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# The rise and fall of government spending in affluent democracies, 1971–2008

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## Abstract

One of the enduring conclusions of political economy is that the government's share of the economy tends to grow over time and with a rising gross domestic product (GDP) per capita. Yet, from the late 1980s through to 2008, government spending as a percentage of GDP declined in the typical year in affluent democracies. Synthesizing and building on literatures on the welfare state, state size and neoliberalism, we evaluate three explanations for the expansion and retrenchment of government spending as a percentage of GDP. We estimate fixed effects models of three measures of changes and cuts in government spending. In the full sample 1971–2008, changes and cuts were driven by the structural pressures of unemployment and trade openness, and the institutional factor of the adoption of the Euro. However, this conceals important historical variation. In the earlier period of expansion, the power resource of unionization was the most robust influence. In the later period of retrenchment, changes and cuts were shaped by the adoption of the Euro and a set of structural pressures. In contrast to previous research, changes and cuts in government spending are not associated with a country's GDP per capita after the mid-1980s. We conclude by discussing implications for the welfare state and neoliberalism, and by encouraging caution for universal theories of state size.

## Keywords

Neoliberalism, government spending, political economy, retrenchment, welfare state

When explaining government spending as a percentage of the gross domestic product (GDP), it has long been understood that there is tremendous inertia for the state to grow (Meltzer and Richard, 1978). Max

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Weber (1978) argued that stable taxation enabled the modern state to expand its 'administrative tasks', 'concentrate the means of administration', be perceived as 'indispensable' and become 'practically indestructible'. In their classic of public choice theory, Brennan and Buchanan (1980) portray the state as a 'Leviathan' where monopolistic bureaucrats and opportunistic politicians collude to maximize revenue and seek expansion. Partly because government programmes have bureaucracies and constituencies, it has historically been considered unlikely that the state will shrink. Such views are also represented by 'Wagner's (1958) law': the positive association between GDP per capita and government spending as a percentage of GDP (Durevall and Henrekson, 2011; Lindert, 2004a,b; Shelton, 2007). According to Wagner's law, a self-sustaining momentum propels perpetual incremental growth in the state. Indeed, the state did tend to grow in democracies over most of the 20th century (Wilensky, 2002).

Despite the significance of these theories, it is worthwhile to re-examine the actual trends in government spending in affluent democracies in recent decades. Figure 1 displays the trends in government spending as a percentage of GDP in 17 affluent democracies from 1971 to 2008. We also present the mean by year. Affluent democracies modestly increased government spending until the 1980s. Since then, however, there has been little expansion and considerable decline. In 16 of the 17 countries, government spending was lower in 2008 than at its peak.<sup>1</sup> For example, Finland's government spending declined from 64.7 percentage of GDP in 1993 to 49.5 in 2008, and the Netherlands fell from 59.3 in 1983 to 45.9 in 2008. The cross-national mean peaked in 1993 and then declined steadily. In addition, no country experienced steady expansion over the period.

While the state size literature has been interested in overall government spending, considerably more research concentrates on the welfare state. Indeed, social policy scholars have diagnosed similar trends in social welfare spending (for example, Huber and Stephens, 2001). Of course, there are advantages to concentrating on welfare spending and/or welfare programmes, and we have no intention of downplaying those outcomes. Even for a social policy

audience, however, trends in overall government spending warrant attention alongside and in addition to the larger literature on the welfare state. First, overall government spending provides a valuable opportunity to test theories from the social policy literature. It is worthwhile to explore the exportability of social policy theories for broader and other political economic questions. If social policy theories are general explanations of states, and not just explanations of specific aspects of states, it would be constructive to assess how well they explain overall government spending. Second, such analyses can then feed back into and contribute to a better understanding of social policy (Castles, 2007a). Understanding where and why social policies theories fail to explain overall government spending could be helpful for revising and refining such theories. Third, overall government spending is a key aspect of the political context for social policy. This is because overall government spending is central in relevant ideological and intellectual debates. Public choice theorists, neoliberals and libertarians often frame debates in terms of state size and overall government spending (Campbell and Pedersen, 2001; Mudge, 2008). Social policies are often criticized in these debates, and are often highlighted as the component of government spending that should be cut. Overall government spending is also a key aspect of the political context fiscally. Social policies increasingly face retrenchment because of demands for austerity that are prompted by budget deficits and debt, and the underlying government spending and revenue. Though overall government spending has declined more rapidly than social welfare spending (Castles, 2007b), social policy is likely to face increased pressure for austerity in a fiscal environment of declining overall government spending. More simply, because social policies are always a large share of government budgets, demands for cuts in government spending are likely to result in demands for cuts in social policy.

This study investigates the sources of changes and cuts in government spending as a percentage of GDP in 17 affluent democracies from 1971 to 2008. Given there have been many analyses of government spending, why it is necessary to analyse the determinants of spending once again? The present analysis

offers four unique contributions. First, we synthesize and build upon multiple theoretical explanations from the literatures on the welfare state, state size and neoliberalism.<sup>2</sup> Specifically, we examine power resources theory, institutions and structural pressures. Second, we provide a temporal update beyond previous studies. While most previous studies end in 2001, we significantly lengthen the period of retrenchment through 2008. Importantly, this lengthening allows us to identify much more retrenchment than previous studies and to better scrutinize the sources of retrenchment. Though 7 years might seem like a small share of the longer 1971–2008 period, 7 years amounts to more than a third of the period of retrenchment. Third, we utilize multiple measures of changes and cuts in government spending. Fourth, we employ multiple periodizations. These last two points allow for a more rigorous assessment of the robustness of results. While previous research has incorporated some of these advances, this study is unique for incorporating them all.

## **Explanations for declining government spending**

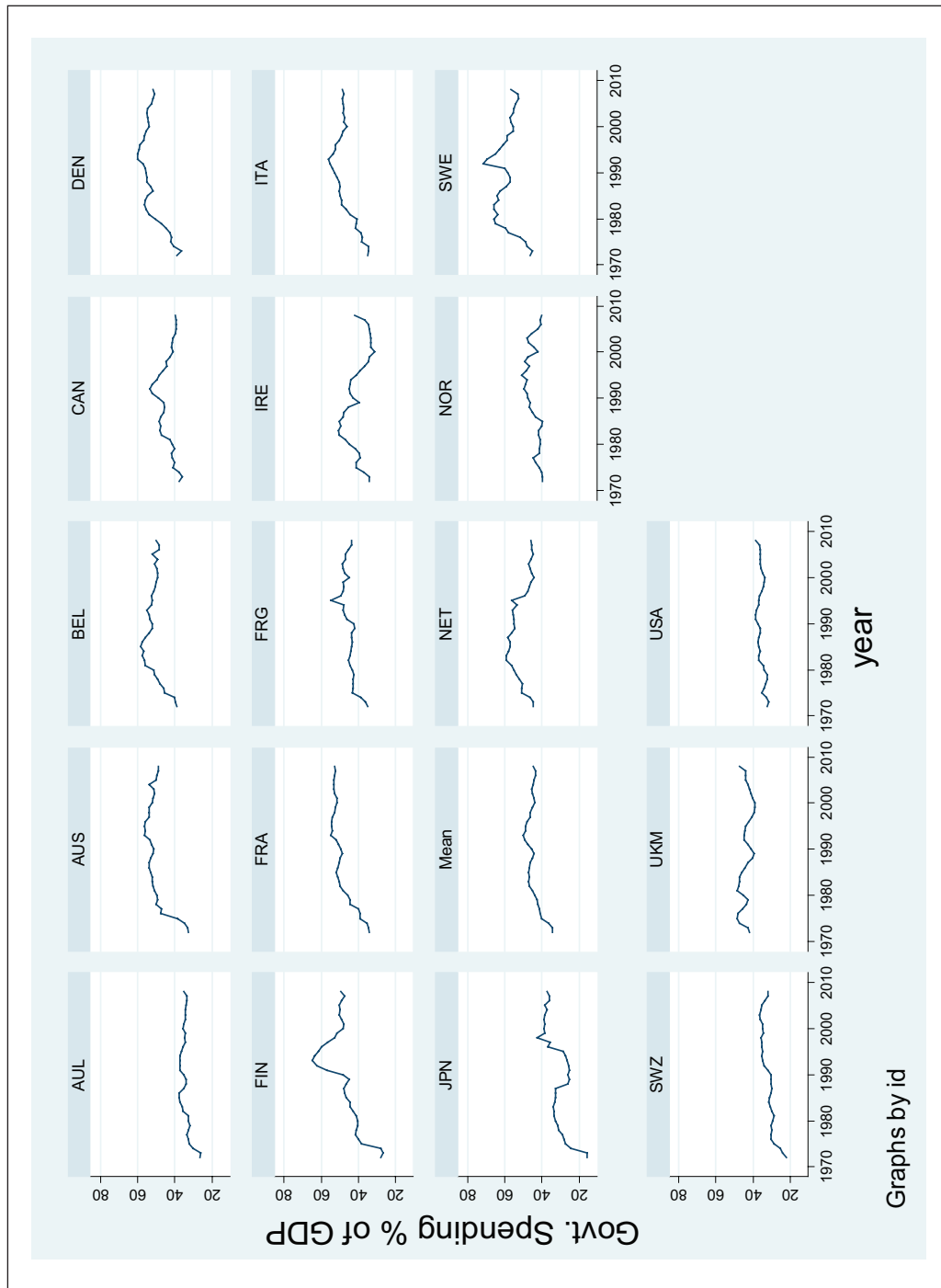
Before discussing the three explanations, we make the case for examining different historical periods within recent decades. In the welfare state and neoliberalism literatures, it has been widely claimed that affluent democracies transitioned away from an era of government expansion in the 1980s (Clayton and Pontusson, 1998; Huber and Stephens, 2001; Kwon and Pontusson, 2010). There was no one critical historical event that uniformly marked the transition across all countries. Some emphasize the elections of Thatcher and Reagan, some point to the end of state socialism, some highlight the rise of the ‘Washington Consensus’, and some stress the end of fixed exchange rates and the oil crisis in the 1970s. An argument can also be made for the reforms and austerity that followed the early 1990s recession – for example, in Japan or Scandinavia (Schuknecht and Tanzi, 2005). Although declines were common since the late 1980s, the cross-national mean in government spending did not peak until 1993 (see Figure 1).

Regardless of exact timing, considerable evidence suggests that affluent democracies experienced a transition after which there were increased constraints on government spending (Campbell and Pedersen, 2001). We concur that cuts and declines in government spending gained momentum after the 1980s. While Keynesianism, embedded liberalism and welfare states maintained popular support prior to the 1990s, neoliberalism had greater political and intellectual legitimacy after the 1980s (Harvey, 2005; Sassoön, 1996). After the 1980s, fiscal austerity often became perceived as a ‘necessity’ (Huber and Stephens, 2001; Pierson, 2001). Finally, as we now discuss, each of the three explanations offers accounts for why affluent democracies transitioned from expansion to retrenchment.

### ***Power resources***

Power resources theory contends that collective actors bond together and mobilize less advantaged classes of citizens around shared interests. Such groups gain electoral power by forming unions and Left parties, and when in office, these parties expand the welfare state (Brady, 2009; Hicks, 1999; Huber and Stephens, 2001; Korpi, 2003). Such expansions require higher taxation and state interventions into the market, and welfare programmes always form a large share of overall government spending (Lindert, 2004a). Therefore, while power resources theory was designed to explain welfare states specifically, it also helps explain overall state size. Indeed, previous power resources studies routinely include government spending as a dependent variable (Hicks, 1999; Huber and Stephens, 2001).

More recently, scholars have broadened power resources theory beyond Left parties and unionization. Because of their distinct interests, women’s electoral mobilization and presence in government predicts welfare state generosity (Bolzendahl and Brooks, 2007; Huber and Stephens, 2001). In addition, tripartite corporatist pacts should channel business and labour power towards fewer cuts in government spending (Hicks, 1999; Swank, 2002). Increasing attention has also been paid to actors opposing government intervention. For example, Right parties operate as a counterweight to Left



**Figure 1.** Government spending as a percentage of GDP in 17 affluent democracies, 1971–2008.

parties and unions and their presence in government triggers retrenchment (Allan and Scruggs, 2004; Brady et al., 2005; Castles, 2004). Thus, modern power resources theory encompasses a range of class-based organized groups acting through and outside parties to influence welfare states and government size.

Several scholars demonstrate that power resources account for welfare state retrenchment (Hicks and Zorn, 2005; Swank, 2002). For example, Korpi and Palme (2003) argue that welfare states have undergone retrenchment because of the weakening of traditional power resources such as labour unions and Left parties (also Korpi, 2003; Sassoon, 1996). Brady and colleagues (2005) find that Left parties were positively associated and Right parties were negatively associated with multiple measures of the welfare state from 1975 to 2001. Because Brady and colleagues diagnose a modest decline in the welfare state, this partly resulted from the absence of Left parties and the presence of Right parties in government.

Despite these studies, several scholars argue that Left parties became less influential after welfare states reached maturity (Huber and Stephens, 2001; Kittel and Obinger, 2003; Kwon and Pontusson, 2010; Pierson, 2001). Moreover, there has been a paucity of analyses that focus on overall government spending (instead of welfare programmes) while scrutinizing the post-1980s period. In the few exceptions (Kittel and Obinger, 2003; Kwon and Pontusson, 2010), there has been evidence that parties became less significant in the 1990s. Even studies showing effects of power resources on welfare states after the 1980s often pool years of expansion in the sample with years of retrenchment (for example, Brady et al. (2005) examine 1975–2001; Korpi and Palme (2003) examine 1975–1995). For these reasons, greater scrutiny of temporal variation in the effects of power resources on overall government spending is warranted.

In sum, power resources theory contends that Leftist power resources should reduce cuts in government spending, while Right parties should have the opposite effect. However, recent research leads to the expectation that power resources are less significant in the period of retrenchment than in the period of expansion.

## *Institutions*

Scholars often explain government spending and the welfare state with the laws and regulations governing politics and markets, and the intellectual and bureaucratic fields disseminating policies (Campbell and Pedersen, 2001). Particularly important in the literature has been the number of ‘veto points’ when policy choices can be blocked. On one hand, a high number of veto points enables cuts because it prevents the expansion of spending when economic and demographic changes produce greater risks for and demands from the citizenry (Hacker, 2004). Veto points may delay modest revision to state size when needs are rising and trigger significant cuts when budget austerity is no longer ignorable (Breunig, 2011). Indeed, veto points are negatively associated with welfare generosity (Brady et al., 2005; Huber and Stephens, 2001). Similarly, majoritarian electoral systems and presidential regimes tend to have smaller governments than proportional representation systems and parliamentary democracies (Shelton, 2007). On the other hand, veto points, power sharing across institutions and path dependency may prevent cuts (Bonoli, 2000; Myles and Pierson, 2001). Veto points facilitate a status quo bias as political actors are uncertain about change, constituencies of beneficiaries resist change, programmes gain popularity over time, and the mix and resources of interest groups favour existing institutions (Huber and Stephens, 2001). Veto points thus may be a source of friction that inhibits any change and slows both increases and decreases in government spending (Jones et al., 2009; Schuknecht and Tanzi, 2005).

Also salient is the distribution of taxation (Brennan and Buchanan, 1980; Weber, 1978). Wilensky (2002), Lindert (2004a) and others explain that affluent democracies with larger governments tend to rely more on consumption, payroll and value-added taxes than income, property and capital taxes. Prasad (2006) argues that this tax distribution is less likely to provoke political conflict. She contends that more progressive and direct taxation (that is, income, property and capital taxes) trigger greater class-based resentment, conflict and mobilization. As a result, countries with more progressive and direct taxation can be expected to experience constrained



revenue and more cuts in government spending (Wilensky, 2002).

Beyond domestic institutions, neoliberal policies diffused internationally through the collaborative channels provided by international institutions (Chwieroth, 2009; Polillo and Guillén, 2005). In the sample analysed here, the European Union (EU) may be the most relevant institution likely to induce spending declines (Rhodes, 1995). The EU required a certain level of austerity of its member states (Beckfield, 2006). In the late 1990s, EU member states were forced to meet the Euro Convergence Criteria ('the Maastricht Criteria') in anticipation of adopting the Euro currency. These criteria required far-reaching macroeconomic and fiscal reforms, including specific thresholds for government deficits and debt. Thus, governments may have reduced spending in the build-up to joining the Euro zone (Ferrera, 2011; Kittel and Obinger, 2003).

With a few exceptions, over-time variation in the effects of institutions has been relatively neglected. Most scholars use institutions to explain stable cross-national differences over long periods of time. By doing so, the literature often inadvertently implies that the effects of institutions are constant over time. Nevertheless, an emerging literature contends that international institutions only became influential in diffusing neoliberalism after the 1980s (Polillo and Guillén, 2005). The diffusion of tax reforms, fiscal austerity and privatization increased after the 1980s (Harvey, 2005; Lee and Strang, 2006; Swank, 2006). Given this emerging literature, it is worthwhile to assess the effects of institutions across different periods.

In sum, the number of veto points can be theorized to have either positive or negative effects on cuts in government spending. Both a progressive tax distribution and adoption of the Euro should encourage cuts. Scholars have not yet fully explored how institutional effects change over time, though some expect that international institutions have become more salient after the 1980s.

### *Structural pressures*

Scholars have long claimed that government spending responds to structural pressures: the

demographic, economic, technological and global social changes that place constraints on states (Pontusson, 1995). A key premise of industrial society theory was that modern, complex societies generated needs that states were forced to address (Wilensky and Lebeaux, 1965 [1958]). In earlier periods, structural pressures were associated with larger states. For example, many show that growing population dependency (that is, children and the aged) swells welfare rolls and expands the state (Boix, 2001; Brady et al., 2005; Lindert, 2004a,b; Shelton, 2007). Similarly, unemployment has historically increased social insurance spending (Roubini and Sachs, 1989; Wilensky, 2002), while deindustrialization and the ensuing worker insecurity demanded the expansion of welfare states (Iversen and Cusack, 2000). Finally, many claim that trade openness expands the state (Cameron, 1978). Purportedly, small, outward-oriented countries with high levels of international trade tended to experience volatility and uncertainty. In response, governments developed social policies to stabilize the economic security of their citizens and to appease them politically (Rodrik, 1998).

For the most part, the literature showing that structural pressures lead to greater government spending has focused on stable cross-national differences over long time periods. Nevertheless, there are two general reasons why structural pressures may contribute to declining government spending in recent decades. First, structural pressures create non-partisan justification for cuts. Hacker (2004) identifies the active, deliberate prevention of the updating of programmes to face the demands and new risks brought on by structural pressures. Further, political actors often invoke structural pressures to justify and frame fiscal austerity as a necessity rather than a choice (Blyth, 2002). In turn, structural pressures often result in retrenchment for parties across the spectrum (Ghate and Zak, 2002; Huber and Stephens, 2001). Second, structural pressures undermine public revenue (Lindert, 2004a). Pierson (2001) argues that affluent democracies are in an era of 'permanent austerity' featuring a growing service sector, the maturation of commitments to entitlements, and aging populations. In this era, structural pressures that once led to welfare state

expansions may no longer be associated with increased government spending and may even trigger cuts (Lindert, 2004b).

Indeed, there is accumulating evidence that structural pressures reduce government spending in mature affluent democracies. This is partly because new structural pressures have emerged. For example, many claim that heightened globalization undermined welfare spending, government revenue and government spending in recent decades (Busemeyer, 2009; Garrett and Mitchell, 2001; Swank, 2002).<sup>3</sup> In addition, scholars claim that ethnic heterogeneity constrains state size (Lindert, 2004b). Thus, increased immigration to previously homogenous societies may undermine public goods and social policy.

In addition, even traditional structural pressures appear to have different effects in recent decades (Lindert, 2004b). Scholars have shown negative effects of population dependency, unemployment and deindustrialization for welfare programmes and government spending (Korpi, 2003; Razin et al., 2002). For instance, Hicks and Zorn (2005) find that economic and demographic pressures for costly welfare expenditures provoke retrenchments of eligibility and benefit rates. Instead of increasing demands for social insurance, growing elderly populations reduce the pool of taxpayers and contribute to fiscal austerity (Raffelhuschen, 2001). Because of revenue shortfalls, Huber and Stephens (2001) argue that high unemployment was the key cause of welfare state retrenchment. In one of the few temporal decompositions, Lindert (2004b) finds that population aging and trade openness increased government spending in developed democracies in the 1962–1981 period. However, he finds these variables were either insignificant or reduced government spending in the 1978–1995 period (also Kwon and Pontusson, 2010). Lindert (2004b) argues that the power of the elderly has faded, and public pensions and government spending will decline as affluent democracies face increasing revenue constraints.

In sum, structural pressures should increase government spending (and reduce cuts) in the era of expansion. However, structural pressures should result in greater cuts to government spending in the era of retrenchment.

## Methods

Our analyses include 17 affluent democracies (Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, Norway, Sweden, Switzerland, the UK and US) from 1971 to 2008. We concentrate on this sample for three reasons. First, consistently high quality data on government spending was needed. Prior to 1971, data on government spending are not as comparable or consistently high quality. The omitted affluent democracies only have data on government spending since the late 1980s or 1990s (for example, data are only available for Greece since 1988, for New Zealand since 1986, for Portugal since 1995 and for Spain since 1988). Second, we concentrate on countries that were free democracies throughout the period (that is, not Greece, Portugal or Spain). Third, we only include countries with populations exceeding 1 million. Unfortunately, data availability prevents us from extending the analyses beyond 2008. However, we discuss the post-2008 period in the discussion. In addition, Appendices 1–3 show trends and analyses with Greece, Portugal and Spain for 1990–2008. Though government spending grew slightly more in these three countries than the 17 analysed, the conclusions would be similar with those countries included.

The unit of analysis is the country-year. The first set of models for each dependent variable includes the entire period 1971 to 2008 ( $N=629$ ). Following the social policy literature, we then decompose the analyses into periods of expansion and retrenchment (Castles, 2007b; Kittel and Obinger, 2003; Kwon and Pontusson, 2010).

In addition to the theoretical reasons outlined above, practical data constraints partly determine our definitions of the periods. When decomposing the periods, it is necessary to have variation in all dependent variables in every country or a country will be dropped. In addition, because the literature provides many diverse claims about when the expansion period ends, we present two different periodizations. As noted below, we concentrate on results that are robust across periodizations. By saying so, we are not trying to find effects that are robust across periods, but are trying to find effects that are robust



across minor differences in the definition of a period. Therefore, we pursue effects that are significant across minor changes in the timing of when the retrenchment period begins. In other analyses, we experimented with other periodizations and the conclusions were largely robust.<sup>4</sup>

Our first periodization defines the expansion period as 1971 to 1989 (N=306). This periodization divides the sample approximately in half and maximizes the degrees of freedom in each period. Our second periodization defines the expansion period as 1971 to 1987 (N=272). This end point is the earliest point that allows for variation in all dependent variables in every country, which is necessary to retain all countries in the sample.

The last set of models focus on the later period of retrenchment. Following the two periodizations, we examine the years 1990–2008 (N=323) and 1988–2008 (N=357).

For the continuous dependent variable, we use fixed effects (FE) models. For the binary dependent variables, we utilize conditional FE logistic regression models.<sup>5</sup> FE models difference of each variable's country-year from the country mean. Thus, these models concentrate on within-country over-time variation, which is appropriate given our interest in over-time changes in government spending. However, one consequence is that our results are not directly comparable with analyses focused on between-country variation (for example, studies showing more open economies have larger governments (Rodrik, 1998)). F-tests and Wald chi-square tests confirm that the country fixed effects are collectively significant.

In sensitivity analyses, we used panel-corrected standard errors (PCSE). The results are robust with PCSEs as the standard errors did not change meaningfully and were often larger without PCSEs.

In sensitivity analyses, we included fixed effects for year, decades or 5-year intervals and the results did not change. F-tests and Wald chi-square tests fail to reject the null that such dummies are equal to zero.

As explained below, the dependent variables are all variants of difference measures. Because we detrend the dependent variables, there are no serial autocorrelation or stationarity problems as is common in analyses of levels of government spending.

Appendix 4 displays the descriptive statistics and sources.

### Dependent variables

We examine three measures of changes and cuts in government spending. The first is *change in government spending*, which is the 1-year difference in government spending as a share of GDP. The second dependent variable is a binary measure of whether a country experienced a *government spending cut*. After calculating the change in government spending, we coded as one all cases with negative values (reference  $\geq 0$ ). The third dependent variable, *significant government spending cut*, builds on the second but tightens the threshold for a cut. The difference in government spending is distributed with many values near zero, which are difficult to distinguish from no change (Breunig, 2011; Jones et al., 2009). As a result, we code a significant cut as equal to one only if the difference was more negative than  $-0.5$  (reference  $\geq -0.5$ ). This threshold removes cases where measurement error or fluctuations in GDP result in trivial declines. This threshold corresponds to the bottom 30 percentile of changes in government spending for the entire period.<sup>6</sup>

### Independent variables

Following conventions in social policy literature, we lag all independent variables 1 year (Hicks, 1999; Huber and Stephens, 2001). We measure power resources theory with five variables. *Women in parliament* is the percentage of legislative seats held by women. *Unionization* is net union membership as a percentage of employed wage and salary earners. Following Avdagic et al. (2011) and Visser (2011) *tripartite pacts* are coded 0 for no agreement, 0.5 for partial agreements negotiated without one key partner, and 1 for a strict definition of tripartite pact. The next two partisan variables are measured as 5-year cumulative measures of the proportion of total cabinet posts in each year. The results were consistent when we substituted 1-year lagged or 10-year cumulative measures. *Left cabinet* and *right cabinet* use Huber et al. (2004) coding of parties.

We include three measures of institutions. First, *veto points* is the sum of measures of federalism, presidential system, single member district plurality electoral systems, the strength of bicameralism, the frequency of referendums and judicial review.<sup>7</sup> Though scholars often include only indicators for presidential or proportional representation electoral systems, there is insufficient temporal variation and the FE models drop all time invariant variables.<sup>8</sup> Second, following Prasad (2006) and Wilensky (2002), *tax distribution* is the ratio of government revenue collected through taxes on income, profits, capital gains and property over social security contributions and taxes on goods and services (Organisation for Economic Co-operation and Development (OECD) codes 1000 and 4000 divided by 2000 and 4000). Third, *Euro adoption period* is coded as 1 from 1996 to 2001 as the 5 years leading up to the implementation of the Euro currency in Austria, Belgium, Finland, France, Germany, Ireland, Italy and the Netherlands.

We examine structural pressures with six variables. *Unemployment* is the percentage of the labour force unemployed. The *over 64 population* is the percentage of the population over 64 years old and the *under 15 population* is the percentage less than 15 years old. Following Iversen and Cusack (2000), we measure *deindustrialization* as 100 minus the percentage of total labour force in manufacturing and agricultural employment. *Net migration* is the difference between the current and previous year's population that remains after accounting for births and deaths. *Trade openness* is the sum of exports and imports as a percentage of GDP. In analyses available upon request, we also examined capital mobility (Swank, 2002). However, investment data has considerable missingness, trade openness and investment openness are highly correlated and sensitivity analyses fail to show significant effects for capital mobility.

Finally, we control for two other variables. *GDP per capita (PC)* is in constant purchasing power parity dollars. As explained above, Wagner's law and previous research contends that government spending grows with economic development and rising affluence (Lindert, 2004a,b). Conversely, recent studies have found evidence inconsistent with

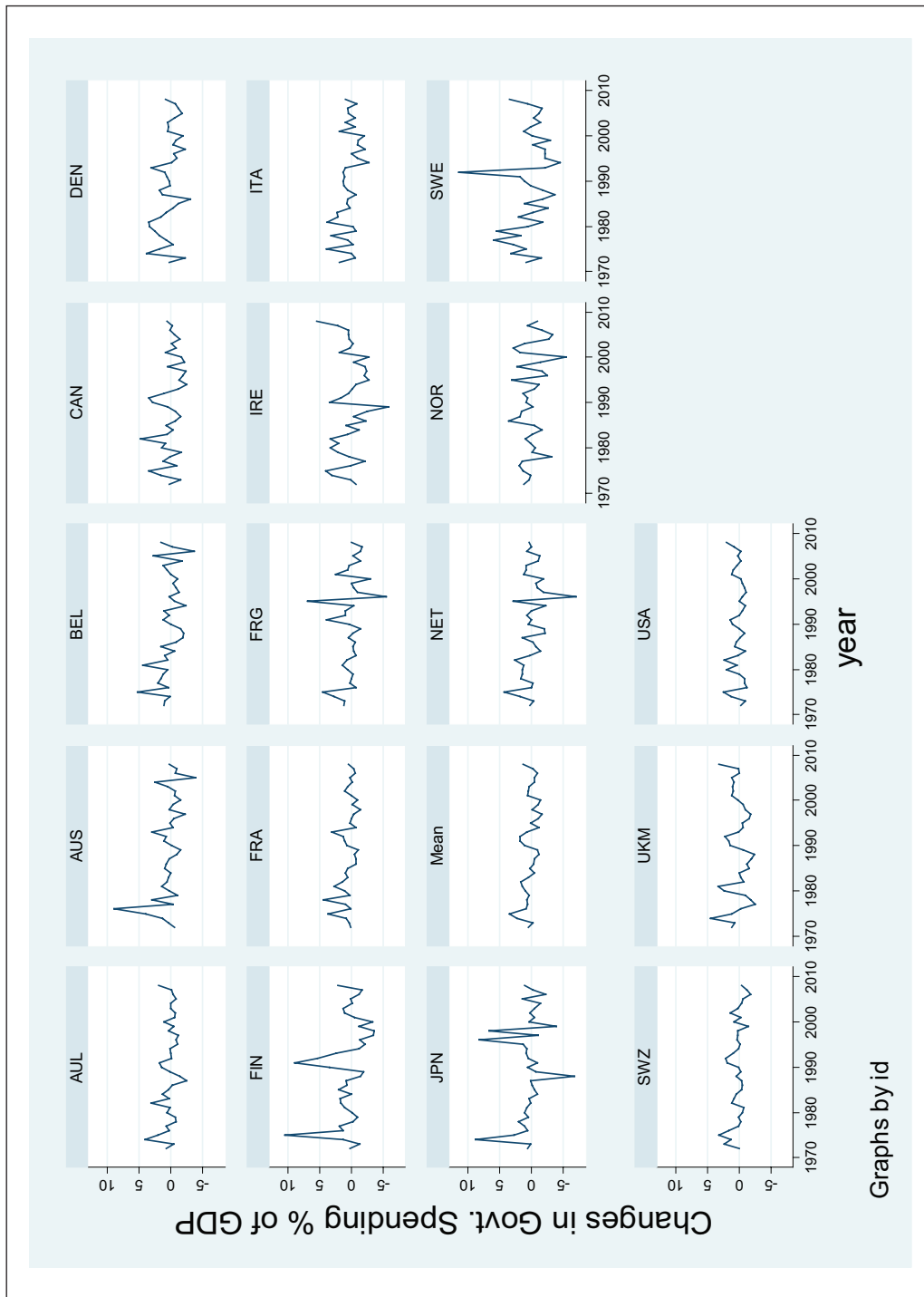
Wagner's law (Castles, 2007a). *Budget deficit* is the difference between government spending and revenue, as a percentage of GDP. This is coded positively for deficits and negatively for surpluses. States often manage revenue shortfalls with deficit spending. This could cause retrenchment as mature welfare states face pressure to balance budgets (Castles, 2007b). Conversely, Roubini and Sachs (1989) find deficits do not affect subsequent spending.

## Results

Figure 2 displays the trends in the first dependent variable: change in government spending as a percentage of GDP. There has been substantial fluctuation in government spending, and all countries experienced expansions and contractions.<sup>9</sup> Table 1 shows that government spending grew by 0.29 percentage of GDP in the mean country-year (the median was 0.15 percent). Only Canada, Sweden and the US reduced government spending in their median year and no country had a mean decline. Further, cuts in government spending occurred in less than 45 percent of country-years and significant cuts occurred in only 31 percent of country-years. On the surface, this suggests government spending has actually grown in affluent democracies.

Yet, 1971–2008 combines periods of expansion and retrenchment. Table 1 shows striking differences when we decompose the sample. In the expansion period, government spending grew in most countries and years. In the mean country-year, government spending grew by more than half a percent with one periodization and more than three-quarters of a percent with the other periodization. Cuts occurred in less than 37 percent of country-years, and significant cuts occurred in less than 25 percent of country-years.

In the retrenchment period, however, the median change with both periodizations was negative. The mean change was negative if the retrenchment period started in 1988 and was essentially zero if the retrenchment period started in 1990. With both periodizations, cuts occurred in the majority of country-years (51.7 and 53.8 percent) and significant cuts occurred in over a third of country-years (36.5 and



**Figure 2.** Changes in government spending as a percentage of GDP in 17 affluent democracies, 1971–2008.

**Table 1.** Descriptive patterns in changes and cuts in government spending by period in 17 affluent democracies.

	Changes in government spending		Cuts in government spending		Significant cuts in government spending	
	Mean	Median	Mean	Median	Mean	Median
<b>Full sample</b>						
1971–2008	0.294	0.150	0.445	0	0.310	0
<b>Expansion period</b>						
1971–1989 <sup>a</sup>	0.587	0.345	0.369	0	0.252	0
1971–1987 <sup>b</sup>	0.786	0.530	0.324	0	0.206	0
<b>Retrenchment period</b>						
1990–2008 <sup>a</sup>	0.016	–0.040	0.517	1	0.365	0
1988–2008 <sup>b</sup>	–0.081	–0.090	0.538	1	0.389	0

<sup>a</sup>Comparing 1990–2008 versus 1971–1989, changes in government spending were significantly less, binary cuts in government spending were significantly greater, and binary significant cuts in government spending were significantly greater ( $p < 0.001$ ).

<sup>b</sup>Comparing 1988–2008 versus 1971–1987, changes in government spending were significantly less, binary cuts in government spending were significantly greater, and binary significant cuts in government spending were significantly greater ( $p < 0.001$ ).

38.9 percent). Indeed, since 1988, every country experienced at least four significant cuts, and four countries experienced significant cuts in a third of years (Canada, Finland, Sweden and the UK). Thus, since 1971, affluent democracies experienced a period of rising and a period of falling government spending.

### *Entire period analyses*

Table 2 displays the models of changes and cuts in government spending in the entire sample, 1971–2008. The first model is the FE model for continuous changes in government spending. The second and third models are FE logistic regression models for binary cuts in government spending and binary significant cuts. For the continuous dependent variable, we report standardized coefficients and t-scores. For the binary dependent variables, we report odds ratios and z-scores. Because cuts equate to negative changes, the signs of effects in model 1 should be reversed in models 2–3.

As will become clear, several independent variables fail to have robust effects across dependent variables and/or periodizations. Therefore, it is essential to consider all three dependent variables and both periodizations and to concentrate on the most robust effects.

In the entire period, no power resources variable is significant for any dependent variable. Only one institutional variable is significant, and it is significant in all models. In the years leading up to adoption of the Euro, changes in government spending declined by 0.4 standard deviations. In addition, in the years leading to the Euro, the odds of cuts and significant cuts increased by factors of 2.9 and 2.7. Two structural pressures are significant in most models. For a standard deviation increase in unemployment, changes declined by 0.32 standard deviations, and the odds of a cut or a significant cut increased by a factor of 1.3. For a standard deviation increase in trade openness, changes declined by 0.33 standard deviations and the odds of a cut increase by a factor of 1.02. Finally, budget deficits are significantly negative for changes in government spending but are not significant for cuts or significant cuts.

Thus, changes and cuts in spending in the entire period were mainly driven by the structural pressures of unemployment and trade openness, and the institution of the adoption of the Euro. In contrast to Wagner's law, GDP PC is never significant.

### *Expansion period analyses*

Table 3 focuses on the expansion period, defined as 1971–1989 or 1971–1987. The results are quite

**Table 2.** Models of changes and cuts in government spending in 17 affluent democracies 1971-2008 (n=629).

	FE-OLS: changes	FE-logit: cuts	FE-logit: significant cuts
	Standardized coefficient (t-score)	Odds ratio (z-score)	Odds ratio (z-score)
Women in parliament	0.070 (0.557)	0.995 (-0.206)	1.012 (0.425)
Unionization	0.169 (0.973)	0.992 (-0.347)	0.987 (-0.551)
Tripartite pact	0.047 (1.162)	0.891 (-0.346)	0.803 (-0.623)
Left cabinet	0.111 (1.402)	0.886 (-1.085)	0.988 (-0.108)
Right cabinet	0.059 (0.769)	0.944 (-0.566)	1.042 (0.387)
Veto points	-0.196 (-0.668)	1.342 (0.866)	1.238 (0.590)
Tax distribution	-0.321 (-1.819)	5.135 (1.926)	3.154 (1.268)
Euro adoption	-0.396* (-2.457)	2.863** (2.641)	2.675** (2.694)
Unemployment	-0.316** (-3.750)	1.288** (3.435)	1.271** (2.999)
>64 population	-0.117 (-1.114)	1.144 (1.292)	1.052 (0.450)
<15 population	-0.200 (-1.568)	1.074 (0.803)	1.064 (0.626)
Deindustrialization	-0.182 (-1.243)	0.993 (-0.124)	0.983 (-0.270)
Net migration	0.023 (0.600)	0.946 (-1.487)	0.953 (-1.169)
Trade openness	-0.333* (-2.521)	1.022* (1.968)	1.013 (1.139)
GDP PC	0.125 (0.962)	0.999 (-0.028)	1.001 (0.262)
Budget deficit	-0.201** (-2.924)	1.072 (1.881)	1.069 (1.689)
R <sup>2</sup> /LL	0.185	-339.158	-309.250

Notes: Constants not shown. All variables are lagged 1 year. Euro adoption is a semi-standardized coefficient. Odds ratios between 0.999 and 1.000 are rounded to 0.999, and odds between 1.000 and 1.001 are rounded to 1.001.

\*p<0.05, \*\*p<0.01.

different from the entire period. In the 1970s and 1980s, the power resources measure of unionization is significant in all six models. For a standard deviation increase in unionization, changes in government spending increase by 1.04–0.87

standard deviations (models 1–2). For a 1 percent increase in unionization, the odds of a cut decline by factors of 1.16–1.17 (models 3–4) and the odds of a significant cut decline by factors of 1.17–1.19 (models 5–6).

**Table 3.** Models of changes and cuts in government spending in 17 affluent democracies in the expansion period.

	FE-OLS: changes		FE-logit: cuts		FE-logit: significant cuts	
	Standardized coefficient (t-score)		Odds ratio (z-score)		Odds ratio (z-score)	
	1971–1989	1971–1987	1971–1989	1971–1987	1971–1989	1971–1987
Women in parliament	0.035 (0.146)	–0.148 (–0.559)	1.060 (0.785)	1.129 (1.381)	1.093 (1.053)	1.238* (2.018)
Unionization	1.044** (3.108)	0.873* (2.230)	0.865** (–2.633)	0.858* (–2.352)	0.857* (–2.521)	0.838* (–2.312)
Tripartite pact	0.093 (1.543)	0.085 (1.276)	0.570 (–1.071)	0.649 (–0.805)	0.100** (–2.583)	0.086* (–2.263)
Left cabinet	–0.043 (–0.313)	–0.074 (–0.479)	1.025 (0.123)	1.171 (0.688)	1.099 (0.447)	1.226 (0.834)
Right cabinet	–0.112 (–0.770)	–0.176 (–1.033)	1.107 (0.490)	1.323 (1.100)	1.038 (0.178)	1.153 (0.543)
Veto points	1.310 (0.637)	1.879 (0.873)	0.000 (–0.015)	0.000 (–0.009)	0.000 (–0.013)	0.000 (–0.012)
Tax distribution	0.118 (0.414)	0.188 (0.593)	1.908 (0.425)	8.560 (1.316)	3.573 (0.756)	11.736 (1.320)
Euro adoption	–	–	–	–	–	–
Unemployment	–0.237 (–1.603)	–0.174 (–1.103)	1.301* (2.202)	1.281 (1.828)	1.274 (1.927)	1.279 (1.620)
>64 population	–0.873** (–2.747)	–0.681 (–1.824)	2.044 (1.894)	3.379* (2.563)	1.775 (1.443)	2.473 (1.725)
<15 population	–0.406 (–1.537)	–0.077 (–0.272)	1.656* (2.277)	1.408 (1.421)	1.293 (1.146)	1.021 (0.084)
Deindustrialization	–0.369* (–2.240)	–0.306 (–1.796)	1.092 (1.411)	1.068 (0.862)	1.061 (0.815)	1.032 (0.339)
Net migration	0.015 (0.228)	–0.003 (–0.041)	0.867* (–1.969)	0.866 (–1.900)	0.961 (–0.608)	0.968 (–0.497)
Trade openness	–0.713* (–2.069)	–0.285 (–0.673)	1.083 (1.507)	1.081 (1.237)	1.048 (0.863)	1.010 (0.153)
GDP PC	0.422 (1.637)	0.808** (2.742)	0.999 (–0.254)	0.999* (–2.030)	0.999 (–0.734)	0.999* (–2.302)
Budget deficit	–0.180 (–1.615)	–0.400** (–3.024)	1.004 (0.070)	1.032 (0.436)	0.995 (–0.082)	1.044 (0.535)
R <sup>2</sup> /LL	0.234	0.203	–136.629	–112.719	–115.768	–89.896
N	306	272	306	272	306	272

Notes: Constants not shown. All variables are lagged 1 year. Odds ratios between 0.999 and 1.000 are rounded to 0.999, and odds between 1.000 and 1.001 are rounded to 1.001.

\* $p < 0.05$ , \*\* $p < 0.01$ .

Because the Euro adoption occurred later, this variable is omitted. The two other institutional variables are insignificant in all models.

All six of the structural pressures variables are occasionally significant across Table 3. However, all fail to have robust effects. Only the over 64-year-old



population is significant in even two models. Because these effects are so sensitive to the measurement of the dependent variable and/or the periodization, it is difficult to conclude that structural pressures were essential for changes and cuts in government spending in the period of expansion.

Unlike the entire period in Table 2, GDP PC is significant in three models. However, it is only significant if the period is defined as 1971–1987. Apparently, Wagner's law only holds through 1987. Finally, budget deficits are significant in one model.

In sum, in the expansion period, the power resource of unionization was most salient. The institutional variables are insignificant. Several structural pressures are significant in one or two models, but these effects are not robust. Finally, government spending grew with a rising GDP PC if this period is defined as ending in 1987.

### *Retrenchment period analyses*

Table 4 examines the retrenchment period, defined as 1990–2008 or 1988–2008. Table 4 reveals several differences with the entire sample and the expansion period. Like the entire sample, none of the power resources variables is significant.

Among the institutional variables, the key finding is that the Euro adoption is significant in all six models. In the years leading to the adoption of the Euro, changes in government spending declined by 0.64–0.48 standard deviations, the odds of cuts increased by factors of 6.0–3.3, and the odds of significant cuts increased by factors of 7.6–3.0. In addition, the tax distribution has a significant effect with both periodizations for changes in government spending. However, it does not affect either measure of cuts in government spending. Thus, it appears that the tax distribution constrains the growth of government spending, but does not induce cuts in government spending. Finally, the number of veto points is significant in one model.

Three structural pressures have fairly robust effects. Unemployment significantly reduced changes in government spending (beta of  $\sim 0.4$ ) and significantly increased the odds of cuts (factor changes of 1.4–1.3). In addition, unemployment increased the odds of significant cuts in the

1988–2008 period and was nearly significant for the 1990–2008 period. The under 15-year-old population reduced changes in government spending (betas 0.5–0.6) and increased the odds of significant cuts (factor changes of 2.6–1.8), but did not affect the odds of cuts. Trade openness significantly reduced changes in government spending (betas of 0.77–0.72), significantly increased significant cuts in the 1990–2008 period (factor change of 1.05), and was near significant in three other models.

Finally, budget deficits are significant in four models but GDP PC is never significant. Unlike the entire period and the expansion period, budget deficits became consequential in the period of retrenchment. Along with budget deficits, changes and cuts were shaped by the adoption of the Euro and a set of structural pressures in the later period of retrenchment.

## **Discussion**

Through analyses of 17 affluent democracies from 1971 to 2008, we examine multiple explanations of changes and cuts in government spending as a percentage of GDP. We uniquely cover through 2008, include multiple measures of changes and cuts, decompose by periods of expansion and retrenchment, and utilize multiple periodizations. We find that since the late 1980s, government spending declined in the typical country-year. Cuts in government spending occurred in more than half of country-years and significant, more strictly defined, cuts occurred in more than a third of country-years.

In the entire sample 1971–2008 (Table 2), changes and cuts in government spending were mainly associated with the institution of the adoption of the Euro, and the structural pressures of unemployment and trade openness. The results for the Euro are consistent with the expectation in the institutions literature that international institutions have diffused neoliberal policies (Chwieroth, 2009; Polillo and Guillén, 2005). The results for structural pressures are consistent with the expectation that structural pressures undermine spending, but are inconsistent

**Table 4.** Models of changes and cuts in government spending in 17 affluent democracies in the retrenchment period.

	FE-OLS: changes		FE-logit: cuts		FE-logit: significant cuts	
	Standardized coefficient (t-score)		Odds ratio (z-score)		Odds ratio (z-score)	
	1990–2008	1988–2008	1990–2008	1988–2008	1990–2008	1988–2008
Women in parliament	0.129 (0.620)	0.265 (1.272)	0.985 (−0.347)	0.967 (−0.812)	0.986 (−0.312)	0.962 (−0.941)
Unionization	−0.062 (−0.096)	0.527 (0.937)	1.002 (0.024)	0.971 (−0.499)	0.841 (−1.767)	0.907 (−1.505)
Tripartite pact	−0.049 (−0.917)	−0.015 (−0.271)	1.642 (0.950)	1.275 (0.502)	2.708 (1.878)	1.790 (1.239)
Left cabinet	0.225 (1.925)	0.166 (1.415)	0.728 (−1.753)	0.794 (−1.411)	0.695 (−1.843)	0.859 (−0.908)
Right cabinet	0.176 (1.741)	0.114 (1.126)	0.805 (−1.462)	0.896 (−0.811)	0.751 (−1.670)	0.945 (−0.401)
Veto points	−0.280 (−0.588)	−0.318 (−0.701)	2.169 (1.121)	1.797 (1.151)	11.285* (2.211)	1.834 (1.073)
Tax distribution	−0.909* (−2.373)	−1.058** (−2.889)	11.394 (1.270)	5.048 (1.020)	8.354 (1.048)	1.441 (0.219)
Euro adoption	−0.639** (−3.831)	−0.480** (−2.768)	6.009** (3.978)	3.336** (2.869)	7.619** (4.318)	2.988** (2.752)
Unemployment	−0.407* (−2.455)	−0.403* (−2.487)	1.412* (2.200)	1.321* (2.269)	1.375 (1.914)	1.344* (2.224)
>64 population	−0.255 (−1.362)	−0.263 (−1.455)	1.262 (0.959)	1.087 (0.427)	1.067 (0.248)	1.051 (0.230)
<15 population	−0.504* (−2.006)	−0.628** (−2.673)	1.557 (1.611)	1.258 (1.041)	2.635** (3.122)	1.823* (2.487)
Deindustrialization	−0.189 (−0.619)	0.049 (0.164)	1.123 (0.712)	1.001 (0.008)	1.232 (1.117)	0.940 (−0.424)
Net migration	−0.032 (−0.575)	0.008 (0.140)	1.005 (0.389)	0.992 (−0.446)	1.011 (0.573)	0.994 (−0.287)
Trade openness	−0.770** (−2.831)	−0.724** (−2.743)	1.041 (1.895)	1.032 (1.726)	1.048* (2.106)	1.035 (1.789)
GDP PC	−0.111 (−0.480)	0.011 (0.048)	1.001 (0.566)	0.999 (−0.130)	0.999 (−0.072)	1.001 (0.375)
Budget deficit	−0.448** (−3.914)	−0.389** (−3.441)	1.236** (2.900)	1.112 (1.772)	1.306** (3.370)	1.124 (1.896)
R <sup>2</sup> /LL	0.277	0.197	−151.549	−187.678	−136.139	−177.671
N	323	357	323	357	323	357

Notes: Constants not shown. All variables are lagged 1 year. Odds ratios between 0.999 and 1.000 are rounded to 0.999, and odds between 1.000 and 1.001 are rounded to 1.001.

\* $p < 0.05$ , \*\* $p < 0.01$ .

with those claiming that structural pressures forced the state to grow. Despite these findings, we demonstrate meaningful differences across periods.

In the expansion period, and consistent with power resources, unionization increased government spending (and reduced cuts). Several structural

pressures were occasionally significant for one of the dependent variables or in one of the periodizations, yet these effects were not robust. Yet, these effects were not robust. The lack of robust negative effects for structural pressures could be attributed to the time period as many claim structural pressures only began to have negative effects later (for example, Lindert, 2004b). However, the lack of robust positive effects is surprising given that many claim structural pressures trigger expansions in the state and welfare programmes. We suspect the lack of positive effects is partly because we concentrate on over-time variation net of unobserved stable characteristics of countries (that is, country fixed effects). By contrast, previous studies often focus on between-country variation. Finally, consistent with Wagner's law, GDP PC had a significant positive effect in the expansion period if it is defined as ending in 1987.

In the retrenchment period, changes and cuts were driven by the adoption of the Euro and a set of structural pressures. A key theme in the literature is that structural pressures lead to a rising need and demand for austerity. Consistent with this expectation, unemployment, the under 15-year-old population, and trade openness were all fairly robustly significant. These results are consistent with accounts that old structural pressures now have negative effects in the era of retrenchment (Korpi, 2003; Lindert, 2004b). The effects of trade openness are also consistent with claims that new structural pressures have emerged as salient more recently (Busemeyer, 2009). Consistent with the institutions literature, the tax distribution appears to constrain the growth of government spending. However, it is not significant for cuts. Power resources became insignificant during the retrenchment period. This is consistent with claims that partisan differences in austerity were not as consequential after welfare states reached maturity, and that class mobilization has become less successful as unionization has declined (Huber and Stephens, 2001; Kwon and Pontusson, 2010). Finally, budget deficits contributed to declines and cuts in the later period.

Thus, the influence of power resources, institutions and structural pressures differed across the periods of expansion and retrenchment. In sum, government expanded mostly as a result of power

resources in the 1970s and 1980s. By contrast, government declined as a result of a key institution and a few structural pressures in the 1990s and 2000s. Thus, our study deepens and extends recent research showing breaks in the effects of power resources and structural pressures (for example, Busemeyer, 2009; Kwon and Pontusson, 2010). By doing so, the present study crystallizes the need for research investigating precisely why there are such sharp breaks in the sources of government spending. In addition, these conclusions should encourage greater caution with universal theories of state size.

Caution with universal theories is best illustrated by the fact that GDP PC does not have a robust positive effect on changes in government spending. Changes and cuts were only associated with GDP PC in the period of expansion and only if that period is defined as ending in 1987. After 1987, government spending in affluent democracies no longer grew with a rising GDP PC. This result contradicts classic literatures (for example, Brennan and Buchanan, 1980) and recent studies (Lindert 2004a,b).<sup>10</sup> Perhaps GDP PC is insignificant because we solely examine affluent democracies, while others often include a broader sample of developing and developed countries (Boix, 2001; Shelton, 2007). Nevertheless, this study reveals the limitations of making universal claims about state size (see also Durevall and Henrekson, 2011). Indeed, we validate studies showing that government spending is failing to keep up with the expanding private sector in affluent democracies (Clayton and Pontusson, 1998). The private sector has tended to be more productive than the public sector in mature affluent democracies, which slowly and mechanically shrinks the public sector relative to the private sector (Lee et al., 2011). Future research should investigate when/if a transition occurs in development such that government spending is no longer associated with GDP PC.

As noted in the introduction and note 1, US government spending as a percentage of GDP peaked in 2008. This resulted from the financial crisis and the significant contraction in the denominator GDP. This raises the question of whether the crisis changed the trends in state size. Because it is not yet possible to extend all variables past 2008, and because post-2008 is arguably a different historical period, we end our

analyses in 2008. Nevertheless, recent OECD data allow us to describe government spending post-2008. Though the US peaked at 38.8 percent of GDP in 2008, it rose substantially to 42.7 percent in 2009. Partly, this was because of the American Recovery and Reinvestment Act and a striking further contraction in the denominator GDP. However, government spending declined modestly in 2010 to 42.5 percent. In the other 16 countries, government spending also rose from 2008 to 2009 – including dramatic increases in Denmark, Finland, Ireland and Norway. However, government spending declined in 14 of the 16 countries with data in 2010. Only Ireland (dramatically) and Switzerland (modestly) increased government spending from 2009 to 2010. Moreover, government spending declined for 10 of the 12 countries with data in 2011 (including a dramatic decline in Ireland). Therefore, the 2008–2009 increase in government spending appears to have been anomalous. Further, for 13 of 17 countries, government spending had previously been higher than it was after the crisis.<sup>11</sup> In turn, we expect government spending will return to the long-term trend of decline once the crisis abates and the underlying GDP expands. Such a trend does not bode well for social policy, especially as budget austerity is likely to be even more of a constraint in the period after the financial crisis.

Beyond debates about welfare states and state size, our study informs the literature on neoliberalism. Scholars of neoliberalism study market-oriented initiatives such as: the deregulation of international finance (Chwieroth, 2009); contractions of welfare programmes (Hicks and Zorn, 2005); the implementation of central bank independence (Polillo and Guillén, 2005); and the privatization of services (Lee and Strang, 2006). Broadly, the literature focuses on specific reforms in welfare programmes or in the governance of markets. By contrast, overall government spending has been relatively neglected in the neoliberalism literature even though declines and cuts in overall spending are consistent with neoliberalism. As the public sector shrinks relative to the private sector, states are making what Hacker (2002) calls ‘subterranean’ reforms. In addition, government spending cuts are consistent with claims of a ‘drift’ towards the privatization of formerly public programmes, and a ‘layering’ of private markets on

top of a diminishing public sector (Hacker, 2004). Thus, despite the contributions of the neoliberalism literature, there should be greater attention to the stagnation of overall government spending.

It is well understood that since the 19th century, the public sector tended to grow with economic development and over time (Lindert, 2004a; Wilensky, 2002). Nevertheless, since the late 1980s, the size of governments of affluent democracies have stagnated relative to the rest of the economy. In turn, we encourage a revision for the political economy of state size and greater caution about bold claims regarding the state’s tendency to grow. The classic imagery of the ever-expanding leviathan does not match empirical reality in the recent history of affluent democracies.

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### Notes

1. The exception is the US, which peaked at 38.8 in 2008. We return to the US and the post-2008 period later, though the US in 2008 was not high compared with other countries and was similar to the US level from the mid-1980s to the mid-1990s. In analyses available upon request, we decomposed overall government spending into social welfare spending and ‘core’ (all other) spending (Castles, 2007a). There is no clear trend in social welfare spending since the 1980s, as it is quite flat in the 1990s and 2000s with only modest decline. Therefore, most of the decline in overall government spending occurs in core spending (Castles, 2007b). As Castles (2007a: 7) remarks, ‘contraction in core spending was the OECD norm’.
2. We set aside Meltzer and Richard’s (1981) well-known theory that governments expand when the median voter’s income is below the mean income, premised on the median voter’s preference for redistribution. We do so

- because (1) the theory has already received enormous attention, (2) most tests in affluent democracies have been critical, and (3) the income data needed to test the theory would require a loss of the vast majority of the sample. Contrary to the theory, since at least the 1980s, the mean income has grown relative to the median in most of these countries and the size of government has not grown (see Figure 1).
3. Much of the literature fails to find large effects of globalization on welfare states (Brady et al., 2005; Castles, 2004). Yet, most studies combine periods of expansion and retrenchment and concentrate on the welfare state rather than state size generally (see also Lindert, 2004b). In a rare exception, Busemeyer (2009) finds that trade openness significantly reduces overall government spending as a percentage of GDP in 21 OECD countries 1980–2004.
  4. One alternative is to identify the end of the expansion period in each country (for example, Hicks and Zorn, 2005). However, and perhaps unlike social welfare spending, country-specific definitions of the transition point in government spending are likely to be quite subjective. Many countries lack a clear transition point (see for example, Norway, the UK and the US in Figure 1) and others appear to have multiple peaks (see for example, Sweden in Figure 1) (Schuknecht and Tanzi, 2005).
  5. Event history models would be an alternative. However, because repeated events of cuts in government spending occur in all countries, we would need event history models for repeated events. Such models assume that the second cuts would be endogenous to the first. This assumption does not seem appropriate as each fiscal year is somewhat independent and government spending can be cut each year regardless of what occurred in the prior year(s).
  6. If we tighten the threshold much further, some countries are defined as having no cuts in government spending (especially when we decompose by period). This problematically drops the country. Therefore, we present this one higher threshold of 0.5 percent of GDP.
  7. We use the operationalization of Brady and colleagues (2005) and Huber and Stephens (2001), who call this measure ‘constitutional structure’.
  8. There is no historical variation in presidential systems in our sample. The only historical variation in proportional representation occurred when Italy moved from a fully- to modified-PR system in the mid-1990s.
  9. Consistent with Jones et al. (2009), changes in government spending follows a power function (also called a Paretian distribution). The variable ranges from  $-7.0$  to  $11.5$ , but 90 percent of cases are between  $-2.3$  and  $3.5$ . The variable has fatter tails than a normal distribution, and is thus leptokurtic ( $kurtosis=8.5$ ).
  10. Shelton (2007) claims that states grew simply because they are older and spend more on social security. However, even if we drop the over 65-year-old population variable from the retrenchment period models, GDP per capita fails to have a significant effect.
  11. This can be demonstrated by identifying the earlier time point when each country had levels of government spending higher than the most recent post-crisis year. For example, Ireland’s 1985 was greater than its 2011. Only France, Japan, the UK and the US were experiencing historic highs in government spending in 2011.

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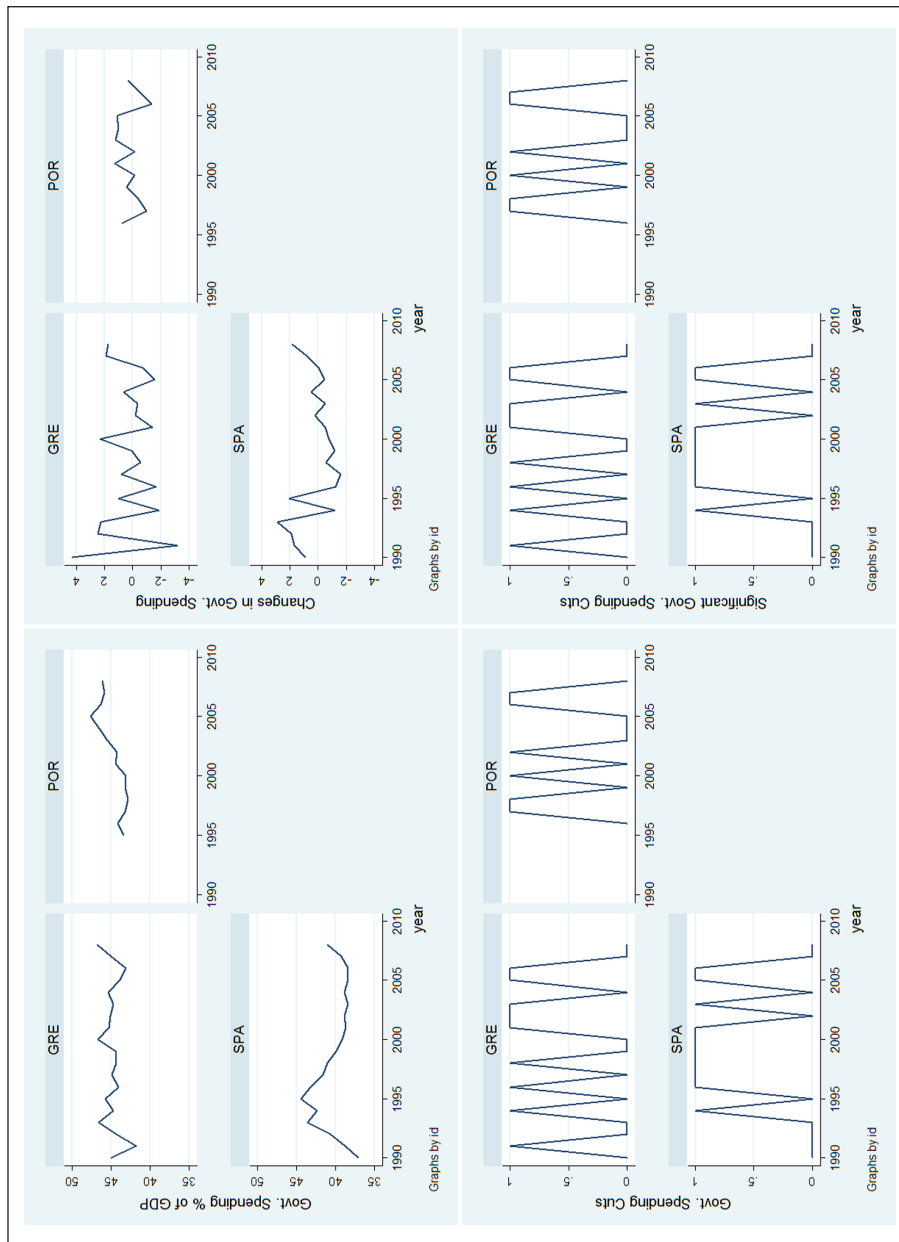
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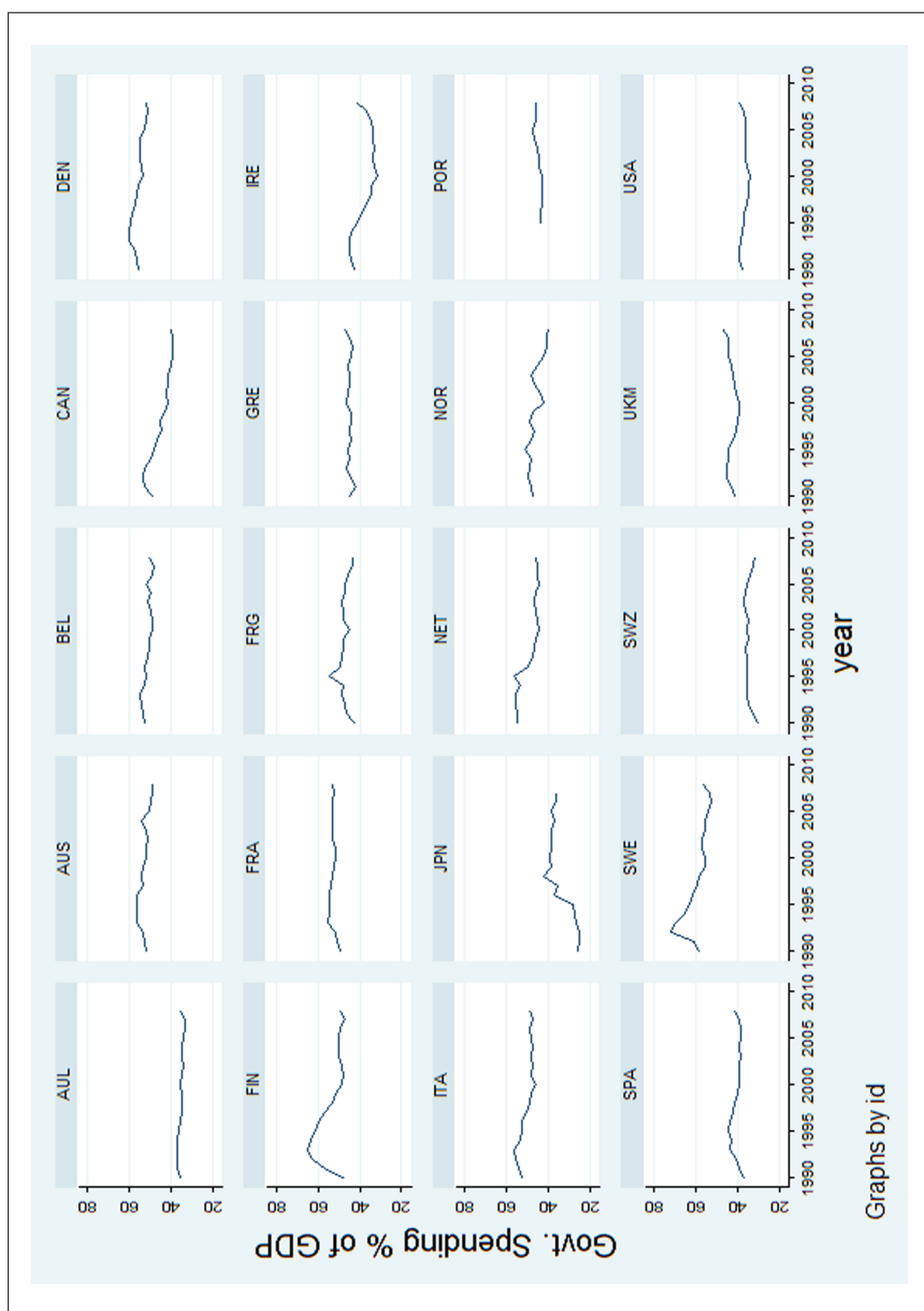


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**Appendix I.** Trends in government spending as percentage of GDP and three dependent variables in three key omitted countries, 1990–2008 (Portugal data is only available since 1995).

For 1990–2008, the means for changes in governmental spending as a percentage of GDP for Greece, Portugal and Spain are 0.32, 0.21 and 0.26. These are only very modest increases in government spending in the typical year, yet these are higher than most other countries (the mean for the 17 sample countries is 0.048). Nevertheless, Japan (0.59) and the UK (0.40) have higher means than these three countries and Finland (0.25), France (0.21) and the US (0.13) have quite comparable means. Spain exhibited a clear decline in government spending since 1995, with some increase at the very end of the period. Greece exhibited fluctuation without a clear trend. Portugal increased from 1995 to 2005, but also declined after 2005. Since 1990/1995, government spending declined in 47.4 percent of Greece's years, 52.6 percent of Spain's years and 46.2 percent of Portugal's years. This is similar to the 17 countries (mean 51.3 percent). Even with significant government spending cuts, Spain (36.8 percent) and Greece (31.6 percent) experienced cuts in a similar number of years. (The mean for the 17 sample countries is 35.5 percent.) On balance, Portugal shows a lower number of significant cuts (15.4 percent).



**Appendix 2.** Trends in government spending as a percentage of GDP in 20 countries, 1990–2008 (Portugal data is only available since 1995).

**Appendix 3.** Comparison and replication of results for retrenchment period with inclusion of Greece, Portugal and Spain.

	FE-OLS: changes Standardized coefficient (t-score)				FE-logit: cuts Odds ratio (z-score)				FE-logit: significant cuts Odds ratio (z-score)			
	17 countries 1991–2008	19 countries 1991–2008	20 countries 1996–2007	17 countries 1991–2008	19 countries 1991–2008	20 countries 1996–2007	17 countries 1991–2008	19 countries 1991–2008	20 countries 1996–2007	17 countries 1991–2008	19 countries 1991–2008	20 countries 1996–2007
Women in parliament	0.060 (0.287)	-0.178 (-0.939)	-0.326 (-1.163)	1.002 (0.034)	1.050 (1.160)	1.163 (1.775)	0.991 (-0.201)	1.016 (0.346)	1.097 (1.157)			
Unionization	0.236 (0.347)	-0.516 (-0.916)	-0.484 (-0.853)	0.953 (-0.560)	1.047 (0.657)	1.322 (1.528)	0.822* (-1.994)	0.893 (-1.427)	0.921 (-0.490)			
Tripartite pact	-0.054 (-0.997)	-0.056 (-1.075)	-0.021 (-0.371)	1.845 (1.093)	1.749 (1.115)	1.114 (0.163)	2.665 (1.809)	2.723* (1.972)	1.192 (0.295)			
Left cabinet	0.175 (1.557)	0.245* (2.143)	0.303* (2.288)	0.734 (-1.695)	0.705* (-2.041)	0.566* (-2.238)	0.782 (-1.305)	0.745 (-1.606)	0.630 (-1.679)			
Right cabinet	0.148 (1.477)	0.153 (1.492)	0.071 (0.544)	0.799 (-1.403)	0.819 (-1.305)	0.834 (-0.739)	0.821 (-1.126)	0.843 (-1.003)	0.846 (-0.597)			
Veto points	-0.207 (-0.437)	-0.037 (-0.080)	-0.621 (-0.599)	5.377 (1.711)	3.200 (1.355)	0.784 (-0.162)	7.368 (1.836)	4.979 (1.602)	1.011 (0.007)			
Tax distribution	-0.972* (-2.519)	-0.923* (-2.449)	-1.005* (-2.106)	17.057 (1.455)	8.483 (1.139)	409.591* (1.981)	7.221 (0.980)	4.597 (0.788)	3.641 (0.494)			
Euro adoption	-0.250** (-4.182)	-0.248** (-4.296)	-0.300** (-3.882)	6.392** (3.995)	4.973** (3.942)	6.329** (3.149)	6.663** (4.054)	6.368** (4.321)	4.994** (2.659)			
Unemployment	-0.580** (-5.146)	-0.479** (-4.321)	-0.286** (-1.959)	1.611** (4.087)	1.397** (3.789)	1.753** (2.994)	1.563** (3.770)	1.476** (4.062)	1.764** (3.496)			
>64 population	-0.370* (-2.256)	-0.378* (-2.354)	-0.855** (-3.541)	1.311 (1.249)	1.314 (1.294)	2.496* (2.075)	1.197 (0.801)	1.258 (1.031)	1.879 (1.564)			
<15 population	-0.782** (-3.084)	-0.604** (-2.715)	-0.297 (-0.736)	1.749 (1.924)	1.311 (1.109)	0.777 (-0.338)	2.822** (3.357)	2.357** (3.201)	2.523 (1.545)			
Net migration	-0.052 (-0.938)	-0.025 (-0.473)	-0.027 (-0.320)	1.005 (0.362)	1.001 (0.022)	1.013 (0.164)	1.008 (0.440)	1.003 (0.102)	1.032 (0.389)			
Trade openness	-0.822** (-3.090)	-0.788** (-3.077)	0.007 (0.018)	1.045* (2.144)	1.038 (1.917)	1.035 (0.863)	1.050* (2.276)	1.046* (2.186)	1.046 (1.288)			
GDP PC	-0.339 (-1.864)	-0.303 (-1.559)	-0.187 (-0.534)	1.001 (1.130)	1.001 (0.943)	0.999 (-0.016)	1.001 (0.865)	1.001 (1.263)	1.001 (0.016)			
Budget deficit	-0.547** (-4.913)	-0.590** (-5.438)	-1.063** (-7.753)	1.259** (3.093)	0.927** (3.239)	1.651** (3.746)	1.302** (3.406)	1.331** (3.808)	1.546** (3.442)			
R <sup>2</sup> /LL	0.305	0.276	0.406	-141.577	-162.311	-89.272	-134.119	-148.116	-92.963			
N	306	342	240	306	342	240	306	342	240			

Notes: Constants not shown. All variables are lagged 1 year. Odds ratios between 0.999 and 1.000 are rounded to 0.999, and odds between 1.000 and 1.001 are rounded to 1.001. The analyses with 19 countries omit Portugal. Deindustrialization is omitted from all models because of missing data.

\* $p < 0.05$ , \*\* $p < 0.01$ .

**Appendix 4.** Descriptive statistics (N=629).

	Mean	Standard deviation	Source(s)
Change in government spending	0.294	1.943	OECD <i>National Accounts</i>
Cut in government spending	0.445	0.497	Same as above
Significant cut in government spending	0.310	0.463	Same as above
Women in parliament	16.072	11.870	Huber et al. (2004)
Unionization	42.770	19.925	Visser (2011)
Tripartite pact	0.116	0.304	Visser (2011)
Left cabinet	1.725	1.671	Huber et al. (2004)
Right cabinet	1.910	1.730	Same as above
Veto points	2.897	2.103	Same as above
Tax distribution	0.965	0.500	OECD <i>Revenue Statistics</i>
Average regime change	0.287	1.351	OECD <i>National Accounts</i>
Euro adoption	0.076	0.266	
Unemployment	6.146	3.411	OECD <i>Main Economic Indicators</i>
>65 population	13.836	2.472	OECD <i>Eco-Sante Health Database</i>
<15 population	20.188	3.461	OECD <i>Eco-Sante Health Database</i>
Deindustrialization	65.957	8.446	Same as above
Net migration	2.693	10.987	Same as above
Trade openness	54.621	30.272	Penn World Tables
GDP PC	26317.420	6844.340	Same as above
Budget deficit	1.174	4.643	OECD <i>National Accounts</i>

Note: Descriptive statistics for sub-samples are available upon request.