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Panel Data Analysis and Partisan Variables: How Periodization Does Influence Partisan Effects

by

Carina Schmitt

Abstract:

One central result of macro-quantitative studies in comparative public policy is that the importance of partisan politics on policy outputs has strongly decreased in recent decades. This finding may well be a methodological artifact. I argue that ad hoc standards in panel data analysis, especially using country-years as periodization, create estimation problems which potentially influence results against partisan variables. Therefore, I propose a simple and straightforward, as well as theoretically suitable, alternative to test the influence of partisan politics on policies and use cabinets instead of country-years. Using comparative welfare state research as an example, I show that partisan effects are strong and stable when using a cabinet-based periodization and fragile and weak within the standard procedure based on annual data. This paper aims at suggesting that annual periods do not need to be the best simplification of time in empirical analyses.

Keywords: Comparative Public Policy, Comparative Welfare State Research, Panel Data Analysis, Partisan Effects, Social Expenditure, Social Policy, TSCS data

Introduction

One central result of macro-quantitative studies in comparative public policy is that the effect of partisan preferences on policy outcomes has declined since the 1970s (Garrett and Mitchell 2001, Iversen 2001, Allan and Scruggs 2004, Immergut 1992, Powell 2000, Tsebelis 2002). Pressure arising from global and European integration and fiscal austerity seem to cut deep into government autonomy. Though some studies find partisan effects when it comes to specific instruments and indicators such as social rights and disaggregated spending (Allan and Scruggs 2004, Korpi and Palme 2003, Jensen 2012), the overall pattern supports the conclusion that political parties do not make a difference anymore. Instead, policy outputs are mainly driven by structural, socio-economic, and institutional factors. If these findings were true, political parties would cease to be an influential actor in modern mass democracies.

I argue that this finding may well be a methodological artifact. It is driven by the structure of the data mainly analyzed in the last two decades, namely time-series cross-section (TSCS) data[i] based on country-years. While the success and the popularity of panel data analyses is undeniable, with some notable **(← p. 1442)** exceptions (Plümper et al. 2005, Wilson and Butler 2007, Kittel 1999, Kittel and Winner 2005) little attention has been drawn to the substantive consequences that follow from panel data analyses. I suggest that ad hoc standards in panel data analysis, especially the periodization, create estimation problems which potentially influence results against partisan variables. Most importantly, panel data procedures typically focus on short-term changes within countries. However, the party composition of governments does not change on a yearly basis but usually at elections and therefore rarely over time. As some scholars have pointed out in previous studies (Soroka et al. 2006, Plümper et al. 2005, Huber and Stephens 2001) it may be asked whether annual data is best suited to estimate partisan effects on policy changes which may occur at any point in time during the legislative period. Parties often need time to develop and implement substantive policies according to their preferences after being elected. In some countries, institutional settings make it difficult for a

newly elected incumbent to influence budgetary policy in its first year in office. That makes it less likely that partisan variables will appear statistically significant within a country-year framework. In addition, some governments may have a preference for implementing many small reforms rather than one comprehensive large reform.

To assess the influence of partisan politics based on a year-to-year basis, empirical researchers would have to appropriately model the unit-heterogeneity in time-lags (Plümper et al. 2005). Yet, empirical researchers typically do not know the factors that determine the timing of reforms. Therefore, I propose a simple and straightforward alternative to test the influence of partisan politics on policies and use cabinets instead of country-years as units of analysis. Cabinets are usually the reference point for political actors and voters and therefore are a more appropriate empirical instrument for translating standard theoretical assumptions.

Using comparative welfare state research as an example, I show that the results for partisan variables turn out to be strong, stable, and statistically significant when using a cabinet-based periodization instead of country-years. However, it is not the objective of the paper to demonstrate the superiority of the cabinet-based periodization over the standard procedure but rather to propose an alternative to the country-year standard in comparative public policy. This paper aims at encouraging discussion about how to model the effects of very diverse variables which realize their effects within very different time frames and that are highly different in terms of variance over time.

This article is organized as follows: The next section briefly summarizes how existing quantitative studies in comparative welfare state research have analyzed party variables as determinants of social spending dynamics and what their findings are. The section 'Partisan Effects and Panel Data Analysis' discusses the methodological arguments for arguing that a standard panel data framework is not very well-suited to capture the influence of partisan politics. In the following section, I re-estimate the most prominent panel data model

specifications that can be found in the literature using data on social expenditure. The **(← p. 1443)** section 'Analyzing Partisan Effects Using a Cabinet-Based Periodization' shows how the results change when using cabinets as units of analysis and contrasts the findings with the results of the standard panel estimations of the previous section.

Partisan Effects in Comparative Welfare State Research

Partisan theory claims that policy outputs vary in accordance with ideological orientations. Left-wing governments implement different policies from right-wing governments (Hibbs 1977). Left-wing parties in government seek to satisfy the social needs of their core clientele, wage earners and low-income groups (Schmidt 2010). These groups favor redistributive policies and typically demand high social benefits. In contrast, the more market-oriented conservative and liberal parties represent mainly those who are better-off and thus prefer to cut back social spending. This leads to the general hypothesis that left-wing governments extend welfare state generosity and social expenditure, while right-wing cabinets rather aim at retrenching social spending.

Recently, partisan theories have been challenged by at least three arguments. Firstly, proponents of institutional theories often argue that the room to maneuver for politicians is highly constrained by political institutions. In many countries checks and balances prevent the parties from implementing comprehensive policy changes (Schmidt 1996, Immergut 1992, Tsebelis 2002, Erakovic and Powell 2006). Secondly, some scholars claim that political actors are subject to external pressures arising from international competition and supranational regulations that constraints the power of parties to shape policies according to their preferences (Scharpf 1999, Garrett and Mitchell 2001). Globalization and Europeanization have narrowed the room to maneuver for political actors causing partisan differences to disappear. And thirdly, proponents of the *New Politics of the Welfare State* perspective argue that political parties are

restricted by internal pressures. Internal pressures impede both left-wing and right-wing parties from implementing their policy preferences. In times of austerity, budget constraints make it impossible for left-wing parties to expand the welfare state. Right-wing parties are also restrained since retrenching existing social policies is highly unpopular and will be punished by the electorate. Consequently, left as well as right-wing governments find it difficult to change existing welfare state settings (Pierson 1996, Pierson 2001).

What do quantitative empirical studies in comparative welfare state research reveal regarding the influence of political parties on social spending dynamics?[ii] Most empirical studies on the effect of government ideology come up with one of three conclusions: 1) partisan politics do not matter, 2) the influence of government ideology varies over time and 3) the influence of parties depends on domestic conditions.

The majority of studies find no effect for partisan variables. Some analyses such as Garrett and Mitchell (2001) and Kittel and Winner (2005), explicitly **(← p. 1444)** focus on the influence of partisan variables on social spending. Garrett and Mitchell (2001: 173) found for a sample of 18 countries over the period from 1961 to 1993 that there is "no evidence that (…) governments dominated by Christian democratic parties or left wing parties spent more." Kittel and Winner (2005) conclude similarly by referring to the highly unstable coefficients for their partisan variables that within a panel data framework parties do not seem to influence social spending. Other studies analyzing a standard OECD sample such as Busemeyer (2009) and Jensen (2011a, Jensen 2011b) only control for partisan influences. They estimated a large number of different model specifications. The coefficients of the partisan variables in all models turn out to be statistically insignificant and close to zero.

Some studies only find an effect for partisan variables when looking at different time periods. Kittel and Obinger (2003) investigate 21 OECD countries from 1980 to 1997. Most of the coefficients of the partisan variables are statistically insignificant. They only find partisan

effects for the 1980s and argue that in times of fiscal austerity and globalization, the hands of political parties are tied. This finding is supported by Potrafke (2009). “Leftist governments pursued expansionary policies in the 1980s. Yet, partisan politics disappeared in the 1990s (…)” (Potrafke 2009: 105). Kwon and Pontussen (2010) come to a different conclusion for a data set that covers 16 OECD countries from 1971 until 2002. According to their results, the influence of partisan politics on social spending increased in the 1980s and 1990s when the strength of organized labor held up and declined when the labor union strength decreased.

A last group of studies only observes an influence for partisan variables when taking conditional effects into account. Kwon and Pontussen (2010) find that partisan effects only disappear in open economies where unions declined. “[G]lobalization generates pressures on left parties to expand the welfare state when unions are strong and pressures in the opposite direction when unions are weak” (Kwon and Pontusson 2010: 275). In the study of Kittel and Obinger (2003), the institutional setting is assumed to condition the effect of partisan variables. Parties only matter in the 1980s when institutional rigidity is low. The evidence of the last two groups of studies supports the assumption that the causal mechanisms underlying the relationship between parties and public policies vary over time. While partisan effects seem to be more direct and immediate in the 1980s, they appear to be more indirect and mediated via domestic conditions in the 1990s. The following table summarizes the main finding of the studies mentioned here on the effect of government ideology on social spending.

To sum up, most of the studies presented here find no substantive and statistically significant effect of the government composition on social policy. In the few cases where any influence is discerned, it is only in more detailed analyses that some partisan effects turn out to be statistically significant. A few studies find a changing effect on social spending over time. Others argue that the effect of parties is conditioned by domestic factors without a consensus on which factors are the most relevant.[iii] **(← p. 1445)**

Table 1: Empirical Studies on Partisan Influences on Social Spending

Study	Party Effect
Hicks (1999)	Mainly no, decrease
Garrett & Mitchell (2001)	No
Iversen (2001)	Mainly no
Swank (2002)	No
Kittel & Obinger (2003)	Mainly no, decrease and conditional effect of institutions
Kittel & Winner (2005)	No
Jahn (2006)	Mainly no
Potrafke (2009)	Mainly no, decreasing effect due to changes within parties
Busemeyer (2009)	No
Busemeyer (2009)	No
Kwon & Pontusson (2010)	Mainly no, only for 1980s, conditional effect of unions
Jensen (2011)	No
Jensen (2011a)	No

The main conclusion that can be drawn from this literature is that social spending dynamics can be explained "by the domestic economic environment such as growth, unemployment or the dependency ratio" (Kittel and Winner 2005: 287). Parties seem not to play a major role for policy outputs.

Partisan Effects and Panel Data Analysis

Methodological state of the art

All the studies mentioned above use standard panel estimation techniques to identify the determinants of social spending dynamics. I argue that this methodological framework is at least partly responsible for the non-finding for partisan influences. But why do panel data analyses affect the results for partisan variables?

The majority of studies analyzing panel data apply a standard Ordinary Least Square (OLS) procedure. Due to the panel structure of the data, several assumptions for unbiased and efficient estimates are violated. When analyzing panel data, researchers often have to deal with serial

and spatial autocorrelation, panel heteroscedasticity and unit-specific heterogeneity since the coefficients and standard error estimates would otherwise be biased upwards or downwards. The coefficients sometimes even change the sign once the panel structure of the data has been taken into account. In 1995, Beck and Katz proposed a strategy to deal with the problems arising from the panel structure of the data. They recommended including country- and year dummies, using panel corrected standard errors and a lagged dependent **(← p. 1446)** variable. Since then, several scholars have pointed to the pitfalls of the so-called Beck-Katz procedure (Beck and Katz 1995, Kittel 1999, Plümper and Tröger 2007, Plümper et al. 2005, Kittel and Winner 2005, Wilson and Butler 2007). For example, the techniques have been criticized for absorbing nearly all the variance of theoretical interest and for dealing in a very simplistic way with the dynamic structure of the data. Recent studies therefore use Error Correction, Prais-Winsten or First Difference Models to overcome the violations of the OLS assumptions. Summarizing the above mentioned studies from a methodological perspective, Error Correction and First Difference Models as well as the Beck and Katz procedure with slight modifications are the techniques mainly applied (see table 2). Most of the studies include country dummies and a lagged dependent variable and all studies use panel corrected standard errors.

Challenges for partisan variables

But how do these methodological strategies affect the estimation of partisan effects? In the following section, I briefly consider three issues that illustrate how standard panel data analyses affect the regression results of partisan variables: (1) country fixed effects, (2) the lagged dependent variable and (3) the assumed slope homogeneity and homogenous lag structure.

(1) Country fixed effects

Why do researchers estimate country fixed-effects models? Country fixed-effect models are used to control for unobserved unit heterogeneity, one common problem in standard panel data analyses. By dropping the between variation from the estimation, country dummies exert a strong influence on the results and their interpretation. The research question shifts from explaining the level of policy outputs across countries to explaining the *changes* in policy outputs within countries. Not only the variance explained changes but also the variance in the explanatory factors used to explain the dependent variable. Since country dummies absorb differences in the level of independent variables, level effects across countries cannot be estimated anymore. This is problematic for partisan variables since one main argument emphasized by partisan theory is that cross-national differences in policy outputs vary in dependence on whether a left-wing or right-wing government is in power. It is often less relevant whether policies change when the share of left parties in government increases or declines. In contrast to partisan variables, economic variables in many cases have the effects that are in line with the implicit assumption associated with the inclusion of country dummies. Changes in the macro-economic environment are often directly translated into public policies. For example, an increasing unemployment rate directly increases the number of persons qualified in need for unemployment benefits and should immediately increase total social spending. **(← p. 1447)**

(2) Lagged dependent variable

To encounter serial autocorrelation researchers often include a lagged dependent variable (LDV). However, including a lagged dependent variable implies the assumption that all independent variables have a long-term effect on public policies besides of their short-term effect. It is furthermore implicitly assumed that the process of realizing the long-term effect is homogenous across all variables (see e.g. Beck and Katz 2011, Keele and Kelly 2006).

However, this is an implausible assumption when including both political and economic variables which probably realize their effects within very different time horizons. Furthermore, the dynamics of public budgeting are very heterogeneous across countries (Jones et al. 2009, Wlezien and Soroka 2003). In contrast, economic variables often have short-term effects. For example, short-term increases in public debt directly stress the budget and restrict the financial possibilities for spending.

Table 2: Methodological Framework of the Studies on Partisan Influences

Study	Model	Country Dummies	Time Dummies	Lagged Dependent Variable/ Lagged Level	Panel Corrected Standard Errors
Hicks (1999)	Pooled OLS	Yes	No	No	Yes
Garrett & Mitchell (2001)	B+K	Yes	Yes	Yes	Yes
Iversen (2001)	ECM	Yes	No	Yes	Yes
Swank (2002)	Modified B+K	Yes	Yes/ No	Yes/No	Yes
Kittel & Obinger (2003)	FD	No	No	Yes	Yes
Kittel & Winner (2005)	FD/FGLS	Yes/No	Yes	Yes	Yes
Jahn (2006)	B+K	Yes	Yes	No	Yes
Potrafke (2009)	FD	Yes/No	No	Yes	Yes
Busemeyer (2009)	FD	No	No	Yes	Yes
Busemeyer (2009)	ECM	Yes /No	No	Yes	Yes
Kwon & Pontusson (2010)	ECM	Yes	No	Yes	Yes
Jensen (2011)	FD	Yes/No	No	Yes	Yes
Jensen (2011a)	ECM	Yes	Yes	Yes	Yes

Notes: B+K + Beck-Katz Standard, ECM = Error Correction Model, FD = First Difference

(*3) Slope homogeneity and homogenous lag structure*

In panel data analyses typically only one coefficient for all countries and years is estimated implying the assumption of slope homogeneity and a **(← p. 1448)** homogenous lag structure.[iv] Within a standard panel data analysis based on country years this means that the changes at every point in time are assumed to have the same effect on the dependent variable within one year in every country. This implication is quite implausible. For example, caretaker

governments often have a limited political agenda and limited room to maneuver to make large-scale decisions in contrast to governments that are in power for many years. Caretaker governments therefore should not have the same influence on policies as long-lasting cabinets. The assumption of parameter homogeneity and homogenous lags is much more plausible for economic variables. An increase in economic growth will be directly translated into policy outputs since the need for social assistance directly decreases. Furthermore, the influence of socio-economic factors on policy outputs should not vary as greatly across countries as the effect of partisan variables. An increase in the number of elderly, for example, should directly result in higher spending for old age programs in all countries independently of country-specific characteristics.

These examples illustrate that standard panel data analyses are primarily adequate for testing the theoretical assumptions of macro-economic variables but less those of rarely changing variables in general and partisan variables in particular. The quantitative methodological instruments applied in political science were mainly developed for economic research using macro-economic variables which are often measured on a yearly basis. To capture the influence of partisan variables, empirical analyses would need to model the unit-specific lag structure of partisan variables across countries and time. However, we often do not have enough information to appropriately model the effect of partisan variables over time and space. One simple alternative to counter this problem is to adjust the units of observation substantively informed and use cabinets instead of country-years. However, using cabinets instead of country years also comes at a cost. For example, the dynamic structure cannot be modelled as fine-grained as in the case of country-years. Moreover, it might be argued that the focus on cabinets introduces a bias against economic variables because it wipes out the short-term variation of the economic variables. However, the focus on cabinet periods still allows us to capture the general macro-economic environment in the context of which governments take decisions. It does not eliminate the variance of economic variables such as GDP per capita or trade openness.[v] This

claim is supported by the empirical analyses in the next sections. Economic variables still turn out to be statistically significant when using a cabinet-based periodization. Additionally, it has to be considered that even a country-year approach might not be able to capture all short-term effects. Some financial variables can change dramatically on a daily basis where even yearly observations would be too crude. Modelling variables simultaneously which realize their effects within different time frames remains a major challenge for researchers. **(← p. 1449)**

Partisan Effects in Standard Panel Designs: Empirics

The following section demonstrates how the results for partisan influences look when applying a standard panel design. I test the influence of left-wing parties in government on social spending dynamics by reproducing the most frequently used panel estimation strategies in the literature. This re-estimation of the most popular panel data models is based on a self-compiled data set enabling us to directly contrast the results with those of the cabinet alternative in the next section.

I use a standard country sample of 21 OECD-countries[vi] from 1980 until 2009. The central independent variable is the share of cabinet seats held by leftist parties. The dependent variable is social expenditure as a percentage of GDP, one of the most popular indicators for social policy.[vii] I include the most important control variables that have turned out to be relevant for social spending dynamics in the literature. In all models, I control for globalization, GDP per capita, the level of public debt, the unemployment rate, political institutions and union density (see table A1 in the appendix for details on the measurement of all variables).

In figure 1, I summarize the results for the partisan variables for the eleven most popular model specifications. The x-axis illustrates the influence of leftist governments on social spending and the y-axis refers to the different model specifications. The circle is the point estimate and the solid lines represent the 95% confidence interval. Model 1 to 3 are fixed effects model

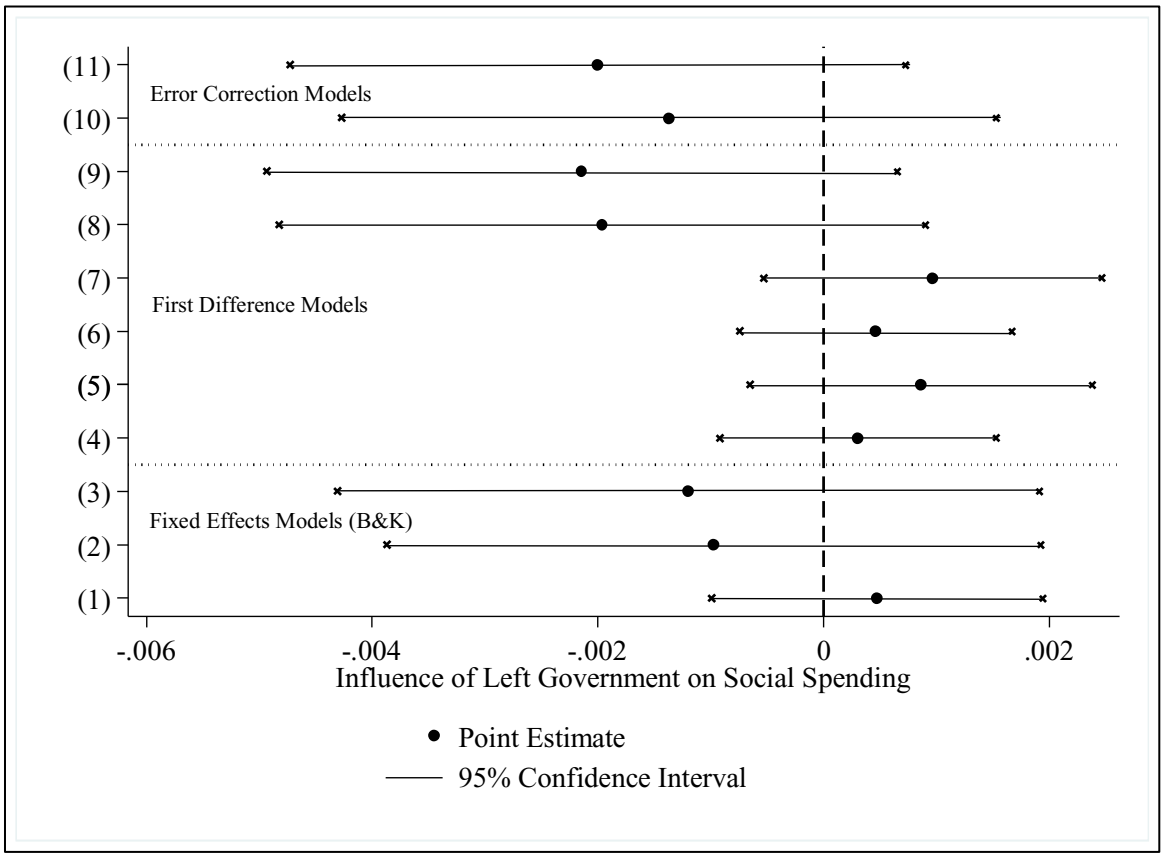
specifications. The dependent variable is the level of social expenditure. Government ideology is captured by the share of left parties in government. Model 4 to 7 are first difference specifications where the percentage change in social expenditure is used as the dependent variable. The main independent variable is the difference in the cumulative share of leftist parties. The cumulative share of left parties in governments has been proposed by Huber and Stephens (2001) and is the cabinet share of left parties during a specific term. The models differ with respect to the inclusion of country and year dummies and the lagged dependent variable. The first difference models 8 and 9 use the non-cumulative share of left government as the main independent variable. Error corrections models (ECM) are estimated in model 10 and 11.[viii] All 11 model specifications can be found in the literature.

Figure 1 shows that the coefficients for left government across different model specifications are neither stable nor statistically significant. The null hypothesis (represented by the vertical dashed line) is included in the 95% confidence interval in all models i.e. none of the coefficients of partisan variables is statistically significant at the 5% level. The coefficients vary strongly across the model specifications and range between negative and positive values. Sometimes, the coefficient is even close to zero. In dependence of the model specification left-leaning cabinets are associated with an increase or decrease in social spending or do not change social expenditure at all. Slight changes in the model specification have enormous consequences for the empirical results as highlighted by the markedly different parameter estimates across **(← p. 1450)** the different model specifications. Moreover, the substantive size of the coefficients is quite small in most of the models.

In sum, the results for the partisan variable are highly instable and statistically insignificant across the various estimations. This result is in line with the findings for partisan effects of

existing research. The detailed estimation results can be found in the online appendix in table O1, O2 and O3.

Figure 1: Empirical Results of Standard Panel Estimations



Notes: (1) Beck-Katz standard
(2) Beck-Katz standard with autoregressive disturbances, without LDV
(3) Beck-Katz standard with autoregressive disturbances, without period dummies and without LDV
(4) First Difference with LDV and Δ cum. left-wing cabinet
(5) First Difference with LDV, country dummies and Δ cum. left-wing cabinet
(6) First Difference with LDV, year dummies and Δ cum. left-wing cabinet
(7) First Difference with LDV, year dummies, country dummies and Δ cum. left-wing cabinet
(8) First Difference with LDV and Δ left-wing cabinet
(9) First Difference with LDV, country dummies and Δ left-wing cabinet
(10) ECM
(11) ECM with country dummies

Analyzing Partisan Effects Using a Cabinet-Based Periodization

In this section, I propose a simple and straightforward alternative to test the effect of partisan variables and to deal with the heterogeneity of the unit-specific lag **(← p. 1451)** structure of

partisan variables. Partisan theory predicts that governments take decisions during their incumbency and change policies according to their preferences. Since the reference points for voters and politicians are elections and government terms, I use cabinets instead of country years as units of analysis and adjust the methodological framework to the political cycle (Horn 2013). In some notable exceptions, a very few authors have used cabinets as units previously, (Schumacher et al. 2013, Boix 1997) or have increased the length of the periods and use 5-year intervals (e.g. Soroka et al., 2006) or cumulative cabinet shares (e.g. Huber and Stephens, 2001) to capture the effect of partisan variables.

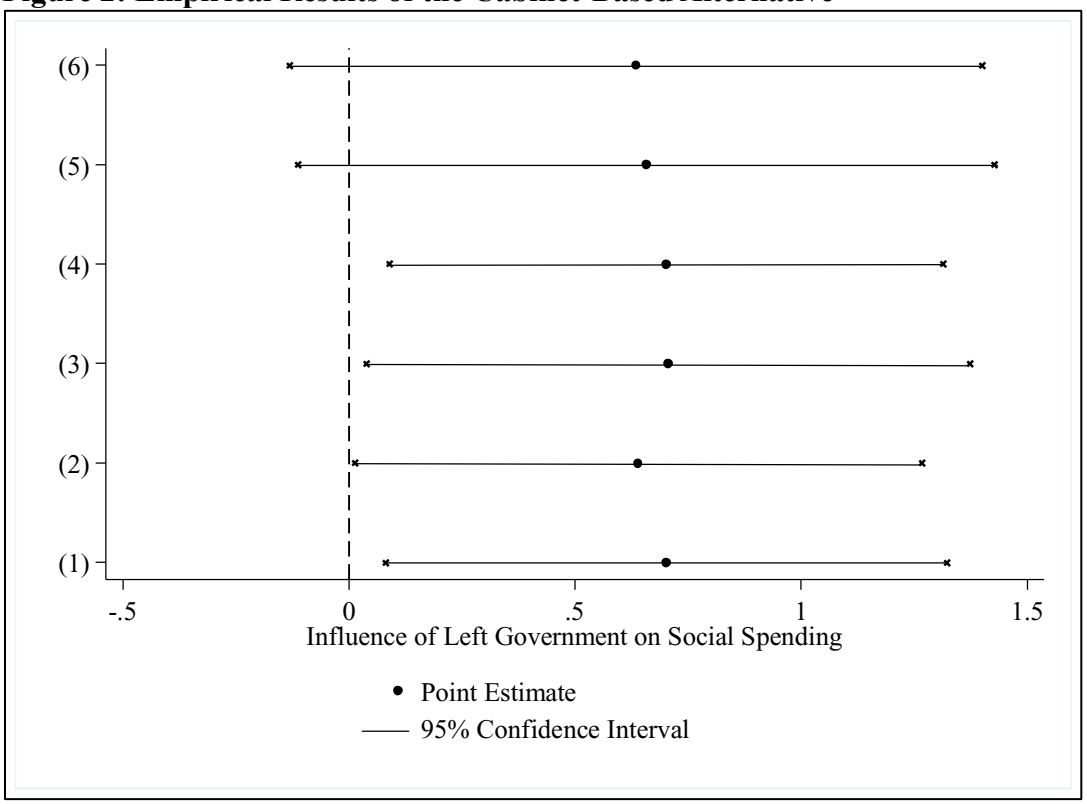
Cabinets are defined as governments "with the same party composition (even if there are new elections or the prime minister changes but is of the same party)" (Boix 1997: 483). A cabinet formed by the same parties as the last one is still counted as a new cabinet if the cabinet shares held by the coalition partners change. For example, the German coalition of Christian democrats and liberals under Chancellor Helmut Kohl lasted from 1982 and 1998. As the cabinet shares held by the coalition partners changed after each election, however, four cabinets are counted. All cabinets are excluded that have been in power less than one year since short-term cabinets such as caretaker governments are typically not able to quickly implement policies. The starting and end point of each government is based on the years in which the cabinet has been in power after a period of six months. For example, if a cabinet took office in May 1985, the starting year is 1985. However, where a cabinet took power in September 1985, the starting year would be 1986. If the year in which the cabinet comes to power is equal to the year of cabinet change or government break-down, the case drops out of the sample. In total, I have 121 cabinets in my sample. Since theory makes assumptions about level effects on changes, the dependent variable is the percentage change of social expenditure and measured by the difference between social expenditure in the last and the first year of a particular cabinet.

I use the identical country sample and period of observation as in the previous section. Moreover, I control for the same variables as in the panel data analyses, namely for the influence of globalization, GDP growth, the level of public debt, the unemployment rate, and union density. Additionally, I control for cabinet duration. To make the results comparable to those in the previous section, I follow the specification strategy of the majority of the panel data estimations and include all control variables as changes. With the exception of cabinet composition, cabinet duration and the initial size of social expenditure all independent variables refer to the first half of the cabinet period in order to avoid endogeneity problems. For example, for a cabinet in office from 1990 to 1996, the values of the independent variables reflect averages of the years 1990 to 1993. A table including the basic descriptive figures is included in the online appendix (table O4).

I estimate six different models to test whether the findings for the party variable are stable (see table O5 in the online appendix for details). The first two models apply different standard error (SE) estimations (Eicker-Huber-White SE and Newey-West SE). **(← p. 1452)** The third model includes a lagged dependent variable. Model 4 to 6 differ depending on whether year and country dummies are included according to the strategy followed in the panel section. Figure 2 illustrates the empirical findings.

Clearly, periodization affects point estimates and, ultimately, inferences. The influence of left government on the change in social expenditure is positive and statistically significant in all models. The higher the share of leftist parties in government the more social expenditure levels have increased during the cabinet period. Moreover, the coefficient of the partisan variables is stable across all different model specifications. The point estimates only show marginal changes across the six models and range from .634 to .705. This suggests that a 100% left-wing cabinet in the short-term increases social expenditure on average 0.7% more than conservative and liberal governments (or the decrease is lower by 0.7%).

Figure 2: Empirical Results of the Cabinet-Based Alternative



Notes: (1) Robust standard errors clustered by country
(2) Newey West standard errors
(3) Robust standard errors clustered by country + LDV
(4) Robust standard errors clustered by country + period dummies
(5) OLS standard errors + country dummies
(6) OLS standard errors + period dummies + country dummies

The coefficient for left governments is statistically significant at the 5 % level in 4 out of 6 models and comes very close to the 5% threshold in the other two model specifications. This is a notable finding against the background of the small number of observations in comparison to the panel data **(← p. 1453)** estimations. Thus, partisan effects seem to exist over the duration of the cabinet, but not necessarily on a year to year basis. The detailed findings are presented in table O5 in the online appendix.

To test whether these findings are robust, I estimated several alternative model specifications (see table O6 to O8 in the online appendix). In table O6, I include all control variables as levels (models 1 to 3). The coefficients of the partisan variable turn out to be positive and statistically significant and are comparable in size to those reported in figure 2. In table O7, model 1 applies a jackknife procedure to test whether the results are driven by single cabinets. Furthermore,

alternative measurements for partisanship are used in model 2 and 3, namely government ideology on a left-right scale and the share of conservative parties. As in the case of table O6, all partisan variables show the expected sign and are statistically significant. In model 4 of table O7, it is tested whether the partisan influence varies over time by generating an interaction variable between the start of the cabinet and the partisan variable. Furthermore, I checked whether the influence of partisan politics has decreased with rising economic integration as argued by many scholars. The respective coefficients of both interaction variables are statistically insignificant indicating that the effect of left governments neither decreases over time nor with rising levels of globalization. In a last robustness check, I re-estimated the basic panel data models of table O1 and O2 using 5-year intervals to rule out that results of the cabinet models are simply driven by the increased length of periods (see table O8). The dependent variable in models 1 and 2 is the 5-year average of social expenditure and the controls are included as lagged 5-year averages. In models 3 to 5, the dependent variable is measured by the change in social expenditure within 5 years. In this case, the control variables also enter with changes over 5 years. The coefficients of the partisan variables are not stable, change their sign and only one coefficient reaches statistical significance. These results indicate that the findings for the partisan variables in the cabinet models are not a product of using longer periods but rather driven by an informed way of constructing the units of observations.

In sum, the results across all different model specifications based on cabinet duration do not allow to reject the prediction that government ideology makes a difference for social spending dynamics. Using cabinets is one appropriate alternative when interested in the influence of partisan variables since we do not know when governments initiate reforms after taking over office. The contrasting findings between the standard country-year approach and the cabinet alternative demonstrate how methodological decisions influence parameter estimates, the level of significance and the stability of results.

Conclusion

What lessons can be drawn from this paper? The conclusion of many empirical studies that parties do not matter anymore is at least partly driven by the structure of the data analyzed in comparative public policy research, namely TSCS-data **(← p. 1454)** based on country-years. The existing practice of using country-years as units of analysis is influenced by data availability and norms but often not by theoretical reasons. In line with other scholars (e.g Plümper et al., 2005, Huber and Stephens, 2001), I argue that many of the variables that are of theoretical interest in political science do not follow a country-year logic. Variables such as corporatism, the electoral system, the constitutional framework, and government ideology do not influence policies within one year but rather need time to shape policy developments. Standard panel designs using country-years as periodization are often not appropriate to capture the effect of these variables, but rather suitable for the analysis of macro-economic relationships for which these instruments were initially designed.

I therefore suggest a simple and straightforward, as well as theoretically suitable, alternative to test partisan influences. The proposed use of cabinets adjusts the research design to partisan theory. Using comparative welfare state research as an example, I have shown that the choice of the unit of analysis has important substantive consequence. Partisan effects are strong and stable when taking cabinets as units and fragile and weak within the standard panel design.

Clearly, more systematic analyses are necessary to identify the causes for the large and systematic variation in findings and inference I report here. This paper aimed at suggesting a potential reason for the weak evidence in favor of the partisan hypothesis in comparative political economy. At the very least, empirical researchers should more carefully consider whether the default to use years as periods is optimal. Time as we know it, is continuous, and annual periods do not need to be the best simplification of time in empirical analyses.

Appendix:

Table A1. Operationalization and Data Sources

Variable	Description	Source
Social Expenditure	Social expenditure as a percentage of GDP	OECD, Social Expenditure Database (2012)
Left Government	Cabinet seats of social democratic and communist parties as a percentage of total cabinet posts	Armingeon et al. (2011), Comparative Political Data Set
Debt	Gross government debt (financial liabilities) as a percentage of GDP	Armingeon et al. (2011), Comparative Political Data Set
GDP growth	Growth of real GDP	Heston et al., 2012 (PWT 7.1)
GDP per capita	Real GDP per capita	Heston et al., 2012 (PWT 7.1)
Globalization	Sum of imports and exports as a percentage of GDP in constant prices (2005)	Heston et al., 2012 (PWT 7.1)
Union density	Net union membership as a proportion of wage and salary earners in employment	Armingeon et al. (2011), Comparative Political Data Set
Unemployment rate	Unemployed as a percentage of civilian labor force	Armingeon et al. (2011), Comparative Political Data Set
Political Institutions	Index of institutional constraints of central state government according to Schmidt (1996)	Armingeon et al. (2011), Comparative Political Data Set
Years in Power	Cabinet duration in years	Own Assessment

(← Table A1 p. 1459)

Supplemental research materials

Supplemental research material for this article can be assessed on the Taylor & Francis website and includes table O1-O8.

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(← p. 1455)

[i] Some authors (e.g. Beck 2001) differentiate between TSCS and panel data and argue that the term panel data only refers to data where T is small compared to N whereas TSCS data is used when T and N is limited. In this contribution, for reasons of simplicity, I explicitly subsume time-series cross-section data when using the term panel data.

[ii] The following brief summary of the macro-quantitative literature is guided by the empirical illustration in the subsequent sections where I use social expenditure data as an example to demonstrate the differences between the standard panel data approach and the cabinet-based alternative. To make my results comparable to those in the literature, I limit myself to cross-national studies that are based on TSCS data, include partisan variables and analyze a standard sample of rich democracies over the last three decades. The studies selected are either broadly received and/or of a recent date. The list, therefore, clearly is illustrative in character. Furthermore, not all the studies reviewed are exclusively and explicitly concerned with partisan effects. In some analyses government ideology rather serves as a control variable.

[iii] This general summary is also sustained by Kappe (2013) who ran 250,000 regressions to identify robust determinants of welfare state development. He included 55 variables in all possible combinations and found that for the most part socio-economic factors tended to be stable in contrast to partisan determinants. A meta-analysis of 43 empirical studies provided by Imbeau et al. (2001) support this result by analyzing the parameter estimates on the influence of government complexion on public policies. They do not find any relation between the party composition of government and policy outputs. However, Plümper et al. (2005) estimate different model specifications that reveal partisan effects when using unit-specific time-lags.

[iv] Plümper et al. (2005) have demonstrated how the lag structure affects the parameter estimates and the level of significance.

[v] In the cabinet-based approach, the coefficient of variation for economic variables remains at a high level and is not smaller than for political variables.

[vi] Australia, Austria, Belgium, Canada, Denmark, France, Finland, Germany, Greece, Ireland, Italy, Japan, The Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom, United States.

[vii] Social expenditure has been one of the most prominent and for a long time the standard indicator for social policy. Even though, this indicator has been criticized in the meantime (e.g. Esping-Andersen 1990), it provides a good starting point and serves illustrative purposes very well. I additionally tested the argument also for alternative indicators such as net replacement rates and other policies such as privatization policy. The results support the findings in this paper.

[viii] In ECMs all control variables enter with their first difference as well as with their lagged levels.

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