cut in the subsequent period (inevitable due to the decline in competitiveness) happens under a more rightist legislature than before. In this case, an interpretation of the actual partisan impact on the tax cut becomes difficult.[29]

These critiques can be mitigated by the fact that policy preferences which are revealed by voters at the ballot box encompass a wide field of programmatic aspects which go far beyond the scope of different positions in economic policy. From that perspective, it is highly unlikely that the national position in international tax competition has a very strong impact on the voters' decisions, which would theoretically be expected as a right-shift of the median voter in case of intensifying pressure from other countries. Similar arguments hold true for the effect of increasing globalization.

However, we address these concerns by creating a replication of our first difference regressions in which we exchange the left- and the right-hand side variables. We then explain changes in the ideological position by the *Tax gap* in the previous year complemented by changes in the other exogenous variables, proceeding as before. In these regressions, which are presented in Table 7, we cannot detect a major effect of *Tax gap* or *Globalization* on changes in the ideological position. The only variable which has a strong effect on changes in ideology is the lagged *GDP growth*. This finding is interesting as this effect is hypothesized by the related literature in political science (see Kim and Fording (2001)). However, this variable has not been found to have a notable impact on corporate taxation in any of the regressions presented above. Consequently, we conclude that the possible endogeneity of ideology cannot be regarded as a major problem in the empirical approaches presented above.

[29] See Besley & Case (2003:38) for a similar argumentation with regard to welfare spending.

Table 7: **Estimation results – explaining ideological changes**

Dependent variable	Δ CMP		Δ CMP Econ		Δ DPI	
Tax measure	CITR	EMTR	CITR	EMTR	CITR	EMTR
Tax Gap$_{t-1}$	0.037	0.040	0.098	0.100	-0.000	0.002
	(0.027)	(0.029)	(0.069)	(0.067)	(0.003)	(0.003)
Δ KOF globalization$_{t-1}$	-0.034	-0.017	-0.580*	-0.536	-0.004	-0.004
	(0.124)	(0.125)	(0.338)	(0.338)	(0.018)	(0.018)
GDP growth$_{t-1}$	-0.247***	-0.248***	-0.725***	-0.730***	0.007	0.007
	(0.090)	(0.090)	(0.246)	(0.246)	(0.008)	(0.008)
Δ Public consumption$_{t-1}$	-0.443	-0.434	-1.257	-1.235	0.024	0.025
	(0.363)	(0.361)	(0.785)	(0.778)	(0.032)	(0.032)
Δ Population old$_{t-1}$	-2.940*	-2.615*	-1.881	-1.043	-0.120	-0.114
	(1.581)	(1.550)	(4.952)	(4.862)	(0.162)	(0.161)
Δ Population young$_{t-1}$	-0.368	-0.299	-7.306**	-7.135**	-0.009	-0.006
	(1.140)	(1.133)	(3.062)	(3.062)	(0.105)	(0.105)
Δ Population$_{t-1}$	-1.256	-1.256	-2.617	-2.580	0.085	0.071
	(1.230)	(1.244)	(2.304)	(2.258)	(0.082)	(0.075)
Constant	1.139**	1.108**	1.959	1.871	-0.011	-0.009
	(0.514)	(0.512)	(1.309)	(1.287)	(0.044)	(0.043)
Country FE	no	no	no	no	no	no
Period Dummies	no	no	no	no	no	no
Observations	475	475	475	475	469	469
R-squared	0.02	0.02	0.04	0.04	0.02	0.01

Standard errors robust to heteroscedasticity in parentheses. * Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

5 Conclusions

We have shown that international tax competition is not an automatic process that translates external pressures, such as globalization or tax cuts of neighboring countries, directly into domestic reactions. The relevance of partisan politics has been widely neglected both in the theoretical as well as in the empirical public finance literature for quite a while – but politics matter for corporate taxation, as our analysis has shown. Theoretically, we have shown that there are two channels which hint at an effect of partisanship on corporate tax policy: the former being differences in preferences towards the size of the public sector, and the latter being different perceptions of the economic environment. Empirically, we have shown that there is strong evidence that ideologies have indeed impacted corporate taxes in Europe. This effect is generally more pronounced for the statutory tax rates than for the effective marginal tax rates, but for which we also find a partisan effect. This might be due to two different reasons: first, the statutory tax rate is the most visible component of national tax systems, so that partisan politics which aim at satisfying the own clientele should be the strongest there. Second, the statutory tax rates are relevant for profit-shift activities of multi-national corporations. Hence, if ideology is correlated with the perception of this phenomenon (i.e., leftist politicians assume a lower mobility of profits), then this can also explain why the partisan effect is stronger for the statutory tax rates. Unfortunately, we are not able to differentiate between these two channels based only on our empirical results. Moreover, our results indicate that the general impact of national

partisanship is diminishing. Thus, it affirms largely unproven claims from political science that the impact of partisan politics on tax policies is restricted by globalization, and also affirms related research on the partisan impact on expenditure policies. Beyond the impact of partisan politics, we have identified two further factors which have interfered with the general pressure on cutting tax rates: the fragmentation of government, as well as the educational background of the respective head of government.

Concerning a more general purpose, our paper has underlined the importance of the appropriate data choice for the overarching issue of analyzing partisan politics in public finance. Our sophisticated measure of political ideologies delivers robust results, while the simple use of dummy variables for party families points to the same direction, but does not produce significant effects. In particular, it has been shown that for the question at hand, mainly one very specific dimension of the complex left-right dimension is of importance: the attitude towards the welfare state. As shown in the theoretical part, this effect is in line with our predictions, which ascribe the partisan effect on corporate taxation to differences in preferences for public goods provision.

In this regard, our study is the first to analyze the ideological impact on fiscal policy in a more specific way than the general left-right dimension. The feasibility of an analysis in which the left-right divergence is disaggregated into political positions concerning single policy areas as provided by the CMP data might also be of interest for further applications in the literature of partisan effects on economic policy. Similar to our results, it might be suspected that it is also the welfare dimension which affects spending policies. However, according to theory, this should change for other explanandums. Concerning the partisan effect on market liberalization, for instance, theory predicts that other components of the left-right dimension, such as the attitude towards the free market, should be the better explanatory variables. Concerning other policy outcomes, such as the factors underlying the partisan effect on growth[30], theory is ambiguous thus calling for more elaborate analyses.

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6 Appendix

Table 8: **Descriptive Statistics**

Variable	**Description**	**Mean**	**Std. Dev.**	**Min**	**Max**	**Source**
CMP	Ideology measured for general left-right dimension	-0.09	11.04	-30.60	36.47	own calculations, based on CMP data and parliament compositions from Cusack and Engelhardt (2002) and Klingemann, Volkens, Budge, Bara, and McDonald (2006)
CMP econ	Ideology measured for economic left-right dimension	-4.61	30.86	-92.65	56.45	ibid.
Society	Ideology measured for societal left-right dimension	3.19	5.18	-12.65	20.99	ibid.
MarketEcon	Ideology measured for market liberalism	2.52	1.70	0	9.51	ibid.
Welfare	Ideology measured for welfare policies	5.93	2.35	1.27	13.49	ibid.
DPI	Ideology measured for general left-right dimension	0.06	0.78	-1	1	own calculations, based on database of Political Institutions, Beck et al.(2001)
Number Parties	Number of parties in coalition government	2.48	1.28	0	6	Database of Political Institutions, Beck et al.(2001)
PITR	Highest personal income tax rate	50.03	12.52	18.0	87.0	Overesch and Rincke (2009b)
Globalization	KOF globalization index corrected by flow variables	75.26	12.51	29.95	93.11	Dreher (2006a)
Educ Economics	Dummy = 1 if education in economics	0.23	0.41	0	1	Dreher et al. (2009) updated by various internet sources
Educ Law	Dummy = 1 if education in law	0.33	0.46	0	1	Dreher et al. (2009) updated by various internet sources
GDP cap	GDP per capita in US Dollar	22732.7	59844.59	2927.9	65807	World Bank, World Development Indicators
GDP growth	annual growth rate of real GDP	2.79	2.98	-11.89	12.7	World Bank, World Development Indicators

Population	Population in millions	20.22	23.84	0.25	82.54	IMF
Public consumption	Public consumption as share of GDP	19.58	4.54	5.69	29.94	World Bank, World Development Indicators
Population old	Share of population older than 65	14.11	2.28	4.53	19.50	World Bank, World Development Indicators
Population young	Share of population younger than 15	19.24	3.41	14.03	33.01	World Bank, World Development Indicators
Presidential	Dummy = 1 if presidential system	0.04	0.20	0	1	Database of Political Institutions, Beck et al.(2001)
Plurality	Dummy = 1 if election under plurality rule	0.15	0.36	0	1	Database of Political Institutions, Beck et al.(2001)
Catholic	Share of catholics	0.46	0.38	0	0.98	various sources

Table 9: **Statistics tax data**

		CITR				**EATR**				**EMTR**			
Country	Coverage	Min	Mean	Max	Std. Dev.	Min	Mean	Max	Std. Dev.	Min	Mean	Max	Std. Dev.
Austria	1981-2005	25	43.4	61.5	12.9	22.9	33.3	37.8	4.1	16.9	27.9	36.1	7.2
Belgium	1980-2002	39	42.3	48	3.0	32.5	36.0	41.8	3.3	17.5	22.9	30.7	5.2
Bulgaria	1993-2004	19.5	33.7	46	8.3	17.1	30.1	40.3	7.8	10.7	21.5	29.9	6.3
Czech Republic	1992-2005	26	36.4	55	7.8	22.8	29.2	52.8	8.7	15.3	22.9	50.7	10.1
Denmark	1980-2004	30	37.9	50	7.0	26.3	32.9	43.4	6.1	17.6	22.7	32.1	5.2
Estonia	1995-2006	23	25.6	26	1.0	19.9	22.2	22.5	0.9	12.1	13.8	14.1	0.7
Finland	1980-2006	25	36.4	52	10.4	23.0	33.3	47.4	9.3	18.3	27.9	41.1	8.5
France	1980-2006	33.3	40.0	50	6.3	32.3	38.6	46.5	5.1	30.3	38.6	41.9	3.9
Germany	1980-2005	39.2	55.8	63.2	8.7	35.8	42.6	47.1	4.2	29.2	39.9	49.1	7.4
Greece	1990-1999	35	38.3	46	5.3	30.6	33.7	41.1	5.1	21.0	24.6	32.9	5.7
Hungary	1992-2005	17.7	23.4	40	8.4	15.8	21.9	37.4	7.7	11.5	19.2	33.1	6.7
Ireland	1980-2006	12.5	36.0	50	13.3	14.0	32.3	43.4	10.3	12.0	24.2	32.2	7.1
Italy	1980-2005	36.3	44.7	53.2	5.7	22.1	37.7	48.4	7.4	4.9	25.9	41.9	10.8
Latvia	1995-2005	15	22.4	25	4.1	13.0	19.4	21.7	3.6	7.7	12.1	13.6	2.4
Lithuania	1995-1999	29	29	29	0	25.1	25.1	25.1	0	16.0	16.0	16.0	0
Luxembourg	1980-2003	30.4	41.0	46.9	4.8	26.2	37.7	43.6	5.3	16.2	31.7	39.0	7.6
Malta	1996-2002	35	35	35	0	32.4	32.4	32.4	0	27.5	27.5	27.5	0
Netherlands	1980-2006	29.6	37.9	47	5.4	27.3	35.0	44.0	5.1	22.4	29.8	39.9	5.3
Norway	1990-2004	28	30.7	48.4	7.2	26.4	28.8	44.8	6.5	22.8	25.2	39.6	5.8
Poland	1992-2004	19	33.8	40	6.8	17.0	30.7	36.5	6.4	12.0	24.0	30.3	5.7
Portugal	1990-2004	33	38.1	40.2	2.3	29.4	33.9	35.7	2.0	21.6	25.6	35.7	2.0
Romania	1996-2003	25	30.6	38	6.9	22.5	27.3	34.2	6.0	16.8	21.2	27.0	5.5
Slovenia	1995-2003	25	25.6	30	1.7	21.1	21.6	25.3	1.4	11.0	11.6	13.8	1.1
Spain	1990-2003	35	35	35	0	32.6	32.6	32.6	0	24.7	24.7	24.7	0
Sweden	1982-2005	28	16.6	65.9	16.6	23.0	35.8	59.1	15.5	16.8	29.3	53.2	15.4
Switzerland	1980-2006	21.3	25.1	26.8	1.5	18.9	22.8	24.4	1.5	13.0	17.5	19.1	1.6
United Kingdom	1980-2005	30	36.8	52	8.1	27.4	33.1	44.7	6.3	21.6	26.0	32.5	3.8
Croatia	1995-1999	25	31	35	5.5	16.9	20.9	23.6	3.7	-19.6	-16.31	-11.4	4.5
Iceland	1990-2002	18	33.5	45	6.9	16.3	30.7	42.1	6.6	11.8	25.2	37.9	6.8
Turkey	1996-2003	33	37.1	44	5.7	28.4	32.0	37.9	4.9	18.0	21.0	26.0	4.1
Albania	1995-2000	30	30	30	0	26.6	26.6	26.6	0	18.8	18.8	18.8	0
Macedonia	1997-2001	15	15	15	0	13.8	13.8	13.8	0	10.6	10.6	10.6	0