

**A STRUCTURAL PERSPECTIVE ON  
VOTER-PARTY LINKAGES**

**The Political Implications of Housing and the  
Economy**

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## INTRODUCTION

How voters and parties are linked and interact is one of the fundamental questions of democracy. After all, voters delegate power to political actors who take decisions on their behalf. At the core of a functioning relationship of representation, therefore, is some congruence in preferences between voters and parties. Many factors affect this relationship, ranging e.g. from electoral institutions to organisational structures. An influence that is frequently discussed is the economy in general. It affects voters as it does affect political parties. Changes in the economy affect citizens' economic prospects, standard of living, willingness to contribute to public goods and many more aspects. Parties are affected in their access to resources, discretion for policy-making when in government and, of course, on a policy level where voters expect parties to present policies to promote their and others' well-being. It follows that the economy has very strong implications for political processes of representation and preference aggregation.

In this dissertation, I study to what extent structural characteristics on the individual level affect political behaviour and how these characteristics, on the aggregate level, create incentives for political parties in their programmatic positioning. A common theme throughout this work is an interest in the political implications of economic processes. More precisely, I am mostly interested in the role of homeownership and variation in house prices on political processes on the individual and the party level. As such, the structure of this thesis follows a stylised political process where structural factors affect political behaviour on the micro level which then, on the aggregate, has implications for political parties. Put differently, the chapters of this dissertation are bound together by a politico-economic model that emphasises the relevance of the economy, and of housing and volatile housing markets in particular, on vote choice and party competition. At the respective levels of analysis, I combine this more structural perspective on housing as an individual trait with political repercussions with well-known approaches on political behaviour, party competition and political representation to derive expectations. In combination, this dissertation focuses on voter-party linkages and how these are affected by economic processes more generally.

At the heart of this dissertation is the insight that economic processes have costs and benefits which are unequally distributed across the electorate. The fact that some individuals are affected while others are not, forms a basic precondition for the political relevance of these processes. The ensuing idea is rather simple and not entirely new: On the individual level, an economic process has different implications for political preferences and political behaviour of exposed individuals. Given these differences, political parties have incentives to respond to these developments if core voter groups are affected.

One very interesting economic phenomenon of this kind that has received little attention so far in comparative politics is housing. The most relevant difference on the micro level is whether individuals rent or own the home they live in. Homeowners and tenants differ on a variety of characteristics such as age, education or income. Therefore, ownership status is linked to other criteria that are known to affect political behaviour and thus, as an individual characteristic, should have indirect effects. However, thinking in more detail about the implications of homeownership, there are several additional channels through which it can take effects on politics. Most importantly, changes in house prices strongly affect the economic and financial well-being of homeowners. While they benefit disproportionately from house price inflation, housing market corrections with decreasing prices have far-reaching negative consequences on household portfolios. Overall, homeownership as a trait of character and house price developments should have effects on individuals which drive political processes on the individual and the party level.

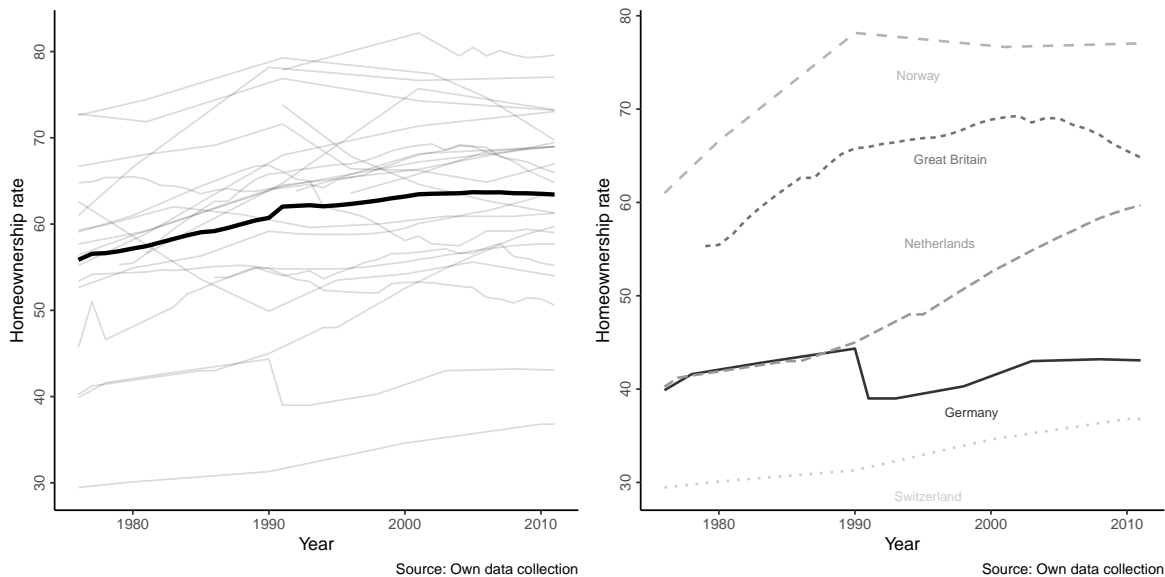
The papers that constitute this dissertation follow the idea of a micro-founded theory of individual and party behaviour. As stated before, the characteristic I am mostly looking at is asset ownership and the development of asset prices, in particular of housing assets, and how they affect political behaviour. Therefore, the dissertation and my findings have implications for broader debates about the political consequences of homeownership and housing markets which have attracted growing scholarly attention in recent years. On the party level, I am then mostly interested to what extent the political implications of housing affect political parties. To do so, I develop a theoretical argument about party responsiveness to core voter groups. In the third paper, I further develop this argument and generalise it beyond housing markets to other economic processes. The latter two papers, therefore, speak to debates about party competition, partisanship theory as well as political representation and political economy in a broader sense. This introductory chapter has five purposes. Firstly, as all papers, to some extent, refer to homeownership and housing as a so far understudied economic phenomenon in political science, the next section will review the existing literature on the political economy of housing. Subsequently, I move to the literature on party competition and partisan theory and review the most relevant literature. Thirdly, I discuss the theoretical contributions of this dissertation in more detail and clarify the implications of the work. Fourthly, I summarise the articles which constitute this doctoral thesis before I ultimately discuss the implications of the dissertation's results.

## 1.1 The politics of housing and homeownership

Housing has become a salient issue over the past decade. Much attention has been given to housing finance and its role during the global financial crisis. Besides, housing-related problems remain major issues in many countries. In most places, affordable housing becomes increasingly scarce calling for action from policymakers. Given the specificity of the domestic housing system, the major issue concerns e.g. either high rental costs (e.g. in Germany) or high purchasing costs (e.g. in the UK) which limits access to homeownership with far-reaching consequences for individuals' financial planning over the long run. From these debates, it is apparent that housing remains an important and heavily discussed issue across the globe. In this dissertation, I focus particularly on the ownership dimension of housing and how homeownership affects politics on the micro level.

To start off the discussion about the political implications of housing, it is worthwhile to give an initial overview of the two main indicators of interest, homeownership rates and house prices fluctuations. Figure 1.1 shows the evolution of homeownership rates across OECD countries for the period from 1975 to 2010. The thick line on the left-hand side represents the per-year-average across countries. Several things are worth discussing on this graph. It is easy to see that homeownership levels vary quite largely between countries. Some countries remain below 50 per cent of homeowners throughout the entire period (Germany and Switzerland, see right panel) while others (e.g. Great Britain) are substantively higher at values of up to 80 per cent (Norway). This points to different systems of housing provision across countries (Barlow and Duncan, 1994; Hoekstra, 2005). Looking at the evolution of homeownership, there is a positive trend across countries implying that homeownership has grown, sometimes quite dramatically. In countries such as the Netherlands, typically characterised through a large public housing stock until the 1990s, homeownership massively expanded after the 1990s. In Norway, homeownership grew by 20 percentage points between 1975 and 1990. The average evolution shows a positive trend which washes out around the early 2000s and then remains at an average value of roughly 60 per cent homeowners. There is substantial cross-country and over-time variation in homeownership which highlight at interesting dynamics on housing markets.

Moving to the dynamics of house prices, Figure 1.2 plots house price indexes for a sample of about 20 OECD countries. The left-hand side displays level values while the right-hand side shows annual differences. Starting with the levels, there is substantial variation across countries and over time in house price developments. Across countries, house prices on average grew steadily over the past 40 years. Only during the global financial crisis of 2007/2008, housing markets collapsed across sufficiently many countries to push down the overall average, as well. It is also evident that house prices grew to a varying extent across countries. In some countries, the index rose to more than four times the level of 1995 (e.g. Ireland or Norway) while in others they never surpassed twice the 1995-level. The panel on the right-hand side is equally interesting. Two things stand out from the visualisation. Firstly, there are a substantial number of cases where house prices decreased to the level of the previous year. Although more variation is located above the zero intercept as the average line shows, there is a non-



**Figure 1.1:** Evolution of homeownership in OECD countries.

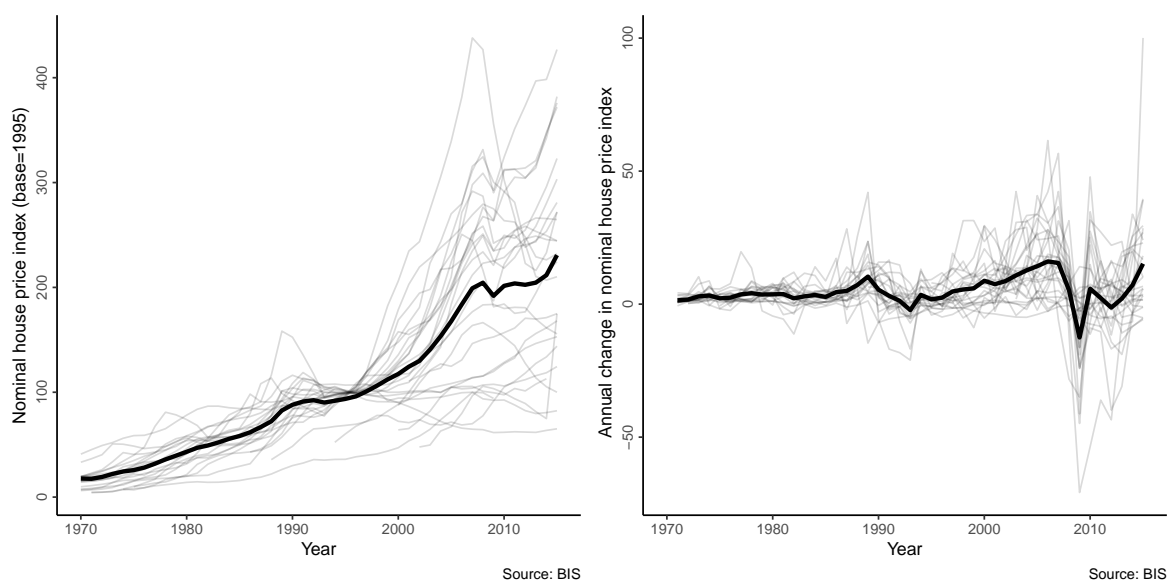
Left panel shows all countries with overall mean per year shown as thick line. Right panel shows evolution of homeownership rates in selected countries for illustration.

negligible number of instances where house prices dropped. Secondly, housing markets have become more volatile over time. Throughout the 1970s and 1980s, price changes were relatively modest. Looking at the period after the 1990s, however, we see that fluctuations on housing markets started to grow massively, pointing to an evolution of relatively stable asset markets into more volatile processes with profound effects for financial stability, but also household wealth (Ansell, 2014).

It has become clear that there is interesting variation in homeownership and housing markets over time and across countries. What are the political consequences of these developments? To answer this question, I move on to discuss to what extent housing on the micro level is linked to politics. As a starting point, it stands out that individuals who select into homeownership differ in several characteristics from tenants. For instance, homeowners are typically older, more likely to be married, better educated, members of ethnic majorities and also recipients of higher incomes (Barton, 2017; Garriga et al., 2006; Segal and Sullivan, 1998). In addition, homeowners are on average wealthier (Di, Belsky and Liu, 2007; Turner and Luea, 2009; Wind and Dewilde, 2017). Homeownership rates also vary largely by region with fewer owners in urban areas (Andrews and Sánchez, 2011*b*; Barton, 2017). As such, homeownership appears to be an umbrella characteristic that represents social class which is typically linked to more right-wing political beliefs and preferences (Lewis-Beck and Stegmaier, 2009; Manza, Hout and Brooks, 1995). So, if we study whether homeowners behave differently than tenants, this might first of all be the result of a selection into homeownership.

Beyond these selection effects, the literature has identified several channels through which homeownership affects politics. Broadly speaking, there are three different arguments. The first argument focuses on the interaction of the insurance function of homeownership with welfare provision by the state. The second argument is related to





**Figure 1.2:** Evolution of house prices in OECD countries.

Left panel shows nominal house prices with overall mean per year shown as thick line. Right panel shows annual differences in house price indexes.

Note: Some time series on house prices were added manually with different base level values. This applies to the curves which do not intersect the value of 100 in the year 1995. For these, only a comparison over time within the country is valid.

the vested interests that owners are considered to have in their homes' values and thus evaluates an economic mechanism. Thirdly, homeownership has a strong ideological connotation which affects political beliefs.

Moving to the first argument, homeownership is often considered as an integral part of an individual's welfare provisions. It closely interacts with social security systems which often actively promote homeownership via tax incentives and other policies (Andrews and Sánchez, 2011*a*). Homeownership usually represents the largest investment that individuals carry out over their life-cycle (Ronald, 2008). It is a long-term financial commitment which is mostly financed by going into debt as households take up a mortgage (Mau, 2015). Financing a house with a mortgage over a long period shifts housing costs from old to young age which has important effects on economic security after individuals have retired (Kemeny, 1981; Mau, 2015; Turner and Yang, 2006). Many studies argue that homeownership acts as a savings vehicle that incentivises the creation of equity and thus serves as a buffer stock against future economic shocks (Carroll and Samwick, 1997; Conley and Gifford, 2006). The decision to build up housing wealth as a self-insurance instrument against old-age poverty and deprivation risk is closely connected to general ideas about the welfare state and social security provision (Conley and Gifford, 2006; Kemeny, 1981). A straightforward conclusion from these aspects of homeownership is that it should affect individual preferences on redistribution and welfare provision by the state. Indeed, empirical research has shown that on average, homeowners prefer lower degrees of redistribution (André and Dewilde, 2014; Saunders, 1990). More recently, Ansell (2014) studies the connection between redistribution preferences and house price changes. He argues that housing wealth which

increases in value has an improved insurance function and therefore lowers the demand for social insurance provision by the state. His findings support this argument that particularly right-wing voters decrease their preferences for redistribution under house price booms. On the aggregate level, there is a vast body of research that explores the role of housing within the welfare state (Esping-Andersen, 1990; Hoekstra, 2003; Torgersen, 1987) and the negative correlation between homeownership rates and the size of the welfare state (Castles, 2005, 1998; Kemeny, 1981). Although causality in this relationship is still unclear, the general view is that there are important interactions between the promotion of homeownership by governments and the simultaneous privatisation of welfare provision through some forms of asset-based welfare (Delfani, De Deken and Dewilde, 2014; Doling and Horsewood, 2011; Malpass, 2008). When house prices increase, Ansell (2014) argues and shows that right-wing governments decrease social spending under house price booms. In conclusion, there is ample evidence which demonstrates that housing as a pillar of welfare provision has far-reaching implications on politics on the individual as well as the aggregate level.

The second argument relates to homeowners' vested interests in their property's value. In this argumentation, the political relevance of property values follows a pocketbook logic in the sense that owners have a stake in the stability or appreciation of their property value and accordingly prefer policies or vote for parties that promote these interests. This is strongly related to housing being a good with a dual nature. On the one hand, homeownership represents a basic necessity as a shelter and a home to live in. On the other hand, it also represents an investment good which is critically linked to the development of its value.

How do these vested interests of homeownership affect political preferences? To answer this question, it is important to take a closer look at the implications of an investment into housing as this comes with several risks. A home is a non-diversifiable, immobile investment that involves high transaction costs (Dietz and Haurin, 2003). House values, however, can be affected by a variety of reasons, some more local such as e.g. the influx of new social groups into a neighbourhood or infrastructure projects, some more national or even global such as a bursting housing bubble or worsening finance conditions on global markets (Mau, 2015). For aspects of both scenarios, there is a rationale that links the protection of house values to political behaviour. In his "homevoter hypothesis", Fischel (2004) discusses how homeowners attempt to conserve their neighbourhood by opposing specific projects on the local level as well as an increased political participation in general (Dietz and Haurin, 2003; DiPasquale and Glaeser, 1999; McCabe, 2013). As property values are sensitive to these consequences of government activity, voting for parties that promote stable property values acts a sort of insurance against property loss. A similar argument applies to government decisions taken on the national level. Mortgage-holding homeowners should prefer low interest rates that minimise their refinancing costs as well as liquid housing markets which guarantee rising prices (Schwartz and Seabrooke, 2008). Homeowners are exposed to additional forms of taxation such as land transfer or property tax but also disproportionately benefit from tax incentives and tax breaks (Schwartz and Seabrooke, 2008). Overall, support for parties which promote a smaller government, lower taxes, less redistribution but also stable housing markets and lower refinancing costs through

deregulated housing finance represents a viable strategy for homeowners who want to protect their investment. A more recent strand in the economic voting literature called patrimonial economic voting provides empirical support for the relationship between, among other asset types, homeownership and right-wing vote choice (Foucault, Nadeau and Lewis-Beck, 2013; Lewis-Beck and Nadeau, 2011; Nadeau, Foucault and Lewis-Beck, 2010).

The third argument discussed above is less tangible in the sense that homeownership has an ideological dimension which is linked to support for conservatism. This argument has its historical roots in Marx' and Engels' work who have argued that workers who acquire property develop ties with the capitalist system and become small capitalists themselves (Engels, 1872). Others have argued similarly that homeownership gives individuals a stake in the capitalist system and thus fundamentally alters political beliefs (Castells, 1977). The most visible example of this strong ideological dimension of homeownership is that it was at the heart of calls for a property-owning democracy in the UK in the early 1980s. The Conservative party advanced an agenda of privatisation of state assets in any form, from state enterprises to public housing, which expanded homeownership massively. Behind this ideology was the very idea that ownership gives individuals a stake in society which renders them, over time, more conservative because individuals have something to lose and indeed, something to conserve (Jones and Murie, 2006). Homeownership within this agenda was elevated to be a value as such. It has often been argued that this ideological connection of homeownership with the Conservative party, of course together with wealth transfer from public to private, has created long-lasting support for the Tories in the UK (see chapter 2 for a more detailed discussion of this case).

Overall, it becomes clear that there are on the one hand demographic as well as more structural and ideological reasons that link homeownership to politics. The combination of economic incentives, insurance considerations and ideological connotations have effects on individual political preferences, policy demand as well as political behaviour.

In this dissertation, I contribute to this literature in two ways. Firstly, in the second chapter, I discuss and empirically assess how far homeownership and house price changes affect vote choice on the individual level. Secondly, I build on these findings and develop a theory of how parties should respond to house price fluctuations as an increasingly volatile economic process. By doing so, I link the literature on the political economy of homeownership with a research field where housing has so far been neglected, party politics and political representation, and discuss and test for possible interactions. To better illustrate this connection, the next section reviews the literature on party competition and party politics.

## **1.2 Theories of party competition and party politics**

The main focus of this dissertation is the link between voters and parties and how it is driven by structural factors such as the economy. The previous chapter has intro-

duced in how far economic processes, in this case homeownership and housing market fluctuations, affect or describe voters' policy demand and thus connect them to parties with specific policy offers. In this section, I want to turn the perspective away from voters and move to the party level. Here, the question of main interest is an issue of political representation. If voters are affected by the economy, what does that imply for political parties and how should we expect them to respond to the preferences of the electorate?

Parties take up a crucial intermediate role in the link between voters and policy output (Dalton, Farrell and McAllister, 2011). Although they are active in various arenas as they e.g. create policy output when in government or engage in legislative debates, I focus on the positions that parties communicate during electoral campaigns. Party positions represent the first stage of how voters' preferences are taken up by political actors. Parties compete in elections with programmatic proposals which are, as I argue, less affected by institutional constraints in comparison to e.g. government policy output. As a result, pre-electoral statements represent a relatively "raw" measure of parties' policy preferences and therefore a more direct connection to voters' positions. Empirically, party positions are fairly well measurable and comparable across countries and over time as most parties, in some form or another, decide on their positions before an election and write down and communicate their choices to the electorate (Budge et al., 2001).

How parties take which positions during electoral campaigns is essentially a question of political representation. Representation has many dimensions (Pitkin, 1967), yet the most relevant one in this context is substantive representation (Miller and Stokes, 1963). After all, congruence between voters' and policy-makers' ideological preferences is an integral part of democratic representation and described as "major claim and goal of liberal democracy" (Huber and Powell, 1994, p.292). This is not only a claim which has to hold in a static perspective. From a normative point of view, congruence also has a dynamic dimension in the sense that parties should be responsive to changes in e.g. voters' preferences. This relatively straightforward idea of dynamic representation (Stimson et al., 1995), therefore, serves as a starting point for reviewing the literature on party positions and party competition.

Before moving to the literature, it is important to qualify that the perspective on voter-party linkages applied throughout this dissertation is obviously incomplete from a causal perspective. Focusing on the link from voters to parties, in this sequence, does not imply that causality only runs one way. There is ample research that shows that not only parties respond to voters but also the other way around (Zaller, 1992). For instance, elites shape discourse and structure policy solutions which also affect voter preferences. Zooming into one direction of the causal connection between voters and parties therefore mainly serves the purpose of simplifying a very complex relationship.

It has become clear that I am mostly interested in the dynamic connection between voters' preferences and party positions. How can we theoretically grasp these links? I identify two main models of representation from the literature that produce different expectations on party responsiveness to voter preferences. Essentially, both models boil down to the question of who parties are mainly representing, the general electorate

or core voter groups. In combination with how economic processes affect the electorate, understanding the dynamics behind representing either group is a cornerstone of the theoretical perspective in this work.

Let us start with the general electorate model which follows the well-known spatial approach as pioneered by Downs (1957). In this model, parties are seen as purely vote-seeking (Strom, 1990). Party competition occurs between two parties in a uni-dimensional policy space along which voters' ideal points are distributed. This framework produces the well-known median voter result which holds that parties maximise their vote share by taking up the policy preference of the median voter. In a dynamic setting, when preferences of the electorate shift parties should follow in the same direction of these shifts until they, again, hold positions which are close to or at the peak of the distribution. Empirical research has evaluated this model with respect to party positions. Adams et al. (2004) investigate how parties shift their positions in response to changes in public opinion. They find that parties indeed follow public opinion, but only if it moves further away from their position. Put differently, parties try to close the gap that emerges from a change in public opinion. Ezrow et al. (2010) confirm this finding and qualify that it only applies to mainstream parties, that is Social Democratic, Conservative, Christian Democratic and Liberal parties.

An important omission in this model is that parties do not carry any policy preferences. Another model of representation builds on the observation that parties have core voter groups to which they are closely connected (Dalton, 1985; Pontusson and Rueda, 2010). Parties in this model are not pure vote maximizers and focus on the median voter but represent the preferences of the mean party supporter. This model is inspired by classical partisanship theory (Hibbs, 1977) which predicts that parties pursue policies that benefit their core constituencies. A focus on core voters has implications for responsiveness. Parties should only be responsive to preference changes of their core voters instead of the overall electorate. Reasons for this responsiveness by political parties emphasise the relevance of core voter mobilisation for their electoral success (Pontusson and Rueda, 2010) or access to resources from voter groups biased towards the party (Miller and Schofield, 2003). Empirically, there is support for responsiveness to core voters for niche parties such as Communists, Nationalist or Green parties (Ezrow et al., 2010). Similarly, other studies have emphasised the importance of party activists for parties' positions (Schumacher, De Vries and Vis, 2013).

As mentioned before, both models of representation differ mostly in an assumption about the most important motivation for parties, that is whether they attempt to appeal to the general electorate or to their core constituencies. The predictions of both models, either a pure focus on the median or on the core voter, are fairly extreme and empirically implausible. Therefore, I follow advances in the literature that acknowledge that both of these models describe important underlying motivations for political parties (Strom, 1990). Parties are vote- and policy-seeking, both at the same time. As Pontusson and Rueda (2010) note, pure policy-seeking parties which never win elections have little value for their core voters while a pure vote-seeking strategy might demobilise core voters. Integrating both models means that as both motives push parties into different directions, they are under constant pressure to find strategies that reconcile core and median voter interests (Aldrich, 1995).

So far, I have only discussed models that theorise about how parties are linked to voters and how different underlying models of representation produce different expectations of party behaviour. There are, however, additional factors that influence to what extent parties change their positions. Such factors include e.g. party organisation (Schumacher, De Vries and Vis, 2013), the behaviour of rival parties (Adams and Somer-Topcu, 2009), party type (Adams et al., 2006; Ezrow et al., 2010) and economic conditions (Adams, Haupt and Stoll, 2008; Ezrow and Hellwig, 2014; Pontusson and Rueda, 2010). These contributions all showcase the value of spatial theory to understand party competition under the consideration of other contextual factors (Ezrow et al., 2010). Given these theoretical perspectives, what does that imply for the main question of interest in this dissertation, that is to what extent economic processes have an effect on voter-party links? The following section summarises the overarching theoretical argument of this dissertation.

### 1.3 Theoretical framework

As stated throughout this introductory chapter, I am mostly interested in voter-party linkages and how these are affected by economic processes. The most important economic dynamic I investigate is, in how far homeownership and house prices affect these links. However, the theoretical underpinning of the chapters in this dissertation also applies to economic dynamics in a broader sense. In this section, I want to briefly highlight these contributions of this dissertation.

The theoretical perspective of this dissertation can be summarised as a micro-founded model of party behaviour. Building on a description of how the economy affects voters to different extents, I theorise how this creates differential incentives for political parties to respond. To do so, I integrate different theoretical approaches from political representation, party competition and partisanship theory into a strategic model of party behaviour.

Starting on the individual level, the main argument is that voters' political preferences and behaviour are affected by economic processes. This idea is not novel as such as there is a large body of research looking at how the economy affects voters. For instance, classical studies of economic voting focused on the role of the economy on voters' support for incumbent governments (Duch and Stevenson, 2008; Lewis-Beck and Stegmaier, 2009). I depart from this incumbency support focus and rather argue that developments in the economy are positional issues with implications for voters (Dassonneville and Lewis-Beck, 2013). According to this policy-oriented perspective, voters who are affected by the economy, positively or negatively, will support parties who are closest to their policy preferences. This represents the general framework on the individual level. In chapter 2, I build on this insight and theorise and investigate how far homeownership and changing house prices have such effects on individual vote choice. Inherent in this theoretical framework is the possibility for asymmetric effects of economic developments. Given that individuals differ in risk exposure as well as possibilities to benefit from the economy, these dynamics do not unfold effects for all political parties. For instance, voters of leftist parties are typically characterised to be

more affected by income inequality (Pontusson and Rueda, 2010). If inequality rises, this should matter more to these voters than to voters of the right who attach less importance to the issue. In the other direction, asset-owning voters are typically more supportive of right-wing political parties (Foucault, Nadeau and Lewis-Beck, 2013). Developments on housing markets, therefore, have a more direct structural effect on these voters. In summary, the economy can unfold asymmetric effects on voters which in turn affect their political preferences and behaviour.

Building on this framework on the individual level, I continue that these unequally distributed effects on the voter level have implications for political parties. As introduced in the previous section, I theorise that parties have vote-seeking incentives which push them towards the centre of the policy space as well as more policy-oriented or ideological preferences which link them to their core voters and push them towards the fringes. If the economy is perceived as a positional issue that affects voter preferences, parties should respond to these dynamics. How they respond, however, depends crucially on the surrounding economic environment as it alters the incentive structure for parties. The argument makes two key predictions, on the likelihood and the direction of the party response to an economic process. Starting with the latter, I argue that parties prioritise the median over the core voter motive and moderate their position when their core voters benefit from socio-economic change. If core constituencies, in the opposite case, suffer from a socio-economic development, parties have strong incentives to polarise and move in their direction as a signal to core voters. Key to this reasoning is that the economic situation of core voters is assumed to be informative about the credibility of core voters' threats to withdraw their support. If they fare well economically, it is less likely that they are alienated and abstain or vote for someone else, so parties can moderate. If they suffer, however, this threat becomes more credible and parties have strong incentives to signal support to core constituencies to make sure they turn out. Overall, the economic environment, therefore, helps parties to prioritise either of these motivations depending on the effect on core voters. Moving to the likelihood of a response to the economy, the asymmetric logic introduced above comes into play. If a socio-economic change affects one group disproportionately, e.g. core voters of the right, the theory only predicts a responsiveness for parties of the right while it remains more unclear for parties of the left. The result of the unequal distribution of costs among voters is, therefore, an asymmetric partisan response to the economy.

An important role in this discussion is taken up by ideology as a characterising feature of parties and voters. Within the described framework, I have referred to left and right parties as an overarching description of parties with distinctive policy profiles who represents voters with similar preferences. Speaking to the larger literature about party responsiveness, the theoretical argument has a second implication which results in a second form asymmetry. The previous examples focused on economic change which disproportionately affected one group of voters. It is possible, however, that voters of the right are similarly affected, e.g. from unemployment, but in different directions. The political economy literature argues that voters of the left are more exposed to unemployment as such and therefore seek protection in the form of social benefits which represents a position further to the left on an economic policy dimension. Voters of

the right, who are less exposed to unemployment, might at the same time fear the costs of addressing unemployment through benefits and therefore resist calls for more redistribution or more taxes to refinance such policies. Therefore, if a socio-economic development has functional complements in the sense that it affects multiple voter groups similarly but pushes them into different directions, parties representing both voter groups should respond, but in different directions. In such a context, the framework, therefore, suggests that parties respond asymmetrically as well, but asymmetry here describes that parties of different ideologies respond by moving in opposite directions. Chapters 3 and 4 of this dissertation further expand on these arguments and test the theory with respect to a variety of socio-economic indicators.

This theory offers, as I argue in the subsequent chapters, a more flexible framework to derive expectations about party behaviour. Depending on the effects of voter groups, it can explain why parties shift their positions between elections and often change between more moderate and more polarising positions. There is a broad range of studies that have dealt with similar questions, in particular regarding the connection between the economy and party behaviour (Adams, Haupt and Stoll, 2008; Ezrow and Hellwig, 2014; Haupt, 2010). Most of these studies, however, theorise about this relationship by focusing on how global economic relations and globalisation limit the capacity of nation states to manage the economy. Only a few other studies focus on the influence of domestic economic processes on party behaviour (Hellwig, 2012). Other contributions on party position shifts have usually measured public opinion shifts more directly (Adams et al., 2004; Ezrow and Hellwig, 2014). These approaches highlight how important it is to develop micro-founded theories to understand party behaviour. In combination, the focus on domestic economic processes and its effect on voters applied here represents an innovative approach to the study of party behaviour.

## **1.4 Overview of included studies**

### **1.4.1 Chapter 2**

Three articles constitute this dissertation. Chapter 2 presents the first article entitled "Patrimonial Economic Voting in the UK: Homeownership and House Price Appreciation". This chapter looks at the connection between asset ownership, asset market developments and vote choice on the individual level. Theoretically, the article builds on a recent strand of the economic voting literature which is mainly interested in the effect of asset ownership on vote choice. Contributions to this literature hypothesise that owning property alters an individual's position within the economy and creates vested interests that shape policy demand and ultimately voting behaviour. Substantively, this leads owners to vote for right-wing parties with a higher likelihood. Evidence from several countries consistently supports the theoretical expectation that on average, there are substantial differences in voting behaviour between owners and non-owners (Bélanger et al., 2014; Foucault, Nadeau and Lewis-Beck, 2011; Lewis-Beck and Nadeau, 2011; Lewis-Beck, Nadeau and Foucault, 2013; Persson and Martinsson, 2016; Stubager et al., 2014). Building on this observation, the main contribution of



the article is to focus on the underlying causality behind the observed voting differential. To do so, I further develop the theory behind patrimonial economic voting by embedding it into a dynamic framework and present empirical results that give a better handle on the co-development of property ownership and vote choice.

In the article, I focus on the most widespread form of property – homeownership – in the UK. Following the literature on patrimonial economic voting, ownership of different forms of assets should have a different impact on voting behaviour. For instance, assets whose values have exposure to government interventions should have more influence on vote choice as voting for pro-ownership candidates or parties can directly work as an insurance against decreasing asset values. House values have substantial exposure to government regulations of many forms, e.g. through zoning or housing finance regulations, and therefore represent a very interesting case to look at. Furthermore, I build on the more recent insight that levels of asset values should affect voting behaviour (Persson and Martinsson, 2016). I further develop this argument and theorise about how changes in asset values should affect vote choice deriving the expectation from the literature that rising prices should increase the likelihood to vote for the Conservatives in the UK.

To be able to empirically test these theoretical claims, I use data from a longitudinal survey. The analysis consists of two steps. Firstly, I focus on the emergence of the observed difference in voting behaviour. I firstly replicate the result of different voting behaviour between owners and non-owners. Then, I ask how vote choice is affected if we compare individuals who recently acquired their house to individuals who remained non-owners. The results show that already shortly after the acquisition, owners are substantively more likely to vote for the Conservatives. However, when analysing whether this difference can be attributed to the purchase of a home, my results suggest that it is rather likely that the voting difference already existed before the purchase and some sort of selection into homeownership takes place which also affects vote choice. UK voters who buy a house have a – on average – higher likelihood to vote for the Tories already before the acquisition which is evidence for sorting into forms of housing tenure based on political behaviour. Secondly, I am interested in how changes in asset values affect vote choice. To test this, I focus on the sub-sample of homeowners and investigate how far differences in reported house values affect their vote choice for the Conservatives. In a first step, I find that levels of house values positively affect Tory vote choice. Individuals with more expensive homes are more likely supporters of the Conservative party. Secondly, I find that, in contrast to the literature and the proposed theory, increases in asset values decrease the likelihood to support the Conservatives. The results of both parts of the analysis are robust to a variety of different empirical specifications.

Overall, the results of this paper challenge some of the conventional wisdom in the literature. Firstly, selection effects are the most likely reason for a voting difference between owners and non-owners rather than a change in policy demand due to asset ownership. Secondly, house price increases, and therefore wealth increases, do not directly translate into more support for right-wing parties, even in a setting as the UK which represents a most-likely case.

## 1.4.2 Chapter 3

In the second article in chapter 3 with the title "An Asymmetric Partisanship Effect: House Price Fluctuations and Party Positions", the focus remains on the politics of homeownership but moves to the level of political parties. In this study, I am interested in the implications of housing market developments on the positioning of political parties. Building on the insight that homeowners are an important core voter group for right-wing parties, I develop a more general theoretical argument on how parties respond to socio-economic developments and test it by looking at housing markets. Theoretically, I combine approaches from the literature on party competition, electoral targeting and political economy. A critical question when theorising about party responsiveness is who parties are most responsive to. The classical Downsian response to this question is that parties should target the median voter as this maximises electoral returns. Other scholars have argued that parties have close ties to certain core voter groups and therefore try to promote and implement policies preferred by these voters. The literature on electoral targeting produces similar competing expectations. From this literature, it becomes clear that parties are in a strategic dilemma in that they have to strike a balance between attracting the median and the core voter. I attempt to reconcile this contrasting results by arguing that parties always do both, but contextual developments prioritise one goal over the other. If core voters are under pressure, parties have an incentive to send signals of reassurance to their core voters. If they are well off, parties have some strategic leeway to attract more moderate voters in the centre of the policy space. Which parties respond in the described fashion then depends on the links between voters and parties and how certain voter groups are affected by external shocks. I apply this theoretical perspective to fluctuations in housing markets because they represent a so far understudied and interesting test case for the argument.

With respect to housing market dynamics, two main questions emerge. Which parties should be responsive to fluctuations in housing markets and how should they respond? Theoretically, I answer the first question by arguing that right-wing parties disproportionately represent homeowners. As a result, they should be particularly responsive to their well-being while there is less reason to believe that left-wing parties should do so, as well. The result should be an asymmetric partisanship effect in that not all parties across the policy space respond to housing market dynamics. Building on a growing literature about the impact of housing wealth on an individual's economic situation, homeowners' well-being, I continue, is substantively affected by increasing or decreasing house prices. If house prices grow, homeowners are well off and right-wing parties have some discretion to move leftwards to the centre to expand their voter base. If house prices decline, however, homeowners face severe economic threats, so they move to the right to send signals of reassurance to their core voters.

Empirically, I test this argument for 18 OECD countries between 1970 and 2013 using a novel modelling strategy. I locate political parties on an economic policy dimension using several positional measurements and test how house price changes affect the change in party positions. In contrast to existing studies on party responsiveness, I identify parties of the right using a party's position at the previous election and in-

teract this measurement with house price changes. This modelling strategy directly models the decision space that parties face when taking positions and avoids critical assumptions about the homogeneity of parties within party families or across countries and over time. My findings confirm the theoretical expectation that parties with party positions further to the right move to the left when house prices increase. By symmetry of the statistical model, this implies that when house prices drop, parties of the right move to the right. Left-wing parties, in contrast, display no systematic positional responses to house price changes. Substantively, liberal, conservative and Christian democratic parties (on average) fall under the scope of the argument.

### 1.4.3 Chapter 4

While the presented results confirm the theoretical argument in this very first test, there are some expectations and implications which cannot be tested and theorised about when looking at house prices. Therefore, chapter 4 with the title "Asymmetric responsiveness: The effects of socio-economic developments on party position shifts" widens the perspective and puts the general theoretical argument to a broader test. Applying the developed theory about party responsiveness to house price changes generates the expectation of an asymmetric partisanship effect as not the entire electorate is affected by housing market dynamics. Once we generalise this argument to other developments, however, the expectations change slightly. Therefore, in this chapter, Leonce Röth and I discuss in more detail which incentives emerge from different external shocks within the suggested framework and which parties should ultimately respond to these shocks and how. At the core of the paper is, like in the previous article, the insight that socio-economic developments affect the electorate to different extents. As a result, parties of different ideologies who mostly represent different voter groups have varying incentives to respond to these socio-economic developments. The result is a second form of asymmetry where party ideology moderates the direction of the partisan response. This generalisation challenges the state of the art in empirical research on party positions which assumes that parties of the entire political spectrum respond uniformly to external changes. We argue that this is rather implausible when we look at processes that affect voter groups differently. The expectations we derive from our framework are similar to the previous chapter. When parties' core voters suffer from a certain development, parties move away from the centre and towards these voters. In the opposite situations, parties can moderate their positions and move to the centre to expand their voter base. In addition, we contest other findings in the existing literature that mainstream parties are responsive to the median voter while niche parties focus on their core voters. Within our framework, whether parties target core or median voters is not a function of their "niceness" but rather of external developments and their effect on core voters. We, therefore, expect similar responses by both types of parties.

We theorise about the impact that four carefully selected socio-economic developments (GDP growth, house price changes, changes in public debt and changes in income inequality) should have on voters and derive expectations for the related responsiveness by political parties. We are particularly interested in the overall result on the party

system level where party moves can either lead to overall moderation or polarisation. The selected processes should, theoretically, lead to party system moderation (GDP, house prices) and polarisation (public debt, income inequality). Whether these tendencies are driven by parties of the left and the right then depends on the relative indicator.

Empirically, we test our claims using data on 18 to 36 countries from 1980 until 2017. We specify regression models where we interact the socio-economic dynamic with the lagged party position on an economic left-right dimension to evaluate our expectations. We do so for all four indicators on the full sample of all parties before running separate analyses for niche and mainstream parties. Our findings clearly refute the idea that parties of all ideologies respond uniformly to socio-economic developments but that responsiveness is moderated by ideology. With respect to the difference between niche and mainstream parties, we do not find strong evidence for a systematic difference between the two types of parties. Quite to the contrary, the results support our idea that parties of all kinds respond to core voter pressure as well as attempt to move to the centre to attract new voters. Our results, therefore, display a strong consistency between voter and party responses. Overall, this chapter presents a more flexible theoretical model on party responsiveness that allows deriving expectations on party responses to a variety of socio-economic developments.

## 1.5 Relevance and broader implications

This dissertation is guided by an interest in the links between voters and parties and how these are shaped by the economy. The theoretical and empirical contributions of this dissertation speak to various literatures. In the following, I briefly highlight the most important implications arising from this doctoral thesis.

One of the major interests of this work concerns the politics of housing, its forms of provision and the development of housing markets. The results of this dissertation challenge some of the existing findings in the field. The findings from chapter 2 provide evidence that homeownership does not have direct political effects but rather indirect results from selection into homeownership. At the same time, rising house prices do not translate into increased support for the Conservative party in the UK but rather the opposite. These findings have implications for further studies of patrimonial economic voting which should be interested in similar causal perspectives and corroborate these findings with data from additional countries. With respect to the house price effects, these results also challenge findings by Ansell (2014) who finds that increasing house prices push right-wing voters' preferences and right-wing governments further to the right. In contrast, the results of my study on the micro level as well as the result of chapter 3 point in the other direction. There are some measurement differences between the relative levels of analysis, however, the conflicting results are nevertheless puzzling. Within the framework of this dissertation, however, the results of chapter 2 support the theoretical claims and empirical results of chapter 3 and present a coherent picture that rising house prices decrease likelihood to vote for the Tories and right-wing parties move towards the centre of the policy space. More research on the politics of

housing, and in particular on the political implications of housing markets, is required to understand this puzzle.

When we think about the broader relevance of the findings, it is easy to link the studies to recent debates about wealth inequality. Housing wealth represents the most widespread form of property ownership and access to housing wealth is often decisive for future capital gains or losses. Due to recent booms on housing markets, there are many countries where access to homeownership has become increasingly difficult. In the UK, for instance, the homeownership rate is continuously dropping over the past years, particularly among younger age cohorts (Barton, 2017). If some groups are continuously excluded from wealth gains on housing markets, this has the potential to cause severe political backlash. In particular, right-wing parties might face problems in the future when fewer and fewer individuals are socialised into a homeownership culture and thus potential electoral returns from privatisation of public housing wash out. At the same time, asset markets have become increasingly volatile. If this trend is to continue, this implies that their political effects might become larger and more salient over time. Simultaneously, parties have growing incentives to respond if asset markets remain volatile. Housing markets, in addition, will continue to play an important role in the reproduction of wealth inequality. Overall, this thesis shows that housing and homeownership represents an important political cleavage which will, albeit to a varying extent in different countries, continue to have political repercussions in the coming years.

With respect to the literature on party competition, political representation and party behaviour, the findings of this dissertation have several implications. The expectations derived from the core voter focus in this dissertation have received substantial empirical support with respect to party positions. It is less clear, however, what the electoral implications of the presented arguments look like. Two outcome variables would be particularly interesting from this dissertation's point of view, mobilisation and vote share. Future research should extend this argument and investigate to what extent both variables are affected by the revealed party position shifts. Simultaneously, it would be very interesting to provide further micro-foundation of the link between economic change and vote choice or voter preferences on the individual level to further clarify the link between voters and parties under a changing economy.

Another issue that this dissertation touched upon was the moderating role of ideology in determining party responses. Related studies have found that incumbent parties of different ideologies are rewarded or punished to a different extent for issues they own (Dassonneville and Lewis-Beck, 2013; Hellwig, 2012). It is, therefore, reasonable to assume that there are interactions between particular issues (e.g. economic phenomena), incumbency and the strategic leeway that political parties can use. As strategic leeway in the presented framework always has to do with the mobilisation of core voters, a very interesting avenue for further research is to study in how far differential turnout by voters of the left or the right creates different strategic room for the respective parties. As typical voters of the left often turn out in lower rates (Mahler, 2008; Pontusson and Rueda, 2010), there might be a competitive advantage for these parties.

Furthermore, this study has mostly focused on an economic policy dimension. Over

the past years, however, there is a growing consensus that party competition is increasingly multidimensional. In particular, socio-cultural issues such as immigration have become more important and increasingly dominate political debates. It would be useful to better understand how parties respond to these dynamics by extending it to and empirically testing this framework on a second dimension. After all, cultural issues can have strong mobilising effects, in particular on core voters. The results from Tavits and Potter (2015) indicate that there are important interactions between issue positions on different dimensions. Therefore, to improve the framework developed in this dissertation, it might be necessary to further study how the core voter motivation plays out when adding a second issue dimension. This theoretical work could prove highly fruitful for advancing debates on party strategies and party position shifts.

At the same time, party system fragmentation and polarisation are on the rise in many European and Western countries. The presented theory contributes to this discussion in that it provides explanations for polarisation which can be driven asymmetrically by parties of one ideological camp. How the proposed framework will perform in the future remains to be seen. It will be particularly interesting to see in how far trends of fragmentation and more volatile partisan loyalties affects party strategies to identify and mobilise core voters.

## 1.6 Publication status of the articles

The first article with the title "Patrimonial Economic Voting in the UK: Homeownership and House Price Appreciation" (Chapter 2) is a single-authored piece and has been submitted to the British Journal of Political Science in early September 2018 and is currently under review.

The second article entitled "An Asymmetric Partisanship Effect: House Price Fluctuations and Party Positions" (Chapter 3) is a single-authored article and has been invited for revision and resubmission to the European Journal of Political Research. It has been resubmitted on October 9th, 2018 and is currently under review.

The third article with the title "Asymmetric Responsiveness: The Effects of Socio-economic Developments on Party Position Shifts" (Chapter 4) is co-authored work with Leonce Röth and is, as of October 18th, 2018, currently prepared for submission to the American Journal of Political Science. Both authors contributed equally to the study.

## PATRIMONIAL ECONOMIC VOTING IN THE UK: HOMEOWNERSHIP AND HOUSE PRICE APPRECIATION

### **Abstract**

Recent contributions in economic voting show that asset ownership is associated with support for right-wing parties. Moving towards a causal statement about the effect of property ownership on the vote, I develop a dynamic perspective on patrimonial economic voting and test it with longitudinal data. I focus on the acquisition of assets and changes in asset values to discuss and test their implications on vote choice by looking at the most widespread form of asset ownership, homeownership, in the UK. My results show that recent homeowners are considerably more likely to vote for the Conservative party. I present tentative evidence that this effect is mainly driven by selection effects. Similarly, people owning more valuable houses also show a higher probability to vote for the Tories. Surprisingly, when house values increase, the likelihood to support the Conservatives decreases.

### **2.1 Introduction**

Does asset ownership affect vote choice? While traditional studies of economic voting emphasise the influence of the economy on vote choice (Lewis-Beck, Nadeau and Elias, 2008; Lewis-Beck and Stegmaier, 2000), the recent literature suggests that property ownership also plays an important role in determining the economic vote (Lewis-Beck, Nadeau and Foucault, 2013; Nadeau, Foucault and Lewis-Beck, 2010; Persson and Martinsson, 2016). Conceptually, those studies move beyond the perception of the economy as a valence issue and argue that an individual's position within the economy is different when owning assets (Persson and Martinsson, 2016; Nadeau, Foucault and Lewis-Beck, 2010). In general, there is ample evidence that asset ownership increases

support for parties of the right, This highlights the importance to move beyond income or occupational status when looking at the economic vote (Nadeau, Foucault and Lewis-Beck, 2011).

So far however, the literature is not overly specific in terms of the causality behind the patrimonial economic vote. The causal processes explaining the voting differential are underspecified and the empirical analyses have so far only used cross-sectional data. For instance, it is unclear how exactly an owner's different position in the economy looks like and how it influences political behaviour. Therefore, the main objective of this paper is to move closer to a causal statement about the effect of ownership on the vote in theoretical and empirical terms. To do so, I introduce a dynamic perspective<sup>1</sup> into the theory of patrimonial economic voting which helps to derive more concise expectations on the causal processes behind the patrimonial economic vote. For instance, it allows us to theorise more explicitly about what happens once individuals acquire assets or when the value of their asset holdings change. As such, a dynamic framework informs us about the emergence and development of patrimonial economic voting over time. From an empirical point of view, a dynamic approach allows to distinguish between different causal pathways such as a changing policy demand or selection effects.

The link from ownership to political behaviour should work differently for different types of assets (Foucault, Nadeau and Lewis-Beck, 2013). I therefore focus on the most widespread form of asset ownership in many countries: homeownership. Looking at one asset type allows to be more precise about the impact of property ownership on individuals. Homeownership is a well-suited laboratory as it is the most widespread form of property and often represents the largest financial investment of a lifetime (Ronald, 2008; Dietz and Haurin, 2003; Schwartz and Seabrooke, 2008). I study the relationship between homeownership and vote choice in the United Kingdom. It represents a most-likely case for the patrimonial economic vote in a dynamic setting as its existence there has already been confirmed (Lewis-Beck, Nadeau and Foucault, 2013). Moreover, Britain is also the context where most anecdotal evidence about a conservatising effect of property ownership, more specifically homeownership, has its roots (Dunleavy, 1979; Williams, 1989). Typical descriptions focus on housing policy measures taken by the Thatcher government that systematically created long-lasting electoral support for the Conservative party. Overall, investigating homeownership in the UK is a promising testing ground for a dynamic theory of patrimonial economic voting.

This paper firstly reviews the literature on economic voting before developing the theoretical argument about the effect of homeownership on vote choice. The next section presents the case selection, data and methods before turning to the results of the empirical analysis.

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<sup>1</sup>I use the term dynamic to represent a longitudinal view.



## 2.2 Patrimonial economic voting

Patrimonial economic voting moves past the traditional economic voting model of incumbency reward/punishment<sup>2</sup> and argues that asset ownership motivates voters to vote for the right (Nadeau, Foucault and Lewis-Beck, 2010; Lewis-Beck, Nadeau and Foucault, 2013; Lewis-Beck and Nadeau, 2011). This effect has been shown for several countries such as France (Nadeau, Foucault and Lewis-Beck, 2010; Bélanger et al., 2014), the UK (Lewis-Beck, Nadeau and Foucault, 2013), the US (Lewis-Beck and Nadeau, 2011), Denmark (Stubager et al., 2014) and Sweden (Persson and Martinsson, 2016).

Some authors leverage variation in asset types to further characterise the effect. For instance, ownership of high-risk assets is found to influence the vote decision (Nadeau, Foucault and Lewis-Beck, 2010, 2011). Subsequent studies argue that it is important to refine the measurement of wealth and take into account the asset values (Foucault, Nadeau and Lewis-Beck, 2013; Persson and Martinsson, 2016). In general, those findings corroborate the relevance of property ownership in explaining vote choice for right-wing parties. Owning high-risk and high value assets seem to systematically affect the vote. In another qualification, Persson and Martinsson's analysis of the Swedish case with high-quality data on wealth holdings shows that assets most affected by government policies matter most for voting behaviour (2016).

Most often, the literature argues that owning assets alters an individual's position in the economy and thus creates different economic interests (Lewis-Beck and Nadeau, 2011). Typically, reference is made to a classic Marxian or Weberian argument about the position of an individual within the production process of the economy or how social class is determined by economic interests<sup>3</sup>. Owning property creates vested interests as owners seek to protect their wealth. Put differently, voters' material self-interest is assumed to be more important or at least different when owning property.

This implies that asset-owning voters have a different policy demand and evaluate parties' programmatic offers through the lens of their effect on asset values. Ultimately, this should also affect who they vote for (Lewis-Beck, Nadeau and Foucault, 2013). It is assumed that these different economic interests are best catered to by right-wing parties (Lewis-Beck and Nadeau, 2011)<sup>4</sup>. Persson and Martinsson (2016) move beyond the binary owner/non-owner distinction and suggest that asset values are of crucial importance to the vote. In their view, the material self-interest logic only starts to be sufficiently relevant when assets held exceed a certain value and additionally increase with the value of assets. In essence, this is a positional argument: Property owners' ideal points should differ from non-owners' preferences and thus lead to different vote decisions. The relative importance attached to asset-relevant issues should also be

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<sup>2</sup>See Duch & Stevenson (2008) for an overview.

<sup>3</sup>In essence, this is similar to a class voting argument, only that class is not determined by education or occupation but by control over private property (Lewis-Beck, Nadeau and Foucault, 2013)

<sup>4</sup>However, this critically depends on the political context which is structured by political parties. Depending on the programmatic positions of political parties, this link can be weaker or stronger. See Hellwig and McAllister (2017) for an overview and similar argument in the Australian context.

higher, thus amplifying the relevance of asset ownership for the vote (Persson and Martinsson, 2016).

The link from property to the vote should look differently for various types of assets as they differ e.g. in terms of risk or insurability (Nadeau, Foucault and Lewis-Beck, 2011, 2010). However, not only asset type should matter but also how the investment into property develops. For this reason, I suggest to introduce a dynamic perspective into patrimonial economic voting to better describe how property ownership specifically is linked to political behaviour. A dynamic perspective forces us to think more in detail about how differences in voting behaviour emerge and develop when asset values change. Such an approach follows traditional economic voting arguments, which are inherently dynamic, more closely. The classic incumbency reward/punishment logic implicitly involves comparing the current state of the economy to another (experienced or expected) state. For instance, Duch and Stevenson characterise economic voting as "as any change in a voter's support for parties that is caused by a change in economic perceptions" (2008, p.41). Following this, I suggest to theorise about the impact of changes in property owned on vote choice. The actual effect of causal interest for patrimonial economic voting is therefore characterised as a change in a voter's support for right-wing parties caused by a change in their patrimony or portfolio of assets held.

This perspective allows to isolate two settings with testable implications from the material self-interest logic which are interesting from a causal perspective: the acquisition of assets and a change in their value. The theoretical expectations in these two settings are clear: Individuals who have recently acquired assets or experience appreciating asset values should more likely support right-wing parties following their interest of shielding their wealth. In the following, I turn to homeownership, the asset class of interest in this paper, and spell out how it should affect voting behaviour.

## **2.3 Patrimonial economic voting and homeownership**

Homeownership has been included in previous analyses of patrimonial economic voting (Nadeau, Foucault and Lewis-Beck, 2010; Persson and Martinsson, 2016). How it specifically affects the vote according to the material self-interest logic depends on whether we look at the acquisition or appreciation case.

Starting with the former, acquiring a house comes with several costs and risks mainly associated with taxation, housing finance and other regulations which affect housing wealth and ultimately voting behaviour (2008). Firstly, homeownership exposes homeowners to several forms of taxation such as land transfer or property taxes (e.g. council taxes). Consequently, recent owners experience a higher and more visible tax burden (Schwartz and Seabrooke, 2008, p.6). Secondly, financing a house represents a considerable financial challenge and usually involves taking up a mortgage. Thus, homeowners are liquidity constrained as they repay and service their mortgage while simultaneously connected to global capital markets via the interest rate on their mortgages (Schwartz and Seabrooke, 2008). This connection can prove critical as the

financial crisis has taught us how homeowners can go underwater when house prices drop while interest rates and credit size remains stable (Aalbers, 2009). Thus, holding a mortgage should affect preferences for interest rates. Additionally, mortgages are usually subject to specific rules on e.g. the length of the repayment or the loan-to-value ratio. At the same time, holding a mortgage often qualifies for tax breaks e.g. in the form of interest payments being deductible from the income tax (Schwartz and Seabrooke, 2008). In summary, housing finance affects voters' pocketbooks directly while the terms of repayment of the mortgage also exposes them to government regulations. Thirdly, owning a house also creates a stake in other areas where governments or authorities take decisions with effects on house values. Compared to other forms of investments such as stocks, an investment into housing is notoriously difficult to insure against. On the local level, research has repeatedly shown that homeowners engage in "not-in-my-backyard" behaviour and oppose the construction of e.g. power plants in close proximity (Fischel, 2004). As governments and authorities also have a handle on property values through zoning and land use regulation or control over building permits, homeowners should have an interest in some form of insurance against these risks. One possibility to do so is by supporting parties which promote the protection of housing wealth also on the local and national level (Dietz and Haurin, 2003). Parties which promote lower taxes, more liberal markets in general as well as more deregulation of housing finance are usually right-wing parties such as the Conservative party in the UK. Therefore theoretically, individuals who recently acquired property should have, at least on the margin, a higher propensity to support right-wing parties in national elections<sup>5</sup>.

Moving to the development of house prices, a slightly different causal mechanism is at play. Some previously presented arguments about costs and risks continue to apply such as e.g. the exposure to property taxes or mortgage regulations. However, varying prices have additional consequences with political repercussions. Again, taxation is one main channel through which rising prices affect individuals. Property taxes are often bound to property values and might rise if property prices increase. Similarly, when individuals want to sell or bequest their houses after price increases, capital gains or inheritance taxes apply on the gains incurred in comparison to the purchasing price. Increasing house prices can therefore directly affect owners' pocketbooks. Simultaneously, rising values can also reduce income. For instance, households might disqualify for means-tested welfare programs after an increase in the value of their property (Ansell, 2014). Ansell (2014) shows that house price increases reduce demand for social insurance and redistribution. He argues that homeownership serves as a buffer stock through which households can self-insure against economic shocks by either selling or

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<sup>5</sup>A critical assumption behind the electoral implication of ownership is that right-wing parties make programmatic offers that protect property values best. This does not fully reflect party competition and dynamics in position-taking. Left-wing parties such as the UK Labour party in the 1990s can take up policy positions that offer similar protection to owners and thus weaken the electoral advantage for right-wing parties (see e.g. Hellwig and McAllister, 2017). In addition, policies affecting homeowners and their property's value the most are often taken on the local level. Therefore, the most direct electoral connection from property on the vote should be on this level. Nevertheless, I argue that there is still a sufficiently important role for national governments in housing policy so that political behaviour on the national level also represents a form of insurance against negative shocks on property values.

borrowing against their house. When house prices increase, this dynamic is amplified and owners become less dependent and thus less supportive of the welfare state. This preference shift to the right should also materialise in the voting booth. As households incur capital gains on their house, they become more independent from and thus less supportive of public schemes against adverse events. Schwartz and Seabrooke (2008) argue similarly that house price dynamics affect the preferred level of public spending. As with the acquisition of housing property, these arguments point to an increased likelihood to support right-wing parties when house prices increase. Positions on redistribution are an important element of the overall economic policy programme by political parties and right-wing parties usually advocate a smaller welfare state than their left-wing competitors. The same argument applies with respect to the taxation of capital gains or inheritance taxes. Following this, we should expect homeowners to have a higher likelihood to support right-wing parties as house prices increase.

To summarise, the existing literature explains the voting differential between owners and non-owners through a different policy demand resulting from different economic interests. In a dynamic setting, this implies that voters who acquire assets or experience changes asset values re-evaluate their policy demand and update their preferences which ultimately translates into support for right-wing parties.

## **2.4 Empirical approach**

### **2.4.1 The case: Homeownership in the UK**

I study the effect of homeownership on vote choice in the United Kingdom. Homeownership and housing generally have been contested and highly politicised issues in the UK for decades (Pattie, Dorling and Johnston, 1995). The high saliency of the issue is an important precondition for studying the patrimonial economic vote as voters must be capable to evaluate in how far parties' programs affect their interests. House values and their development play an important role in the life of many UK citizens who wish to "move up the housing ladder" to build up property. This familiar saying mirrors that many households rely on capital gains on their current residence to trade up to larger and more expensive homes over time. On a more conceptual level, Dunleavy (1979) has argued that housing, and in particular the difference between individualised private property and collective public housing, represents a politically relevant cleavage in the electorate. Still, one of the main reasons for the heated debates about homeownership in Britain is that much of the previously large public housing stock has been privatised by Conservative governments under Thatcher (Jones and Murie, 2006). Many commentators, academics and journalists, have interpreted the privatisation of the public housing stock in the UK as a classic example of pork barrel that created long-lasting support for the Conservative party (Pattie, Dorling and Johnston, 1995).

Besides the substantial reasons to study homeownership in the UK, there is an additional factor that justifies the case selection. Although a pro-Conservative tendency among British homeowners is generally accepted, some point out that an approach

striving for a more causal interpretation of the effect is necessary (Dunleavy, 1979; Williams, 1989; McAllister, 1984). The dynamic perspective applied in this paper thus aims to fill another gap inherent in the old debate about housing and politics in Britain.

## 2.4.2 The data and empirical strategy

Assessing the effect of patrimony on the vote in a dynamic setting requires data on an individual's housing situation and detailed information on political behaviour. The dataset that comes closest to the requirements of this paper's research goal is the British Household Panel Survey (BHPS) and its successor Understanding Society (UKUS). BHPS and UKUS are two of the few large surveys that include information on respondents' housing status as well as political variables, in particular to measure party support. The BHPS was run for 18 years (1991-2008) by the Institute for Social and Economic Research (ISER) at the University of Essex. In 2009, the ISER launched the UKUS which continued to collect data from a sub-sample of BHPS households, thereby allowing to link respondents across waves from the two surveys. Every year, around 5,000 households and 10,000 respondents were questioned thus offering a very rich and powerful dataset<sup>6</sup>.

My empirical approach follows several steps. I firstly reproduce the cross-sectional relationship between property and the vote by pooling observations from all survey waves. Subsequently, I use the longitudinal nature of the dataset and analyse the two test cases introduced above. To analyse the transition into homeownership, I use the sample of all respondents who were non-owners at the first time they completed a survey wave and then split it into a control group of individuals who remain tenants throughout the survey and the ones who acquire a home over the course of the survey. This represents an important improvement over cross-sectional approaches because it creates better comparisons and zooms into the the early phase of asset ownership. It allows to disentangle between early stage electoral implications and development over time. From a research design perspective, this analysis follows the suggested causal mechanism behind the material self-interest logic more closely. Subsequently, I investigate the subs-ample of homeowners and examine in how far changes in house values drive vote choice. To do so, I construct a measurement of house value change by taking the yearly differences of self-estimated house values which are reported in the dataset.

Homeownership, however, is not randomly distributed over the entire population so that estimation results might be biased. For this reason, I take two additional steps to evaluate the transition into homeownership. Firstly, treatment and control group can still differ substantially in terms of other characteristics that might affect the outcome variable. Although we can control for level differences, results from simple regressions can be biased due to a lack of covariate balance. I expect the treatments 'homeownership' and 'transition into homeownership' to be strongly influenced by socio-economic

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<sup>6</sup>For further information on the BHPS and UKUS see [www.iser.essex.ac.uk/bhps](http://www.iser.essex.ac.uk/bhps) and [www.understandingsociety.ac.uk](http://www.understandingsociety.ac.uk)

factors. A linear regression approach minimising squared residuals and strongly relying on extrapolation is likely to make unrealistic comparisons (Imbens and Rubin, 2015).

There are different approaches to ensure covariate balance between treatment and control group. These preprocessing techniques generally re-weight the data to ensure that the control group serves as a good proxy for the unobserved counterfactual of the treatment group. While matching approaches such as nearest neighbour or propensity score matching have been popular, their application requires researchers to manually work through a variety of algorithms to find an appropriate technique that maximises covariate balance. Success and validity of these different matching approaches and their application are strongly contested as they are prone to model dependence and often fail to ensure covariate balance across all covariates (Hainmueller and Xu, 2013). As a result, I follow Hainmueller’s approach (2012) and preprocess my data using entropy balancing. This technique balances the distribution of variables between treatment and control groups over a number of constraints such as first and second moments and thus optimises covariate balance. Using the resulting weights to re-weight the data ensures that treatment and control groups are best comparable given their observed characteristics and should reduce model dependence and increase the reliability of the results.

Secondly, I use the longitudinal nature of the dataset to run several difference-in-difference models which can be interpreted as a series of quasi experiments. To do so, I pool the annual data into inter-election periods and assign individuals a treatment variable of zero if they were tenants in the election year  $t_0$  and all following election years or one if they were tenants in  $t_0$  and owners in all following election years. This approach helps in two ways: First, it controls for pre-treatment level differences between treatment and control group in  $t_0$  and thus for selection effects. Second, it controls for major changes in public support for the Conservatives between two elections that affect both treatment and control group. From a causal perspective, this approach allows to identify an effect from the treatment on the outcome variable under certain assumptions (Angrist and Pischke, 2008, pp.185). The most critical identifying assumption is that treatment and control groups are subject to parallel trends between  $t_0$  and  $t_1$ . While there might be concerns that in some of the inter-election periods this assumption is violated, it is unlikely that the same non-parallel trends persist over all periods and thus bias the results of all quasi-experiments.

### 2.4.3 Estimation and sample

The main dependent variable for all estimations measures support for the Conservative party. I follow Tilley, Neundorf and Hobolt (2018) who also use the BHPS dataset and develop a measurement of vote choice for non-election years which maximises the number of observations. The variable is a composite measure of three survey questions which report answers on whether respondents are closer to one political party than to others, which party they would vote for tomorrow and which party they feel closest to. The resulting variable is strongly correlated to the cleaner measurement of reported vote choice. From this measurement, I construct a binary variable which is coded 1 if

the respondent supported the Conservative party and 0 otherwise<sup>7</sup>.

The main independent variables of interest are the binary variable reporting transition into homeownership between and the variables on self-reported house prices and their annual deltas. With respect to the house price estimations, I take the logs of reported self-estimated house values and their annual difference to analyse the effect of a change in the value on vote choice<sup>8</sup>. Using logs of house prices compresses the distribution and helps to deal with outliers in the dataset.

The control variables for the different models are selected based on the existing literature<sup>9</sup>. I include variables reflecting major social cleavages such as age, gender, occupation, income, living in an urban or rural community or education<sup>10</sup>. In particular the inclusion of income, education and occupation matters as these are typical measurements of social class. Any remaining effect after controlling for these factors points to an independent and additional pathway from property ownership on Tory support (Lewis-Beck, Nadeau and Foucault, 2013).

In order to control for the other common pathways of the economic vote, I also include a variable that measures respondents' ideological position on a left-right scale ranging from 1 to 5<sup>11</sup>. To capture some of the dynamics inherent in the British majoritarian electoral system, I borrow data from Gallego et al. (2014) to classify constituencies depending on their propensity to vote for Labour or the Tories. This should take into account that not all constituencies are battleground districts where single votes might be pivotal and decisive<sup>12</sup>. Additionally, I include a constituency average council tax rate into the analysis to control for the influence of different tax levels<sup>13</sup>.

I firstly present results from pooled logit models as baseline results. I start by looking at homeownership in general and then move on to gauge the influence of transition into homeownership on vote choice. All models are estimated with individual clustered standard errors. Moreover, I include entropy weights to ensure covariate balance. Subsequently, I present results from the difference-in-difference models which are estimated with linear probability models including entropy weights. Finally, I present pooled logit models investigating whether rising house prices affect vote choice.

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<sup>7</sup>As robustness check, I include results from models with alternative DVs in the appendix.

<sup>8</sup>Not all respondents can objectively estimate the value of their house as e.g. house price indexes can. Nevertheless, if house values had an effect on political preferences or behaviour, it should be driven by the subjective perception of increased wealth rather than objective measurements. As a robustness check, I match official data on median house values on the constituency level to the survey data and report these results in the appendix.

<sup>9</sup>I exclude a measurement for partisanship from the estimations. There are conceptual (see Price & Sanders (1995)) and empirical reasons to do so as it limits the number of observations and absorbs much of the variation.

<sup>10</sup>See e.g. Persson & Martinsson (2016) or Duch & Stevenson (2008) for similar specifications.

<sup>11</sup>As a proxy for ideology, I follow Ansell (2014) and construct an index from answers to six questions. The questions used for the index ask for the respondents' consent with several statements such as "The government has the obligation to provide jobs" or "Private enterprise solves economic problems" and increases in right-wing preferences.

<sup>12</sup>Constituencies are classified into six categories: Mixed, Safe Labour, Marginal Labor, Safe Tory, Marginal Tory, Safe or Marginal Liberal Democrats.

<sup>13</sup>Due to frequent redistricting in many constituencies in the period under investigation not all respondents can unambiguously be matched to a single parliamentary constituency for every election.

I restrict the sample to respondents from England as the party systems in the other regions, in particular in Northern Ireland, are characterised by very different dynamics which might affect the analysis. The time period I am investigating (1991-2015) covers three general elections which were won by the Labour party. Labour moved programatically quite far to the right in the 1990s, thus reducing the incentives for asset owners to fear for their property under a leftist governments. I argue that this context biases - if at all - against the hypothesised effect. To disentangle potential incumbency effects, I also estimate the models for Labour and Tory governments separately and present the results in the appendix.

## 2.5 Results

### 2.5.1 Homeownership and transition into homeownership

Let us first look at the difference in support for the Conservatives between homeowners and tenants. Models (1) to (4) in Table 2.1 present results from different configurations

**Table 2.1:** Homeownership: Logit Regressions

	(1)	(2)	(3)	(4)
<b>Homeownership status</b>	<b>0.502 (0.000)</b>	<b>0.504 (0.000)</b>	<b>0.511 (0.000)</b>	<b>0.544 (0.000)</b>
Age	0.001 (0.509)	0.001 (0.786)	0.001 (0.636)	0.003 (0.351)
Female	-0.248 (0.000)	-0.256 (0.000)	-0.274 (0.000)	-0.188 (0.009)
Education	0.057 (0.000)	0.070 (0.000)	0.069 (0.000)	0.090 (0.000)
Occupation	-0.092 (0.000)	-0.076 (0.000)	-0.094 (0.000)	-0.107 (0.000)
Log total income (last month)	0.130 (0.000)	0.119 (0.000)	0.109 (0.000)	0.019 (0.570)
Living in urban area	-0.558 (0.000)	-0.479 (0.000)	-0.400 (0.000)	-0.425 (0.000)
Has children	-0.136 (0.000)	-0.118 (0.004)	-0.150 (0.000)	-0.034 (0.588)
Marital status (ref: single)				
Married/living together/civil union	0.233 (0.000)	0.231 (0.000)	0.230 (0.000)	0.041 (0.613)
Widowed	0.234 (0.152)	0.063 (0.727)	0.266 (0.137)	0.356 (0.265)
Divorced/separated	0.190 (0.005)	0.262 (0.003)	0.188 (0.009)	0.085 (0.485)
Average council tax rate		0.001 (0.000)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.733 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.190 (0.014)	
Parl. Const: Marginal Tory			-0.044 (0.702)	
Parl. Const: Marginal Labour			-0.339 (0.000)	
Parl. Const: Mixed			-0.191 (0.005)	
Ideology (ref: very leftist)				
Ideology: Leftist				0.134 (0.234)
Ideology: Center				0.409 (0.000)
Ideology: Rightist				0.819 (0.000)
Ideology: Very rightist				1.427 (0.000)
Observations	156447	67340	142093	31343
Pseudo $R^2$	0.069	0.064	0.073	0.113
Entropy balancing weights	Yes	Yes	Yes	Yes

*p*-values in parentheses

Respondent clustered standard errors, wave & region dummies included.



of control variables all using entropy weights to ensure covariate balance. The samples vary due to missing data, in particular on the geographical identifiers. Independent from control variables or samples, homeownership systematically increases the likelihood to support the Tories by a large magnitude. After ideology, it represents the second largest predictor for Tory support. Translated to probabilities, homeowners are roughly 10 percentage points more likely to support the Conservatives. This differential is quite large and possibly decisive in actual vote decisions at the margin. This finding is in line with the results of previous studies arguing that real estate holdings play an important role in the patrimonial economic voting framework (Persson and Martinsson, 2016; Lewis-Beck, Nadeau and Foucault, 2013) and previous research on homeownership and voting in Britain (Dunleavy, 1979). The novelty here is that the results hold after re-weighting with entropy balancing.

**Table 2.2:** Transition to homeownership: Logit Regressions

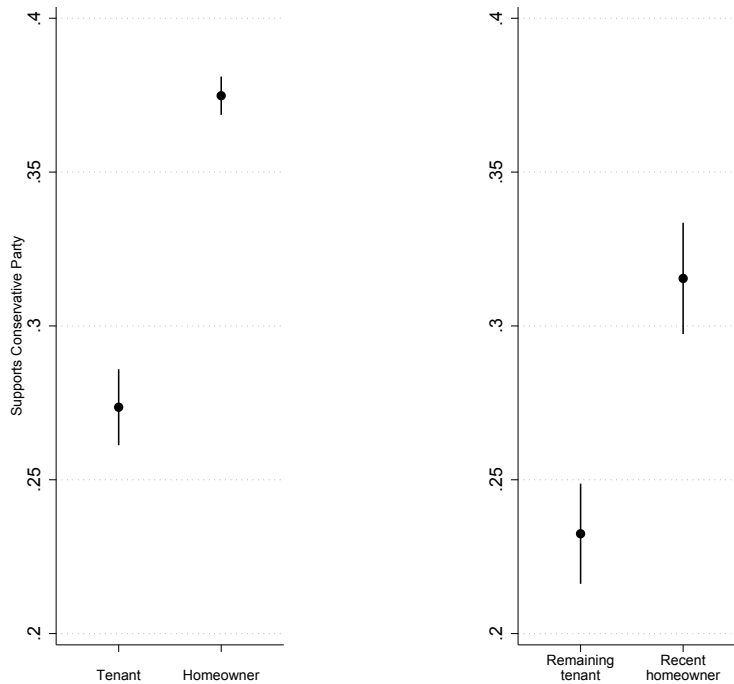
	(1)	(2)	(3)	(4)
<b>Transition to homeownership</b>	<b>0.438 (0.000)</b>	<b>0.453 (0.000)</b>	<b>0.414 (0.000)</b>	<b>0.469 (0.006)</b>
Age	0.011 (0.001)	0.009 (0.069)	0.011 (0.003)	0.009 (0.262)
Female	-0.246 (0.000)	-0.193 (0.063)	-0.277 (0.000)	-0.198 (0.226)
Education	0.049 (0.000)	0.051 (0.009)	0.060 (0.000)	0.094 (0.005)
Occupation	-0.095 (0.000)	-0.092 (0.000)	-0.097 (0.000)	-0.053 (0.153)
Log total income (last month)	0.173 (0.005)	0.133 (0.189)	0.174 (0.007)	0.086 (0.543)
Living in Urban/rural area	-0.610 (0.000)	-0.491 (0.000)	-0.470 (0.000)	-0.714 (0.000)
Has children	-0.067 (0.371)	-0.102 (0.335)	-0.103 (0.195)	0.005 (0.980)
Marital status (ref: single)				
Married/living together/civil union	0.036 (0.672)	0.069 (0.591)	0.026 (0.771)	-0.267 (0.185)
Widowed	0.198 (0.613)	0.039 (0.949)	0.138 (0.747)	0.281 (0.700)
Divorced/separated	0.041 (0.780)	0.252 (0.231)	0.037 (0.807)	-0.394 (0.269)
Average council tax rate		0.001 (0.001)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.657 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.194 (0.167)	
Parl. Const: Marginal Tory			-0.496 (0.111)	
Parl. Const: Marginal Labour			-0.548 (0.000)	
Parl. Const: Mixed			-0.174 (0.193)	
Ideology (ref: very leftist)				
Ideology: Leftist				1.028 (0.031)
Ideology: Center				1.000 (0.032)
Ideology: Rightist				1.427 (0.002)
Ideology: Very rightist				1.784 (0.000)
Observations	19990	8690	18160	2759
Pseudo $R^2$	0.074	0.080	0.086	0.140
Entropy balancing weights	Yes	Yes	Yes	Yes

*p*-values in parentheses

Respondent clustered standard errors, wave & region dummies included.

Let us look at the transition into homeownership. Table 2.2 follows the same structure as above, displaying the results of four models with different control variables. In these estimations, I compare tenants who have acquired a home while participating in the survey to the ones who remained tenants in all waves. In all models, transition into homeownership is a strong positive predictor for the likelihood to support the Conservatives. It increases the probability to support the Conservatives by roughly 8

percentage points. The coefficients on the transition variable are stable across all specifications, pointing at a robust estimation result. Introducing further control variables such as constituency type, average council tax rate or ideology into the models does not change the results<sup>14</sup>. These results represent an important step forward: Individuals who recently acquired their home already have a substantively and systematically higher likelihood to support the Tories. The voting differential thus does not largely build up over time but is present from an early stage of ownership onwards.



**Figure 2.1:** Homeownership and transition to homeownership and probability to vote Conservative

Figure 2.1 visualises the results from the first homeownership and transition models<sup>15</sup>. The estimations suggest that on average, owning or purchasing a house has a strong positive influence on the probability to support the Conservatives. Individuals having just purchased their house display a smaller propensity to support the Tories. If we link this finding to the causal mechanism presented in the theory section, already the acquisition of assets indeed affects voters on the aggregate to an extent that they are more likely to vote for right-wing parties when compared to individuals with similar traits who did not acquire assets.

It is worthwhile to highlight that the first contribution of the chosen dynamic research design is that we gain a better idea on when ownership starts to exert influence

<sup>14</sup>Controlling for ideology, however, does not come without problems. Firstly, it limits sample size as the questions from which the ideology index is constructed are only part of the BHPS. Empirically, including ideology may indirectly control for some unobservables which simultaneously drive individuals into homeownership and supporting the Conservative party. However, the hypothesised effect from asset ownership on party support or vote choice runs through a change in preferences or policy demand which is also reflected in a measurement of ideology. Controlling for the latter holds parts of the hypothesised causal pathway constant and thus suppresses the relationship of interest.

<sup>15</sup>Models (1) in Table 2.1 and 2.2

on voting behaviour. Nevertheless, the presented results from the pooled logit models have no causal interpretation in a narrower sense. What they show is that on average, recent owners and tenants as groups differ considerably in terms of supporting the Conservatives. However, this difference must not necessarily be driven by the home acquisition. In an ideal world, it would be preferable to estimate a model with individual fixed effects which controls for time-invariant unobservable characteristics which might bias the effect and could explain a change in party support with a change in asset ownership. Unfortunately, there is insufficient within-variation in the dataset to estimate such a model. A feasible alternative is to focus on the within-group variation with a difference-in-difference design. In such a setting, the important difference to the pooled estimations is that pre-treatment group differences are taken into account. Consequently, it helps to evaluate whether the observed behavioural difference emerges from selection effects or through the treatment. As the treatment in the data is received at different points in time, I split the data into five sub-samples of inter-election periods and investigate to what extent the difference in Tory support between treatment and control group differs between elections.

Table 2.3 presents the results of these models. The main coefficients of interest are the ones on the treatment and the interaction term. Firstly, in four of the five models, there are substantial pre-treatment differences between treatment and control group after controlling for all covariates. The similarity of the results is striking given the varying sample sizes. Individuals who plan to purchase a home differ from the ones who remain in a rental arrangement already before acquiring their home. Secondly, there is no evidence in the data that recent homeowners have a higher likelihood to vote for the Conservatives that is directly attributable to the purchase of a home. The coefficient on the interaction term is relatively unstable and not significant at conventional levels in all models. Treatment and timing of the treatment do not drive the two groups further apart so that there is no direct causal effect from purchasing a home on Tory support.

**Table 2.3:** Transition to homeownership: Difference-in-difference models

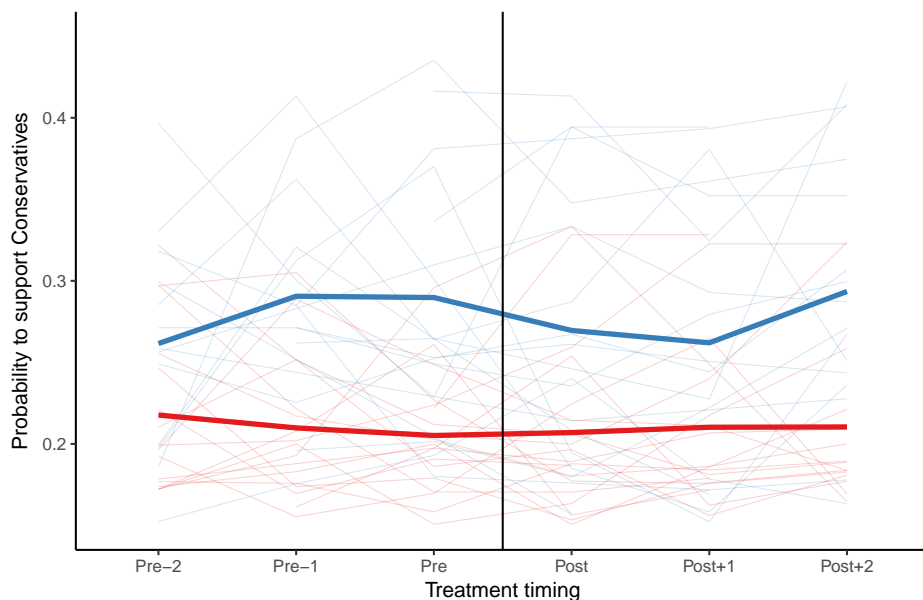
	(1)	(2)	(3)	(4)	(5)
	1992-1997	1997-2005	2001-2005	2005-2010	2010-2015
<b>Treated</b>	<b>0.113 (0.222)</b>	<b>0.122 (0.017)</b>	<b>-0.017 (0.822)</b>	<b>0.200 (0.004)</b>	<b>0.078 (0.009)</b>
Post treatment	-0.179 (0.016)	0.016 (0.744)	-0.031 (0.572)	-0.056 (0.684)	0.003 (0.905)
<b>Treated × Post treatment</b>	<b>-0.012 (0.895)</b>	<b>-0.068 (0.223)</b>	<b>-0.056 (0.684)</b>	<b>0.164 (0.544)</b>	<b>0.021 (0.529)</b>
Age	-0.001 (0.730)	0.000 (0.980)	-0.004 (0.188)	0.010 (0.089)	0.001 (0.339)
Female	-0.070 (0.233)	-0.022 (0.581)	0.000 (0.995)	-0.031 (0.693)	-0.093 (0.000)
Education	0.016 (0.118)	0.004 (0.567)	0.002 (0.834)	-0.002 (0.911)	0.013 (0.005)
Occupation	-0.015 (0.196)	-0.017 (0.046)	-0.002 (0.864)	0.001 (0.952)	-0.007 (0.215)
Log total income (last month)	-0.010 (0.767)	0.025 (0.480)	-0.031 (0.600)	-0.088 (0.326)	0.059 (0.000)
Living in Urban/rural area	-0.066 (0.357)	-0.048 (0.374)	-0.087 (0.367)	0.005 (0.966)	-0.139 (0.000)
Has children	-0.082 (0.135)	-0.070 (0.143)	-0.039 (0.523)	0.012 (0.905)	0.038 (0.128)
Marital status (ref: single)					
Married/living together/civil union	-0.045 (0.528)	0.065 (0.268)	0.008 (0.908)	-0.157 (0.135)	0.061 (0.021)
Widowed	0.543 (0.000)	0.200 (0.189)	0.570 (0.043)	-0.731 (0.034)	-0.057 (0.518)
Divorced/separated	-0.048 (0.587)	0.033 (0.690)	0.064 (0.592)	-0.208 (0.365)	0.064 (0.233)
Observations	704	968	441	186	3325

p-values in parentheses

Linear probability model. Respondent clustered standard errors, year & region dummies included

The parallel trends assumption is crucial for difference-in-difference analyses. Therefore, Figure 2.2 plots the predicted probabilities of Tory support before and after the treatment to illustrate how these groups behave before and after the treatment. Here, I use yearly data and divide the dataset into 23 smaller quasi-experiments. The thick lines represent the average of 23 quasi-experiments which cover all survey waves. Treated observations have acquired their home throughout the survey while control observations are defined as individuals who were tenants in the same waves. Both groups differ considerably already three years before the purchase of the house and remain distinctive throughout the plot. They do not display strongly non-parallel developments on average. There is a slight tendency of owners becoming more supportive of the Tories one or two years before the purchase. Most importantly, however, from a causal perspective is that the probability to support the Conservative party does not increase after receiving the treatment. It is rather the case that individuals who intend to buy differ from individuals who do not already before having acquired the asset.

Comparing these results to the pooled models, there are possibly unobservable factors that simultaneously drive treatment and outcome and which are captured by the difference-in-difference models. For instance, if ones' parents owned a home and supported the Conservatives, this might have a long-term influence on which party to support. While my analyses corroborate the strong difference in the voting behaviour between homeowners and tenants, they cast some doubt on the hypothesised mechanism through which homeowners are considered to become Tory supporters. The UK as a most-likely case for the patrimonial economic vote adds to these concerns. One limitation of the evidence presented is, however, that individuals who purchase a house might start to save up for the mortgage some years in advance and thus anticipate the



**Figure 2.2:** Mean pre- and post-treatment probabilities to support the Tories by ownership

Red line represents tenants, blue lines represents owners. Thin lines in the background represent probabilities for single quasi-experiments with a yearly timing. Thick lines represent averaged pre- and post-treatment probabilities of Tory support by group. Results from logit models are available on request.

treatment effect. Due to relatively small sample sizes in the single quasi-experiments which form the basis of Figure 2.2, the results presented here should therefore be taken as tentative evidence for selection effects behind the patrimonial economic vote. The results are useful, however, to guide future research which should focus on designs which help to understand anticipation effects and the associated effects on material self-interest as well as the selection into property ownership and its link to political behaviour.

## 2.5.2 House price volatility

Let us turn to the the development of asset values. Theoretically, the material self-interest argument points to a positive influence of house values and appreciations on the likelihood to vote Conservative. Table 2.4 shows the results of models following the same logic in terms of control variables as the transition-into-homeownership models before. It is important to note that the sample underlying these models differs from the previous ones as it only encompasses all homeowners for whom repeated measures of their house values are reported.

I start the analysis by firstly looking at house value levels. In all four specifications house value levels exert a systematic positive effect on the propensity to vote for the Conservatives. This confirms expectations of a general wealth effect which pushes voters towards right-wing parties. The size of the effect is quite considerable. Figure 2.3 displays the substantive impact of the level of house values on the propensity to vote Conservative following model (1). As expected, higher house values lead to a higher probability to report a vote choice for the Tories. The model predicts a probability to support the Tories of 36 per cent for a median house value of  $\sim 170,000$  GBP. This likelihood rises to 55 per cent for a house value of  $\sim 500,000$  GBP (95th percentile of the distribution).

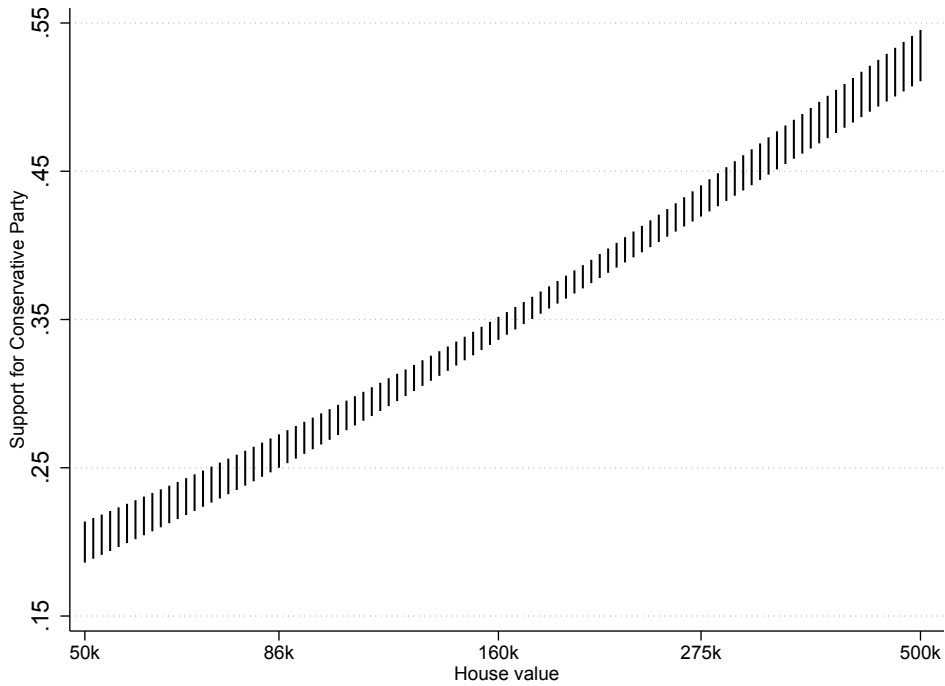
It appears house value levels capture a more general and very powerful wealth effect that drives voters to vote Conservative. This effect holds throughout all models, even when controlling for local council tax levels, constituency type or ideology. So far, this supports the findings of the previous literature which argues that patrimonial economic voting only starts to work at certain levels of ownership (Persson and Martinsson, 2016).

**Table 2.4:** Self-reported house values: Logit Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Log of house value</b>	<b>0.659 (0.000)</b>	<b>0.626 (0.000)</b>	<b>0.560 (0.000)</b>	<b>0.562 (0.000)</b>	<b>0.704 (0.000)</b>	<b>0.675 (0.000)</b>	<b>0.605 (0.000)</b>	<b>0.609 (0.000)</b>
<b>Log change of house value</b>					<b>-0.326 (0.000)</b>	<b>-0.315 (0.000)</b>	<b>-0.294 (0.000)</b>	<b>-0.315 (0.000)</b>
Age	0.001 (0.674)	0.000 (0.795)	0.001 (0.546)	0.006 (0.043)	0.000 (0.966)	-0.000 (0.956)	0.000 (0.796)	0.006 (0.069)
Female	-0.188 (0.000)	-0.177 (0.000)	-0.198 (0.000)	-0.216 (0.001)	-0.189 (0.000)	-0.179 (0.000)	-0.199 (0.000)	-0.216 (0.001)
Education	0.085 (0.000)	0.094 (0.000)	0.092 (0.000)	0.096 (0.000)	0.086 (0.000)	0.095 (0.000)	0.093 (0.000)	0.098 (0.000)
Occupation	-0.047 (0.000)	-0.042 (0.000)	-0.048 (0.000)	-0.034 (0.010)	-0.046 (0.000)	-0.041 (0.000)	-0.046 (0.000)	-0.032 (0.015)
Log total income (last month)	0.079 (0.000)	0.098 (0.000)	0.080 (0.000)	0.013 (0.661)	0.079 (0.000)	0.098 (0.000)	0.079 (0.000)	0.014 (0.650)
Living in Urban/rural area	-0.311 (0.000)	-0.269 (0.000)	-0.240 (0.000)	-0.236 (0.002)	-0.302 (0.000)	-0.261 (0.000)	-0.234 (0.000)	-0.227 (0.003)
Has children	-0.185 (0.000)	-0.160 (0.000)	-0.170 (0.000)	-0.204 (0.001)	-0.188 (0.000)	-0.162 (0.000)	-0.173 (0.000)	-0.206 (0.001)
Marital status (ref: single)								
Married/living together/civil union	0.218 (0.000)	0.165 (0.011)	0.216 (0.000)	0.092 (0.365)	0.228 (0.000)	0.172 (0.008)	0.225 (0.000)	0.103 (0.309)
Widowed	0.409 (0.006)	0.303 (0.112)	0.368 (0.021)	0.168 (0.587)	0.420 (0.005)	0.313 (0.101)	0.378 (0.018)	0.189 (0.541)
Divorced/separated	0.280 (0.000)	0.240 (0.013)	0.224 (0.006)	0.214 (0.163)	0.294 (0.000)	0.251 (0.009)	0.237 (0.004)	0.227 (0.138)
Average council tax rate		0.000 (0.007)				0.000 (0.018)		
Parl. constituency (ref: Safe Tory)								
Parl. Const: Safe Labour			-0.534 (0.000)				-0.521 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.167 (0.028)				-0.166 (0.029)	
Parl. Const: Marginal Tory			0.036 (0.778)				0.032 (0.804)	
Parl. Const: Marginal Labour			-0.238 (0.000)				-0.231 (0.000)	
Parl. Const: Mixed			-0.132 (0.054)				-0.128 (0.061)	
Ideology (ref: very leftist)								
Ideology: Leftist				0.091 (0.464)				0.091 (0.466)
Ideology: Center				0.419 (0.000)				0.415 (0.000)
Ideology: Rightist				0.853 (0.000)				0.850 (0.000)
Ideology: Very rightist				1.278 (0.000)				1.272 (0.000)
Observations	87994	41000	80286	15552	87994	41000	80286	15552
Pseudo $R^2$	0.072	0.061	0.070	0.095	0.073	0.063	0.071	0.097

*p*-values in parentheses

Respondent clustered standard errors, year & region dummies included

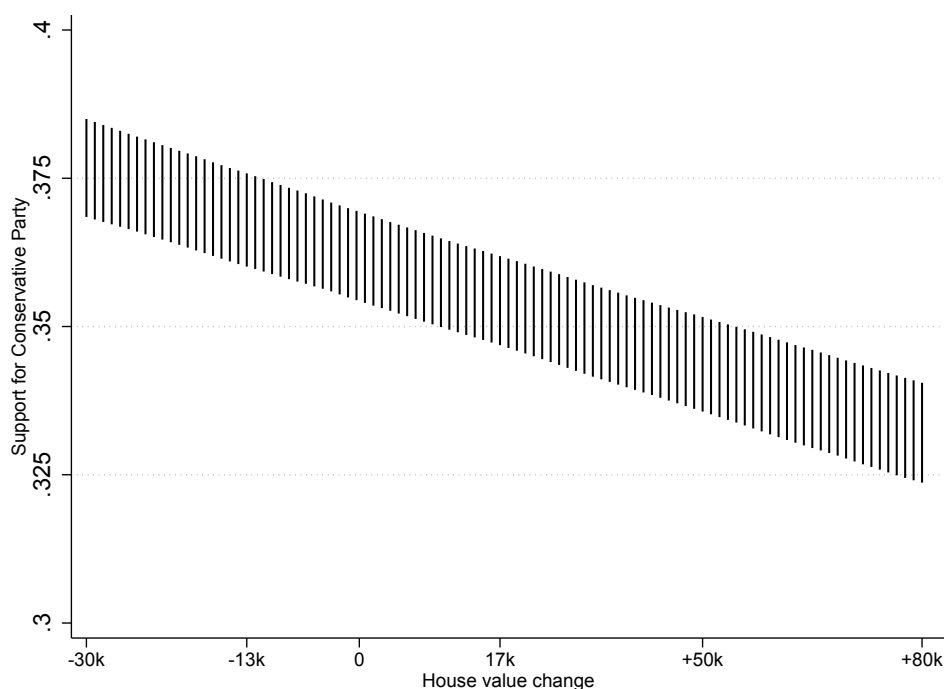


**Figure 2.3:** Effect of house value levels on probability to support Conservatives

Spikes represent 95% confidence intervals around simulated point estimates using clarify (Tomz, Wittenberg and King, 2003). Simulations use results from model(1) in Table 2.4.

Let us move on to the analysis of changes in property values on Tory support. Theoretically, we expected increases in house value to amplify the positive influence of asset ownership on the probability to vote Conservative. In contrast to this theoretical argument, house price changes in models (5) to (8) of Table 2.4 surprisingly have a consistently negative effect. In all specifications, the coefficients are strongly significant and robust. The magnitude of the effect is smaller than for house price levels. For illustration, I simulate the effect using the results from model (1) over the distribution of reported changes in house prices in Figure 2.4 at the median house value and mean covariates.

A mean house value appreciation of  $\sim 8,000$  GBP lowers the probability to vote for the Tories from 36.1 per cent to 35.7 per cent. The average observed annual change in house values therefore does not systematically alter support for the Conservatives. With more extreme observed house value changes, there is, however, a fairly sizeable effect. A house price appreciation of  $\sim 72,000$  GBP (95th percentile of the distribution) over a year reduces the likelihood to support the Tories from 36.1 to 33.5 per cent. For sharper appreciations, we can uncover a substantial impact of house price changes on Tory support, although not in the hypothesised direction. Although the observed yearly changes are quite small, the compound effect over an entire inter-election period leads to substantively important effects. By implication, the model predicts a positive effect on the probability when house prices decrease. A decrease in log house value of  $\sim 30,000$  GBP (fifth percentile) would increase the probability to vote for the Tories from 36.1 to 37.4 per cent. In the sample, however, most of the data points on house price change are appreciations so that the results of the estimations are mostly driven by



**Figure 2.4:** Effect of changes in house values on probability to vote Conservative

Spikes represent 95% confidence intervals around simulated point estimates. Simulations use results from model (5) in table 2.4.

variation in value increases. It is, however, surprising that the estimations contradict the expectations on the influence of asset value development. Although levels of asset ownership positively affect homeownership, an increase in the value of those assets reduces the probability to support the Conservatives and mitigate the relatively strong level effect.

## 2.6 Conclusion

In this paper, I contribute to the discussion about an effect of property ownership on vote choice. The literature on patrimonial economic voting argues that the asset ownership plays an important role for the economic vote as it changes the position of individuals within the economy. I make additional efforts to come closer to a causal interpretation of the suggested link between property ownership and the vote. Using longitudinal data from the UK, I am able to move beyond the existing cross-sectional analyses in the literature and analyse in how far changes in homeownership status (i.e. the transition into homeownership) and changes in house values affect the propensity to vote for the Conservatives. I find that homeowners and individuals who recently acquired their home in the UK have a much stronger likelihood to support the Conservative party. Results from a difference-in-difference analysis suggest that this difference is not caused by ownership as such. Individuals selecting into homeownership have a higher propensity to support the Tories already before the acquisition. These results highlight that further research on patrimonial economic voting with an interest in



causality should focus more directly on the selection into ownership and its link to political behaviour.

The evidence presented for selection effects casts some doubt on the causal mechanism which emphasises how material self-interest immediately drives and even changes voting behaviour. However, these findings do not entirely rule out the relevance of material self-interest. Firstly, the suggested causal mechanism always runs through a change in preferences first. Voting behaviour and party support is rather stable and does not change often. Preferences on certain issues, however, may change more easily and quickly. A changing importance of material self-interest might not have a sufficiently large effect to change vote choice but might be decisive for positions on certain issues. Consequently, future work on the patrimonial economic vote should look at how preferences, potentially on issues related to property and its value, are affected by ownership. This could be particularly interesting on the local level. Secondly, it is important to further think about the timing of an ownership effect on the vote. Possibly, individuals and households start saving up for their owned home long before the ownership and already adapt their policy demand. Similarly, the difference between homeowners and tenants is larger than between recent owners and tenants so that it seems that recent homeowners catch up to the preferences of long-standing homeowners over time. It follows that the timing of the treatment effect requires further attention in future work. In addition, non-economic dynamics might also affect the link between property and the vote in the acquisition phase. For instance, when people move into new neighbourhoods or new contexts, they are exposed to alternative views on the world which in turn affects themselves over time. Empirical support for this finding remains ambiguous. Some authors argue that neighbourhoods do not really matter (Williams, 1989; Dunleavy, 1979) while others find modest support (Gallego et al., 2014). Further research on this particular mechanism might add to our understanding of how asset acquisition drives vote choice. Overall, while casting doubt on the proposed mechanism, the results from the difference-in-difference models have some limitations with respect to data quality and should therefore be seen as a first step in the dynamic analysis of the patrimonial economic vote which deserves attention from further research.

Moving to the house price changes, I find that house value levels strongly predict Tory support. This wealth effect corroborates previous findings (Persson and Martinsson, 2016). Surprisingly, I find a negative effect of house price increases on the vote choice for Conservatives. This contradicts previous research on preference changes in response to house price increases (Ansell, 2014). The transmission of these preference changes on party support does not work in the expected way. It appears that the entire story of patrimonial economic voting is not as straightforward and linear as previously described and the proposed causal mechanism of an increased importance of material self-interest seems not to hold in this context. Instead, individuals do not move further to the right trying to secure their recent wealth gains but rather moderate their vote choice on average. As house prices are often closely linked to (regional) economic dynamics, this argument speaks to Kayser and Grafstrom's model of luxury goods voting (2016). They argue that support for the left increases during economic upswings while in times of economic hardship, securing material interests becomes more important.

As a result, voters cease to prefer spending on 'luxurious' policies during recessions which leads them to support more right-wing or conservative parties. Volatile asset prices might trigger these electoral responses in an amplified way as asset price inflation substantially bolsters household income while decreases in asset values can have devastating economic consequences for individuals and families. Future work should examine increases in asset values in more detail and take into account in how far they are related to new or additional financial challenges e.g. through debt-financed investments.

Overall, I find that homeownership and house prices are strong and stable predictors of voting behaviour in the UK. Political science research should make more efforts to further explore in how far property influences political preferences and political behaviour and should be particularly interested in a causal perspective that explores the whys and hows of any of the empirically found effects. Future work should focus on new data sources and explore other quasi-experimental and experimental approaches to further qualify the link between property and the vote. Building on the results of this paper, particular attention should be given to selection into homeownership and the timing of asset acquisition. Concerning price developments, further research should corroborate the negative effect and develop new theories on the impact of asset price on political behaviour.

AN ASYMMETRIC PARTISANSHIP EFFECT: HOUSE  
PRICE FLUCTUATIONS AND PARTY POSITIONS

**Abstract**

Political economy arguments on party behaviour usually address parties of the left and the right. I introduce a novel argument which portrays house price changes as an economic signal that right-wing parties disproportionately respond to in their programmatic positioning. This asymmetric partisanship effect is driven by homeowners' importance for right-wing parties as a core voter group. Increasing house prices improve homeowners' economic prospects. Right-wing parties thus have some flexibility to reach out to undecided voters by targeting the centre of the political spectrum. Falling house prices, however, signal worsening economic outlooks for homeowners. Right-wing parties thus have a strong incentive to send out signals of reassurance and prioritise their core voters. For a sample of OECD countries from 1970 to 2014, my findings support this argument. Right-wing parties move programmatically leftwards with booming house prices and rightwards when house prices fall while parties of the left do not respond systematically.

**3.1 Introduction**

Many studies examine how government partisanship affects policy outcomes (Hicks and Swank, 1992; Alt, 1985; Hibbs, 1977), although it remains unclear whether such an effect actually exists (Imbeau, Petry and Lamari, 2001; Schmitt, 2015). On party positions, similar research investigates how parties respond to economic developments in their electoral strategies and positioning in the policy space (Adams, Haupt and Stoll, 2008; Adams et al., 2004; Adams, 2012). While those studies recognise how public opinion, party structure and economic conditions interact to shape party positions,

they do not explicitly consider that economic processes affect voter groups to different extents<sup>1</sup>. I integrate this perspective from the partisanship hypothesis literature into the study of party positions by analysing in how far economic developments that differentially affect certain voter groups influence parties' electoral strategies. One implication of this more structural perspective is an asymmetric partisanship effect where parties respond to the changing economic environment to different extents.

The theoretical argument has two main implications. Firstly, it characterises an asymmetric partisan response to economic developments in the sense that parties representing particularly affected voter groups are disproportionately responsive. Secondly, it sketches the direction of this partisan response by suggesting that political parties attempt to strike a balance between two strategic motives that drag them into different directions. On the one hand, I assume parties have strong ties to key voter groups and particularly care about their well-being (Hibbs, 1977; Dalton, 1985; Cox and McCubbins, 1986; Dixit and Londregan, 1996). In terms of party positions, this implies that parties have an incentive to take up positions that mobilise their core voters by formulating positions that match their preferences. On the other hand, I argue that parties also have an incentive to expand their voter base by approaching other, ideologically less predisposed voters (Downs, 1957; Stokes, 2005). Whether parties favour one of these motives over the other depends critically on the surrounding economic and political environment and how it affects core voter groups.

One of several possible examples of an economic process that should trigger such an asymmetric partisan response are housing market fluctuations which improve or worsen homeowners' financial situation by changing their home values. I follow Ansell (2014) and present homeowners as an important voter group for right-wing parties. Housing market dynamics create incentives for the latter to focus either on the core or swing voter motive. When house prices rise, and homeowners' investments appear safe, right-wing parties can turn to more centrist voters to attract new or swing voters. In the opposite event, when house prices fall, the same parties have an incentive to send out signals of reassurance to their core voters. We should thus see right-wing parties carry out contrasting positional shifts in response to house price fluctuations whereas leftist parties should not display systematic reactions to the same extent.

The main contribution of this paper is twofold. Theoretically, I propose an argument that combines elements from partisanship theory, party competition and political economy to characterise how parties respond to socio-economic developments in their campaign manifestos. Empirically, I contribute to the emerging literature about the political economy and politics of housing, yet at a so far neglected level of analysis: the party level. I test whether parties systematically alter their positions using data from the Comparative Manifesto Project on 155 parties from 18 advanced industrialised countries over the period from 1970 to 2013. The results support the argument: Right-wing parties disproportionately shift programmatically leftwards in times of house price increases and rightwards when they decrease.

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<sup>1</sup>Some studies consider a differential response by certain parties (Adams, Haupt and Stoll, 2008), however they only focus on parties of the left and do not theorise about the direction of party responses in a similar way. Moreover, the theory proposed here is built on a micro-foundation about the impact of shocks on voters and thus more flexible in its application to other cases.

## 3.2 How parties take positions and target voters

Following spatial models of party behaviour, empirical research on how parties adapt their programmatic positions has focused on changing voter preferences (Adams et al., 2004; Adams, Haupt and Stoll, 2008; Ezrow et al., 2010), economic developments (Adams, Haupt and Stoll, 2008; Pontusson and Rueda, 2010; Ezrow and Hellwig, 2014) as well as differences in party type and party organisation (Adams et al., 2006; Ezrow et al., 2010; Schumacher, De Vries and Vis, 2013). Theoretically, the main question in models of party competition is whether parties follow the median (swing) or the median party (core) voter when taking programmatic positions. Two literatures produce the same (diverging) predictions on party behaviour with parties either choosing a converging or polarising strategy.

Firstly, the literature on party competition or political representation has produced models which emphasise the importance of the median or median party voter for party strategies. The median voter approach assumes parties try to maximise their vote share by focusing on the political centre (Downs, 1957; Ezrow et al., 2010). Policy interests are less important as parties are ideologically flexible in order to match the median voter's preferences (Stimson et al., 1995). Parties choose their position in response to voter preferences and select the position of the median voter as it yields the highest probability to win an election. In contrast, the median party voter approach holds that parties are responsive to their core constituencies to which they are traditionally linked and have ongoing and close ideological commitments to (Dalton, 1985; Hibbs, 1977). Here, policy preferences are more important than simple vote maximisation. Proponents of this approach emphasise that parties cannot solely rely on the median voter as winning elections essentially requires the mobilisation of core voter groups (Pontusson and Rueda, 2010). With respect to policy outcomes, the partisanship hypothesis (Hibbs, 1977) builds on this view and portrays governments to make policy decisions that particularly benefit their core constituencies. The main distinction between the two models is their prioritisation of voters' and parties' policy preferences.

Secondly, the literature on electoral targeting, extends this framework to a second factor, the allocation of redistributive benefits. Those studies identify additional factors leading to either outcome, i.e. either the swing or core voter result. Here, two parties, one left and one right, compete for votes. Voters have fixed ideological preferences but also derive utility from benefits distributed by parties. These can increase their vote share through the allocation of targeted benefits to certain voter groups. Cox and McCubbins (1986) argue that parties hold informational advantages over the electoral returns of benefits addressed to their core voters. As a result, politicians have incentives to allocate benefits to core voters as they can design these benefits more efficiently and generate electoral returns at lower costs and less uncertainty (Dixit and Londregan, 1996).

In contrast, others argue rational parties should not focus on core voters but target swing voters instead. Stokes (2005) argues that core voters cannot credibly withdraw support for their preferred party in lack of a viable alternative. Thus, parties should not waste their resources on core voters but instead, use them to attract swing voters.

Dixit and Londregan's (1996) model can also predict the swing voter result when parties fail to have special relationships to certain voter groups and the efficiency in delivering benefits is similar across voter groups. Put differently, the marginal electoral benefit of targeting swing voters comes at lower costs and thus beats a core voter strategy.

The presented models are not all developed to explain party positions in electoral campaigns. For instance, the core and swing voter literature originally focuses on the distribution of benefits across geographically delineated electoral districts which allows a more tailored allocation of benefits to certain groups (Idema, 2009). I argue, however, that considering policy positions as the intention to deliver benefits to voters or to produce policy outcomes allows extending these frameworks to programmatic party positions. Therefore, the indicated dynamics still provide a framework to derive predictions on party behaviour.

### 3.3 The argument

Building on these two literatures, I propose a model that allows deriving expectations on the direction of a party response as well as conditions for party responsiveness. Doing so, I try to reconcile the diverging positional logic presented in the previous section (Pontusson and Rueda, 2010; Idema, 2009). The argument is essentially dynamic as it develops expectations about positional movements by political parties between elections.

As a start, I argue that parties have two goals that push them into opposite directions and which they need to balance (Aldrich, 1995). Several assumptions are necessary for the argument. Policy competition takes place on one dimension along which the distribution of voters is single-peaked. Parties have core voters who are to the left or the right of the centre of the distribution of all voters<sup>2</sup>. Following the median/swing voter logic, parties have an incentive to expand their voter base and appeal to swing voters in the centre. At the same time, however, parties also have incentives to send signals to their core voters to ensure they turn out at the ballot box. The first motive, therefore, drags parties to the centre of the policy space while the latter one pushes them towards the fringes of the policy space. I suggest that parties essentially try to deliver to both groups but under different contextual circumstances (such as an external shock), targeting one group becomes more important than targeting the other. When an external shock hits and core voters benefit disproportionately, parties have some margin to moderate their positions away from their core voters and move to the centre

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<sup>2</sup>Adams and Somer-Topcu (2009) empirically show that left-right voter distributions in 15 European countries are approximately single-peaked. I assume that core voters have clearer ideological preferences thus appear to the left or right of the centre of the policy space (see e.g. Ura and Ellis (2012, p.282) for the US case). Swing voters, in contrast, can theoretically be to either side of a political party in a multiparty context. Adams and Somer-Topcu, however, make the point that most non-centrist parties can expect electoral gains from moderating their positions (2009, p. 680; Ezrow, 2005). From this argument and based on the cited literature, it follows that the assumption that swing or more easily swayed voters are in the centre of the policy space is reasonable, also in a multiparty context.

of the policy space. If their core voters suffer disproportionately, parties have a strong incentive to send signals of reassurance to their core voters by polarising their position and move away from the centre. Both moves are contingent on parties' expectation about their core voters' turnout and voting behaviour after an external shock. I argue that core voters in a good economic position are more likely to still turn out while under distress, they might credibly threaten to not cast their vote or vote for an alternative party.

On top of these positional dynamics, I propose that this behaviour is not necessarily symmetric for parties of all ideologies. In principle, this behaviour should only be observed for parties with clear links to core voter groups. If a relevant core constituency is hit by an external shock, the representing party should be responsive. If parties lack this electoral connection to certain voter groups, the model's prediction is less clear and competing parties should either be less responsive or not respond to the external shock at all in their positioning. Given that voter groups often differ by ideological preferences, the party response should be moderated by party ideology. Depending on the party ideology, we should then see an asymmetric partisanship effect where some parties, those with the electoral connection to a core voter group, respond disproportionately strong to an external shock while others do not or at least show more ambiguous positional responses. The asymmetry can also result from different expectations about the turnout of core voter groups. If these expectations are not equal between parties, a party that always needs to target its core voters to ensure their mobilisation does not have the margin to moderate its position and should not display the hypothesised behaviour. As a result, some parties might be able to use their discretion while others do not<sup>3</sup>.

The argument applies in principle to a variety of external shocks. The main conditions which need to be met are a clear electoral connection between a relevant voter group and a party as well as a salient external shock that disproportionately improves or hurts the voter group's economic well-being. Researchers are left with the task to identify contextual factors where we can observe the hypothesised behaviour. As a first evaluation of the argument, I move on to introduce one of several testable implications of the outlined theory: housing market fluctuations.

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<sup>3</sup>Most of the cited models are based on two-party systems. In such a setting, a shift by one party always affects the other party as it opens or decreases space for the competitor and a strictly asymmetric effect is hardly possible. In a multiparty setting, however, it is possible that only some of the competing parties respond to an external shock as party competition is more complex. For instance, the incentives to move to the centre of the policy space are less clear. Swing voters, however, do not necessarily have to be in the centre of the policy space but parties still face incentives to target voters outside traditional core constituencies to expand their voter base. In such a case, swing voters are characterised as ideologically close, but not entirely predisposed voters that parties attempt to persuade at low costs. Targeting voters outside the core constituency also critically depends on the existence of competition for similar voters. For instance, a party located to the very right of the policy space might have more leeway to moderate and move to the left without losing voters than a party that still faces competition from the right. In the empirical analysis, I take some steps to control for these different forms of party competition.

### 3.4 The case: Housing markets

Fluctuations on housing markets are not the most straightforward choice to test the argument. So why should we be interested in changes in housing regarding party positions? The relevance of changing asset prices lies in the profound impact they have on the economic and financial situation of a relevant subgroup of all households. Homeownership is far more than simply a form of housing provision: Financing a home often acts as a savings vehicle and the accumulation of capital is frequently seen as a buffer stock against adverse economic shocks (Turner and Luea, 2009; Di, Belsky and Liu, 2007; Dietz and Haurin, 2003). Fluctuations in house values, therefore, have important implications. While house price increases generate often considerable capital gains for homeowners, dwindling markets put households under severe financial stress<sup>4</sup>. This profound impact on homeowner's economic situation constitutes the political relevance of asset price fluctuations as political parties take an interest in homeowners' economic fortune. Considerable shares of the population in all countries of the developed world are homeowners, ranging from roughly 38 per cent in Switzerland and 41 per cent in Germany to 71 per cent in the UK and 78 per cent in Spain in 2004 (Andrews and Sánchez, 2011a)<sup>5</sup>. Exposure to housing market fluctuations varies from household to household. However, homeownership represents a long-term commitment via e.g. mortgage payments and so house prices remain an important signal concerning homeowners' general economic situation and outlook.

The political implications of homeownership have attracted some attention in the literature. A frequent observation is that high-homeownership countries often feature rather small welfare states which sparked theories about a trade-off relationship between homeownership and the welfare state (Kemeny, 1981; Castles, 1998). While there is still debate about causality in this link, an impact of owner-occupation on the welfare state is generally accepted (Delfani, De Deken and Dewilde, 2014). Yet homeownership does not unfold its political implications through the form of housing provision per se but rather through the financial challenge and opportunity it represents (Doling and Horsewood, 2011). Hence, changes in housing values tap more directly into this mechanism.

On the micro level, homeowners often share some characteristics. For instance, homeownership in the US is higher for White, older, better educated, higher income and married citizens (Garriga et al., 2006; Segal and Sullivan, 1998). Similarly, homeowners hold and accumulate more wealth and rather live in rural areas than tenants (Andrews and Sánchez, 2011b; Di, Belsky and Liu, 2007; Turner and Luea, 2009). More recently,

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<sup>4</sup>The relevance of house price volatility on homeowners' economic situation – and thus on preference formation - should vary by housing regimes, e.g. by average housing transactions per household over the life cycle (see Hoekstra (2005) or Schwartz and Seabrooke (2008) for an overview). Due to shortage in comparable data, I include country fixed effects in my models to capture some of the underlying country-specific variation.

<sup>5</sup>Different levels of homeownership should vary the incentives for political parties to consider homeowners an important voter group. Data quality on homeownership, however, is too low to properly model these changing incentives empirically. I opt to control for homeownership levels to at least ensure comparability across countries.



decreasing homeownership in the Anglo-Saxon countries among the young increased the age divide of homeownership (Fisher and Gervais, 2011). Theories of class voting suggest that those characteristics are more likely associated with voters of the right rather than the left (Lewis-Beck, 2009; Manza, Hout and Brooks, 1995).

On political preferences, the evidence is more ambiguous although suggesting that homeownership is linked to more right-wing political preferences<sup>6</sup>. For the US, Kingston, Thompson and Eichar (1984) find no evidence for an effect of homeownership on voters' views on socio-economic policy. Verberg (2000) finds that Canadian homeowners are more conservative on economic, moral and labour issues than renters. For the UK, Saunders (1990) discovers that homeowners are less in favour of redistribution than tenants. André and Dewilde (2014) show that homeowners are less supportive of redistribution with mortgage-holding homeowners showing even less support than outright homeowners.

Differences exist also in political behaviour. Homeowners in the US, Germany and Canada vote more for conservative parties and participate more often in elections (Kingston, Thompson and Eichar, 1984; Häußermann and Küchler, 1993; Verberg, 2000). Looking at property owners in general, similar class voting effects have been found in the UK, the US and France (Foucault, Nadeau and Lewis-Beck, 2011; Lewis-Beck, Nadeau and Foucault, 2013; Lewis-Beck and Nadeau, 2011). In the Netherlands, homeowners in risk of negative equity from falling house prices vote disproportionately for pro-ownership parties (André et al., 2016). Several studies show that homeowners are more likely to vote than renters emphasising their importance as a voter group (Hoffmann-Martinot, Rallings and Thrasher, 1996; André, Dewilde and Luijkx, 2015). On the local level, homeowners are found to participate more often in local politics (DiPasquale and Glaeser, 1999; Dietz and Haurin, 2003).

One important contribution to the political implications of housing comes from Ansell (2014). He argues that the financial situation of home-owning households is largely determined by their house value. Short-term fluctuations from e.g. unemployment can be hedged against through homeownership which, at rising prices, increases the household's permanent income. This then reduces their support for redistribution and social policy in several ways, e.g. through an increased tax burden or simply the reduced demand for social insurance. His analysis shows that homeowners have lower preferences for social policy and decrease their support as house prices rise, particularly right-wing voting homeowners. The same study suggests that right-wing governments utilise these preference shifts by cutting back social policy significantly, thus exploiting the changing social policy attitudes of their electorate to carry out welfare state restructuring without the risk of electoral punishment.

The described patterns suggest that right-wing parties should have an incentive to consider homeowners as a core voter group, especially as those turn out more often at elections which increases the potential positive returns of addressing homeowning voters' needs.

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<sup>6</sup>Unfortunately, the literature is often inaccurate whether conservatism applies to an economic or a socio-cultural dimension. I argue that the former is more relevant as differences in socio-cultural political preferences are rather related to characteristics that affect selection into homeownership.

### 3.5 Parties' responses to house price fluctuations

Applying the theoretical argument to the case of housing market fluctuations, two questions need to be answered. Firstly, which parties should be responsive and secondly, which positional response do we expect? With respect to the first question, the previous section has shown that homeowners are disproportionately represented by right-wing parties so that we can consider them as a core voter group. Of course, this link varies by the extent to which homeownership is distributed across the electorate. The more people are homeowners, the fewer individuals select into homeownership which weakens its performance as an indicator of membership to a voter group. Linking this to the argument, parties of the right should be disproportionately responsive to external shocks affecting homeowners while parties of the left should display a smaller or no response.

The external shock I am investigating are changes in house prices. Increases and decreases in housing values tap into households' expectations about the development of their economic and financial situation. This is so relevant as households often rely on housing wealth in their financial planning over the life-cycle<sup>7</sup>. If house prices rise, homeowners virtually incur capital gains. When another adverse shock then strikes, those gains can be materialised, and housing wealth unfolds its insurance function. Households should derive a feeling of economic security and increasing wealth from rising house prices. The opposite happens when housing values decrease. Then, for instance, mortgage-paying households fear the prospect of negative equity and homeowners suffer from virtual capital losses, thus affecting a household's economic and financial situation quite substantively. A decreasing house value should lead to an increased feeling of insecurity and a worsening economic outlook.

These effects on the economic situation of homeowners are informative to parties and the direction of house price changes prioritises either the core or the swing voter logic for right-wing parties in their programmatic positioning. When house prices rise, homeowners face positive economic prospects. Right-wing parties should thus not waste their programmatic resources by sending an additional signal to core voters. Homeowners turn out disproportionately more often as do higher-income voters in general (André, Dewilde and Luijkx, 2017; Pontusson and Rueda, 2010; Mahler, 2008). In other words, the marginal electoral benefit of addressing homeowners' preferences, e.g. by lower degrees of redistribution, is rather low when house prices are rising (with possibly lower costs of abstention from this group). This opens some margin for right-wing parties, who are on average more to the right on an economic policy dimension so that they can move leftwards to the centre and try to expand their electoral base.

In the opposite situation, when decreasing house prices worsen the economic prospect of homeowners, right-wing parties have an incentive to send out signals that reassure

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<sup>7</sup>Strictly speaking, current house prices are not necessarily informative about house prices in old age. Nevertheless, whether the decision to invest into a house to accumulate wealth is perceived to pay off is affected by the development of the house's value relative to the buying price. More importantly, in countries where households typically trade up from property to property, the current housing market conditions are even more salient as they determine the next investment decision directly.

their core constituencies as these might now credibly threaten to withdraw their support. The marginal electoral return of a leftward move decreases substantially, while reassuring core voters yields a higher return. Thus, these parties should move to the right when house prices are falling. Such a move to the right is typically associated with e.g. a reduction in social benefits and lower taxes. By the lower exposure to typical social risks such as e.g. unemployment, homeowners, in comparison to tenants, should not demand more social benefits under economic distress<sup>8</sup>. They should rather seek signals of reassurance concerning the proper functioning of housing and banking markets as well as a stable or reduced tax burden. Consequently, it is rational for right-wing parties to move rightwards when house prices are falling to signal their commitment to core voters and ensure their mobilisation. Hence, parties should prioritise the core over the swing voter motive. To prepare the empirical analysis, the following section introduces the research design and the data used for the empirics.

## 3.6 Measurement, model specification and data

### 3.6.1 Measuring party positions

I measure party positions using data from the Comparative Manifesto Project (CMP) (Volkens et al., 2015). The unique advantage of the CMP dataset is its coverage of 55 countries over a period from 1945 to 2015, thus allowing for comparisons of party positions over time within and across countries. The CMP data offer abundant information about parties' positions on a multitude of dimensions. I test my argument about the movement of parties in the policy space as a response to changes in house prices by mainly looking at the economic policy dimension. Parties have the highest leverage to influence the economic situation of the electorate when deciding about economic and social policy issues such as taxation or the distribution of benefits. Leftist positions on this dimension include welfare state expansion as well as higher degrees of redistribution while rightist positions represent the opposite.

The conventional approach to work with the CMP data is to locate parties on a left-right dimension and evaluate positional shifts along this dimension. I present the results of one left/right measurements of the numerous proposed in the literature here in the main text and report the results of two additional measurements which are similar but differ in the selection of items and the method of aggregation in the supplementary material. Reporting results from three different indicators should account for some of the shortcomings inherent in every positional measurement and increase the robustness of the empirical results. In the main text, I use the index by Franzmann and Kaiser (2006)<sup>9</sup> which measures positions on an economic policy dimension. Lower values on

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<sup>8</sup>In high homeownership countries, this extends particularly to homeowners who are core voters of the right. As these are on average wealthier and better educated, they should make up the group of homeowners who are less interested in social benefits but rather seek protection for their assets. For right-wing parties, these voters are the more important subgroup of homeowners.

<sup>9</sup>Throughout the paper, I talk about right-wing parties as representing homeowners. The main issue dimension on which parties are theorised to respond, however, is on economic policy. As a result, I am

the scale indicate leftist and higher values rightist positions.

### 3.6.2 Variables of interest and controls

To measure a shift in party positions, I use the first difference between a party's score on the respective index in the current and previous election. For ease of interpretation, this variable is positive if parties moved to the right and negative if the new position is further left. The main independent variable is the change in real house prices between two elections. House price data is taken from the Bank of International Settlements' property price database which covers 18 countries from 1970 to 2010 and deflated to create real house price changes<sup>10</sup>. Comparability across countries is given by the focus on house price changes which also helps to deal with the time trend in the price index time series<sup>11</sup>. I use lagged party positions to identify right-wing parties instead of the party family. Doing so, I follow recent suggestions in the literature which question the problematic assumption of party-family-homogeneity over time and across countries (Garritzmann and Seng, 2016). Especially regarding economic liberalism, parties differ substantively within party families, across countries and over time so that a direct measurement of previous positions is better suited to test the argument. Assuming party families are homogeneous across these dimensions is not only implausible, but it also does not consider spatial dependencies in the data. A right-wing party that shifted far leftwards in the previous election clearly has a different room for manoeuvre than the average rightist party. Using the lagged position relaxes this assumption and exploits the existing variation in the data. It also matches the party's decision before any programmatic move more closely, as different starting points have different strategic implications. Using the lagged party position to identify parties, therefore, represents an important innovation which is more closely in line with the theoretical setting explored in this paper. After all, I am more interested in a difference in degree between parties rather than a difference in kind<sup>12</sup>. The main effect of interest is evaluated via an interaction between the lagged party position and the changes in house prices. The coefficient on this interaction effect is the main result of interest for this paper: When negative, it confirms the hypothesised party behaviour.

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identifying parties as right-wing based on their positions on this issue dimension. Strictly speaking, with this operationalisation it would be more concise to talk about market liberal parties who promote liberal economic policies such as lower degrees of taxation and well-functioning, deregulated markets. Due to a strong overlap between the two labels as most right-wing parties also promote market liberal economic policies, and for ease of understanding and a better link to the existing literature, I stick to the right-wing label throughout the paper.

<sup>10</sup>A measurement including sub-national variation in house prices would be superior to the national average, but there is no comprehensive dataset tracking house prices for several countries over such a large period. As a result, I use national averages and argue that it biases – if at all – against the hypothesised effects as the magnitude of some upswings and downturns in metropolitan areas are downsized due to the averaging.

<sup>11</sup>Both, the change in party position and the change in house prices are stationary and do not contain unit roots. Following a Fisher panel unit root test (Choi, 2001), the null hypothesis of a unit root could be rejected for both time series ( $p=0.000$ ).

<sup>12</sup>As a robustness check, however, I also present results from models using party family dummies and a left-right-dummy based on party families in the appendix (Tables SM2.11, SM2.12, and SM2.13).

Of course, I acknowledge that my statistical and theoretical model only captures a part of all factors influencing how parties determine their ideological positions<sup>13</sup>. Still, I include several political control variables in my models to partially make up for this shortcoming. I control for the electoral system (PR/mixed/majoritarian), the lagged vote share from the previous election and intensity of party competition (effective number of parties on the votes level) with data from the Comparative Political Data Set (Armingeon et al., 2015) to ensure comparability across party systems. Moreover, I calculate the political centre of gravity for each positional index following Kim and Fording (1998). This allows measuring relative programmatic shifts instead of falsely identifying overall shifts in public opinion (Pontusson and Rueda, 2010). The theoretical expectations concerning the direction of party responses hinge on assumptions on voter turnout and competition from the fringes of the ideological spectrum. To capture some of these dynamics, I include a voter turnout variable to hold mobilisation constant (Armingeon et al., 2015) and add a variable measuring competition from the right to a second specification of the model. I also include a government dummy (Seki and Williams, 2014). Moreover, I add a measurement of homeownership levels with interpolated data collected from 18 national statistical offices ranging from 1970 to 2014. Furthermore, I include several macroeconomic indicators to capture changing economic circumstances. Those controls include the change in unemployment, the current real GDP growth rate, the interest rate on government bonds, the inflation rate, the change in government debt and an indicator of the economy’s openness and the Gini coefficient (Armingeon et al., 2015). Controlling for the general economic environment is important since it also affects households’ economic prospects and potentially interferes with the theoretical argument. Furthermore, I control for the log of population, the difference in the share of people over 65 and the share of the urban population (Armingeon et al., 2015; World Bank, 2016). The first two variables are widely used in welfare state research and potentially drive all parties’ positions. The latter should help to account for the possibility that highly urbanised countries experience different housing market dynamics.

### 3.6.3 Data structure and model specification

The time structure in my dataset is given in legislative terms following the CMP. The time dimension is strongly unbalanced as elections recur irregularly. Therefore, I construct a variable that ranks legislative terms and introduces a time-series cross-sectional data structure. In my statistical models, I control for the duration of the legislative term. This time structure avoids inflating the number of observations as a yearly linear interpolation of manifesto data would do (Garrizmann and Seng, 2016). Looking at legislative terms, significant changes e.g. in important economic variables have sufficient time to unfold their effect so that parties can react to those developments (Schmitt, 2015).

From an econometric point of view, there are several issues which deserve closer attention. Firstly, the main theoretical interest of this paper is on how parties respond

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<sup>13</sup>See Adams, Haupt and Stoll (2008, footnote 1) or Adams (2012) for an overview.

to changes in house prices. Therefore, I specify models using the first difference of party positions as the dependent variable. This specification choice does not come without problems. Changes in party positions are contingent on previous changes as well as previous positions. To capture most of these dependencies, I control for the latter (in the interaction effect) and present additional results from models controlling for the lagged dependent variable in the appendix (Adams et al., 2006). Moreover, I also present findings from the model with level party positions to demonstrate that the results are not driven by the difference structure of the dependent variable. Secondly, the simultaneous consideration of country and party level variables introduces a hierarchical dependence into my dataset where parties are nested within countries. In addition, the time structure per election produces a strongly unbalanced panel. To get some empirical leverage on the data structure, I include country and year dummies and robust standard errors to capture some of the unobserved sample heterogeneity and within-country correlation<sup>14</sup>. Standard errors might still be serially correlated, so I present results from models using an auto-regressive error structure as sensitivity analyses in the appendix. Using these different models, I am confident that dependencies in the error terms over time and between units are appropriately modelled. Thirdly, as an additional check on these issues, I also present results from models using party random- and fixed-effects in the supplementary material<sup>15</sup>. Using a party-fixed effects approach is a relatively conservative test as it only exploits within-variation for the analyses and therefore controls for idiosyncratic time-invariant unobservable characteristics.

Here in the main text, I present findings from pooled OLS models with robust standard errors, country and year dummies. The models follow equation 3.1 using the change in party positions as the dependent variable, change in house prices, the lagged party position and their interaction as main independent variables. In addition,  $Z$  represents a vector of control variables:

$$\begin{aligned} \Delta POS_{i,t} = & \beta_0 + \beta_1 \Delta HP_{i,t} + \beta_2 POS_{i,t-1} + \beta_3 (\Delta HP_{i,t} \times POS_{i,t-1}) \\ & + \sum_{k=4}^l \beta_k Z_{kit} + \alpha_i + \gamma_t + e_{it} \end{aligned} \quad (3.1)$$

### 3.7 Results

Table 3.1 presents the results of four models with different sets of control variables. All models use the inter-election change in the Franzmann/Kaiser economic policy dimension score as the dependent variable. The first column reports the baseline model without interaction effect. Columns two to four present the estimations using

<sup>14</sup>Using country dummies is additionally important as party systems are often subject to country-idiosyncratic traits (such as institutional features or historical pathways) which are hard to measure and thus impossible to model. Introducing country dummies can – at least partially – account for these differences (Pontusson and Rueda, 2010).

<sup>15</sup>A Hausman test suggests that the fixed-effects model is preferable as the null hypothesis of no correlation between individual error terms and regressors is soundly rejected ( $p=0.000$ ).

an interaction of house prices with lagged party positions. In column three, I add a control variable for the centre of gravity in the party system so that the party position shift can be interpreted as a shift relative to the median voter (Pontusson and Rueda, 2010). In column four, I add a measurement of competition from the right to better capture the reality of multiparty competition.

**Table 3.1:** Determinants of shifts in party positions

	(1)	(2)	(3)	(4)
	Baseline	Interaction	Interaction	Interaction
$\Delta$ Real house prices	-0.002 (0.157)	0.001 (0.750)	0.000 (0.873)	0.001 (0.660)
Party Position (t-1)	-0.041 (0.000)	-0.034 (0.000)	-0.036 (0.000)	-0.161 (0.000)
$\Delta$ House prices $\times$ Party Position (t-1)		-0.001 (0.077)	-0.001 (0.089)	-0.000 (0.075)
Center of gravity			0.072 (0.043)	0.126 (0.000)
Competition from the right				-0.155 (0.000)
Observations	903	903	903	903
$R^2$	0.141	0.145	0.149	0.263

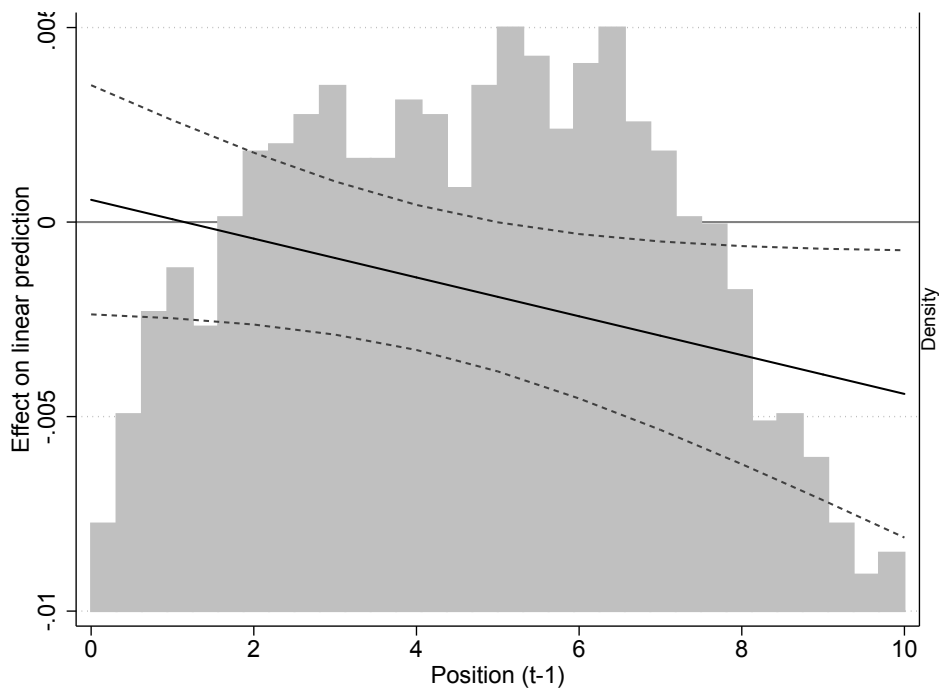
Full model results and additional robustness checks can be found in the supplementary material (see Tables SM2.2 - SM2.15). P-values are reported in the parentheses and are obtained from robust standard errors. Country and year dummies included.

Overall, the most significant and largest predictor of a change in the party position is the lagged party position itself. In all models, a prior party position further to the right is associated with a subsequent move to the left. The positive coefficient of the centre of gravity variable is intuitive: When the political centre of gravity is further to the right, parties generally move in this direction. The variable on competition from the right is also negative. If there are more parties to the right of a single party (which implies that a party is further to the left), parties shift to the left.

As stated before, the coefficients on the interaction terms should be negative if supporting the argument. For the positional measurement employed here, I find significant and negative interaction terms at a 10 per cent level. Alternative model specifications in the supplementary material using different positional measurements and empirical specifications generally corroborate this effect. This finding suggests that parties that have been located further to the right in the previous election are systematically shifting leftwards in response to house price increases. In support of the argument, this also implies that parties move rightwards when house prices are decreasing. Figure 3.1 plots the linear marginal effect of house price increases on the position shift for a range of lagged party position with a 95 per cent confidence interval using model (3)<sup>16</sup>. The negative slope indicates that when house prices rise, a party position further to the right is associated with a programmatic shift to the left. The effect is only different from zero for parties located on the right-hand side of the political spectrum while for parties of the left and centre left, no such effect can be found. I interpret this as

<sup>16</sup>Alternative specifications of the interaction effect allowing for non-linear marginal effects are reported in the appendix and generally support the argument.

evidence for an asymmetric partisanship effect. The empirical distributions of all party positions in the sample (grey histograms) show a considerable number of observations to fall into the significant area (Brambor, Clark and Golder, 2006). Interpreting the magnitude of the coefficients requires some elaboration. The actual house price effect is multiplicative and consists of the coefficient on house price change and the interaction term dependent on the previous party position and the average change in house prices. For instance, in model (3), the average conservative party in the sample with a position score of 6.6 together with the sample average house price appreciation of 27 points shifts such a party by -0.1 points to the left compared to a median leftward movement in the sample of -0.3. Roughly a third of the most common move to the left can thus be explained by the interaction effect.



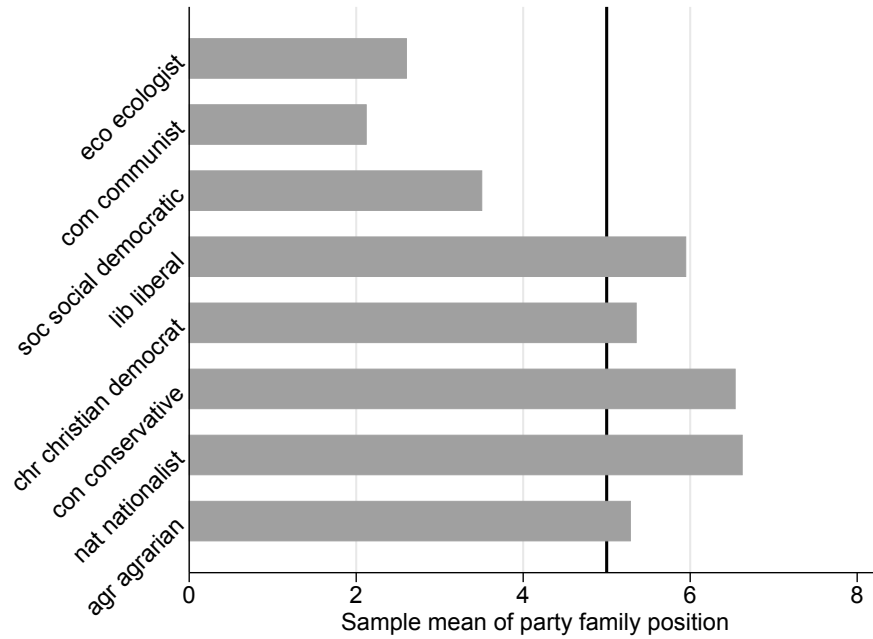
**Figure 3.1:** Marginal effects of house price change over previous party position

Dotted lines represent 95 per cent confidence intervals around point estimates.

To see which parties are responsive, Figure 3.2 plots the results of a rough test: Which party families are on average located sufficiently to the right to display a systemic response to house price changes? The black vertical line indicates the threshold where the marginal effect becomes significant. This encompasses on average only liberal, Christian democratic, conservative, nationalist and agrarian parties, so exactly the parties which disproportionately represent homeowners.

As an additional illustration, Figure 3.3 plots the results of predicted party responses over a range of house price changes, holding all other variables constant at their mean. I plot the shift for three party types, a leftist, a centre and a right-wing party. From the prediction, we can first learn about the substantive magnitude of the effects which are quite sizeable. For instance, in the central plot, right-wing parties (with a score of 7.75 on the index) move to the left by more than -0.2 points when house prices increase

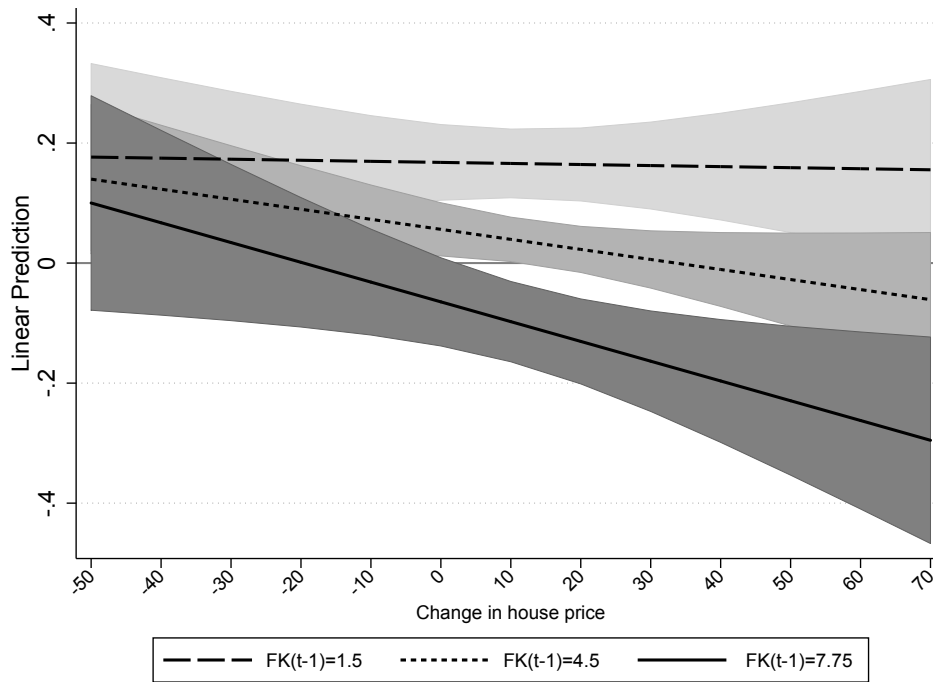




**Figure 3.2:** Average party position by party family (across all elections); based on CMP party family coding

by 50 points. Secondly, the plot helps to disentangle whether the effects are mostly driven by house price changes or the lagged party positions. This matters as the driving force behind the results could theoretically be a regression-to-the-mean-phenomenon: A party located far to the right has more room for manoeuvre to move leftwards than further rightwards. The difference between the curves is given by the different coefficient sizes for the party position (different intercepts) and different sizes for the interaction effect between house prices and party positions (different slopes). With respect to the level differences, the model shows that there is considerable variation between parties. The order of the curves suggests some regression-to-the-mean as left parties move right, and right-wing parties move left.

The most relevant result with respect to the asymmetric responsiveness, however, are the slope differences: The steeper the slope, the more responsive a certain party is to house price dynamics. The curve for leftist parties is flat throughout the range of house price changes. The positional response of right-wing parties, and centrist parties to a smaller extent, however, is conditional on the housing market changes. To see that right-wing parties indeed change the direction of their response, it is important to correct for the regression-to-the-mean visible in the plot. As stated above, the regression-to-the-mean introduces a level shift into the visualisations. In the case of the right-wing party, this is a downward shift. Therefore, the magnitude of the leftward shift with booming markets is probably slightly exaggerated while we can expect right-wing to move rightwards when prices drop. Overall, these simulations corroborate the previous findings: Right-wing parties interpret housing market developments as an informative signal which they might respond to while leftist parties do not exhibit such behaviour. The direction of right-wing parties' movements changes with house price



**Figure 3.3:** Predicted responsiveness to different house price changes, by previous party position (from left to right: left-wing, centrist, right-wing)

Shaded areas represent 95 per cent confidence intervals around the respective point estimates.

developments.

### 3.8 Discussion

In this paper, I present a theory about how parties change their position in response to a change in the economic environment. The theory offers a more structural, political economy perspective on party position shifts by focusing on the economic costs and benefits that external economic developments have on core voters of political parties. In addition, the argument allows for asymmetric responsiveness by political parties depending on their links to the electorate. I have tested the argument by looking at a so far neglected economic development in party research, fluctuations on housing markets. House price changes disproportionately affect core voters of right-wing parties who moderate their positions under house price booms while polarising when house prices drop. This article has broader implications for two research fields, the politics of homeownership and housing markets as well as party research. Starting with the former, the shown leftwards shift of right-wing parties is puzzling as previous research on the micro and macro level has shown that house price increases lead to a decrease in support for redistribution among homeowners and a reduction of social spending and other policy outcomes (Ansell, 2014; André and Dewilde, 2014; André et al., 2016). As a result, house price booms appear to push voters and governments further to the right. Theoretically, if parties simply matched their core voters' preferences, they should

similarly move rightwards. This paper's findings, however, suggest otherwise. As it is unlikely that parties are unaware of their core voters' preferences (Cox and McCubbins, 1986), it appears more plausible that they suggest other policies to expand their voter base while taking the mobilisation of core voters for granted. When a party's core voters are doing well, this creates strategic room for manoeuvre that parties seek to exploit by reaching out to new voters. It needs to be noted, however, that the samples and research designs studied in this paper and most of the micro evidence differ in scope and time covered so the divergence of results might originate in sample effects.

On the macro level, Ansell (2014) shows that right-wing governments respond to house price increases by a rightward move on an economic policy dimension through e.g. cuts in social policy. This is similarly puzzling, as this paper suggests that right-wing parties moderate during the campaign. Several arguments might account for these conflicting results. Firstly, party positions as measured in election manifestos are not perfectly comparable to policy outcomes so divergent results might be an artefact of different positional measurements. Also, not all right-wing parties in my sample entered government, so a selection of certain parties into government might drive the conflicting result. Additionally, parties which enter government are bound by certain institutional constraints (e.g. through negotiations with other levels of government, budget constraints) which affects their potential to keep election promises. Moreover, Adams (2012) points out that there is weak to no support for systematic electoral consequences of party position changes. This, again, points to a strategic room for manoeuvre for parties to attract new voters without fearing to lose support by core voters.

This argument has a more general relevance. Whether parties can and do behave strategically is still debated in the literature. Research on promise-keeping by political parties suggests that governments do so at a rather high rate (Pétry and Collette, 2009) while others have argued that governments diverge strongly from manifesto pledges (see Adams (2012, p.413) for an overview). It seems that there is variation between countries, parties and over time with respect to promise-keeping. For instance, a recent study finds that promises on regulatory issues which are easy to change are most likely kept while promises on redistributive issues are more difficult to deliver (Brouard et al., 2018). Patterns of non-compliance can be explained with strategic behaviour by political parties who "measure the constraints and incentives that weigh upon policy-making" (Brouard et al., 2018, p.13). While a review of the literature on promise-keeping suggests that strategic party behaviour is possible, the evidence on the case of homeownership and housing markets presented in this paper cannot conclusively resolve this puzzle which requires more attention by future work. At the same time, the presented argument delivers a good framework to characterise the underlying reasoning behind strategic behaviour.

Within the suggested framework, the strategic calculus for parties implies weighing the benefits of attracting new voters against the costs of not matching core voters' preferences. Whether potential gains outweigh the costs depends critically on the expectation whether core voters can credibly threaten to withdraw electoral support either by voting for competitors or by abstention. Given that electoral participation among core voters is not identical for all political parties, a very interesting corollary

of the argument is that some parties might enjoy more strategic leeway than others. Parties of the left struggle disproportionately to mobilise core constituencies (Pontusson and Rueda, 2010), so future work should investigate whether parties of the right enjoy a comparative electoral advantage over their competitors from the left resulting from strategic freedoms.

Above all, however, more validation for the presented argument is needed by studying other economic processes that might have similar effects. Similar asymmetric party responses can theoretically be triggered by a variety of socio-economic processes. A precondition for an asymmetric effect is that a process has a substantively and disproportionately large effect on a clearly targetable share of the population that is linked to a certain party. In addition, core voters' ability to threaten a withdrawal of electoral support has to be limited. More work with a focus on other socio-economic developments is required to evaluate these scope and conditions. A promising approach would be a micro-founded analysis contrasting preference responses on the voter level to economic developments with subsequent party position movements.

Besides the focus on asymmetry, the proposed theory also offers a less restrictive account of party position-taking in general. So far, any theoretical prediction on party behaviour depends critically on whether we believe parties to follow core or swing voters and whether some party characteristics exist to link them particularly strong to either group (Schumacher, 2013; Ezrow et al., 2010). In addition, the literature on party position shifts frequently assumed whether shifts in overall public opinion drive parties uniformly in one direction (Adams et al., 2004). The theory advanced here allows that and explains why parties of different ideologies respond differently to the same socio-economic development in their positioning given that implications of socio-economic change are unequally distributed across the electorate. Overall, this micro-founded, more structural, political economy-driven perspective on position-taking, therefore, offers a new, more flexible way to think about party competition and the interplay between the economy and politics more generally and can guide and motivate future analyses.

Ultimately, on a more substantial level, the results of this paper also underline that house prices and their volatility should receive more attention as a highly relevant economic phenomenon with far-reaching political consequences. The growing volatility of asset markets is similarly important as the traditional focus on labour markets and monetary policy in shaping not only individual economic well-being but also political responses. In contrast to left-wing parties, whose focus on labour market volatilities and its vulnerable voter groups is well established, developments on housing markets are similarly significant for right-wing parties. In times of rising wealth inequality and a decreasing importance of labour income, understanding how the dynamics of property markets translate into the policy process is highly relevant.

ASYMMETRIC RESPONSIVENESS: THE EFFECTS OF  
SOCIO-ECONOMIC DEVELOPMENTS ON PARTY  
POSITION SHIFTS

(co-authored with Leonce Röth)

**Abstract**

Responding to voters' opinion is a core task of political parties in democratic representation. When conditions change, parties should change their signals to the voter too. Surprisingly, the state of the art assumes that parties shift their position in response to external changes in uniformity. We argue that this is a highly implausible assumption and accordingly theorise a partisan response model allowing for asymmetric reactions across different ideologies. The core of the model highlights the different effects of external changes on different core voters. We argue that parties predominantly shift positions in order to signal responsiveness to their core voters when those are under pressure due to external developments. A Downsian move to the median voter is only plausible in the constellation of low core voter pressure. Thus, we challenge the widespread belief that the core or median voter focus has much to do with the "niche-ness" of a party. We test our theory with a selection of four salient socio-economic indicators as instances of external change (growth, debt, house prices and income inequality). We apply a very conservative test with kernel density interactions in order to identify partisan shifts across the entire ideological spectrum as a consequence of socio-economic change. Our results support the claim that parties first, respond substantially to socio-economic changes and second, asymmetric responses are rather the rule than the exception. The pivotal role of core voter pressure has consequences for a wide range of party and party system effects beyond the economic dimension and allows a more profound understanding of moderating and polarising tendencies in democracies.

## 4.1 Introduction

To start the complex electoral machinery in democracies has much to do with our conviction that such a machinery is necessary to ensure responsiveness as a core aspect of political representation (Pitkin, 1967). Political parties and their members are the primary agents whose responses we are demanding. One of the most visible responses of parties to their voters is to change the programmatic appeal. Thus, party position shifts are at the core of meaningful political representation. Unsurprisingly a considerable number of researchers have dedicated their resources to explain how and why parties change their position. Several general conclusions can be drawn based on the existing studies. Parties are responsive to public opinion (Adams et al., 2004; Ezrow et al., 2010), party organisation (Schumacher, De Vries and Vis, 2013), party type (Adams et al., 2006) or react to moves by competing parties (Adams and Somer-Topcu, 2009). Furthermore, other work shows that parties respond to changes in the surrounding economic environment, in particular with respect to globalisation and inequality (Adams, Haupt and Stoll, 2008; Haupt, 2010; Pontusson and Rueda, 2010; Ezrow and Hellwig, 2014). Overall, the electoral machinery seems to fulfill its pledge of responsiveness.

The existing proof of work for the electoral machinery is still deeply influenced by a Downsian perspective of representation, equating strategic responsiveness with a median voter orientation (Downs, 1957). For instance, if average public opinion changes, parties of different ideologies are typically argued to react in the same way (Adams et al., 2004). Only a second tenet of the existing approaches has defined an exception to this perspective. It is argued that niche parties mainly follow core voter interests while mainstream parties target the preferences of the median voter (Ezrow et al., 2010). Implicitly, the orientation on either core or median voters is assumed to be stable for partisan types. The state of the art on party position shifts, thus, makes us believe that parties react uniformly to changing conditions.

As important as these findings are, they are also irritating once we take a slightly different perspective. Political parties are carriers of political ideologies and help us to direct the spotlight on what is important and what is not. The differences of political ideologies are mainly about the different foci and different guidelines to interpret and react to the world. Political psychology has profoundly confirmed that carriers of different ideologies have very different perceptions in terms of identifying political problems at first and even more so on their actual solutions (Jost, 2017). For example, rising economic inequality obviously triggers different reactions for left and right-leaning individuals (Jost, 2017). From this perspective, it is highly implausible that voters and parties of different ideological camps react in uniformity to changing conditions.

Some existing research argues similarly and acknowledges that parties of different ideologies respond differently (e.g. Adams, Haupt and Stoll, 2008). This perspective has, however, not been developed into a broader theoretical framework on how ideology moderates party responses. Our goal in this paper is to introduce a broader, micro-founded perspective on party responsiveness by arguing that changing environments have typically diverging effects on voters and parties. A uniform reaction is rather the exception than the rule and, if observable, it often constitutes an instance of equifinality,

e.g. right as well as left parties move in the same direction but for different reasons. We think any theory of responsiveness which acknowledges different priorities across voters and parties should start with an account to asymmetric instead of uniform responsiveness.

This asymmetry is based on our first premise that every party first and foremost caters to the demands of their core voters. They protect their core voters predominantly when they are under strong pressure from salient external developments. Most importantly, the same socio-economic developments have typically asymmetric consequences for different parties because the costs and benefits of external developments are unequally distributed across different core constituencies. Only in cases where external developments clearly benefit core constituencies, parties can turn away from satisfied core voters and strategically turn to the median in order to broaden their electorate. Taking the asymmetric meaning of change for different ideologies seriously leads to fundamentally new expectations concerning the position shifts of parties and the overall dynamic of party systems. In a nutshell, our theory of asymmetric responsiveness states that core voters of different parties are differently affected by external transformative processes of societies and accordingly, responsive parties react differently to the same external change. Parties radicalise if their core voters are under pressures and moderate in instances of core voter satisfaction. The result of this argumentation is a more general framework to explain how parties respond to external events.

Although we present our theory of asymmetric responsiveness as a general instance of partisan reactions to change, we limit our empirical analysis to the socio-economic dimension. We select four indicators of relevant and visible socio-economic change (growth, public debt, house prices, and income inequality) and empirically assess how parties respond to their development. The results, based on very conservative estimates using kernel density estimators for the interaction of socio-economic change and ideology on party position shifts, lend fairly robust and systematic confirmation to our claim that partisan responses to socio-economic change are typically asymmetric. The results, although being strongly in line with our core claim of asymmetry, further partly corroborate and partly falsify established and our own expectation of how parties with different ideologies react precisely to growth, rising public debt, rising house prices, and rising inequality.

## **4.2 How socio-economic developments affect party position taking**

The literature on party behaviour has produced several important findings regarding party positions. Fagerholm (2016) has summarised the explanations and evidence of why parties change their position. In a nutshell, changing leadership, changing factions or previous electoral performance seem not to make a systematic difference (Adams et al., 2004, 2006; Harmel et al., 1995; Meyer, 2013; Schumacher, De Vries and Vis, 2013) whereas organisational weakness and strong activists increase responsiveness to external conditions (Schumacher, De Vries and Vis, 2013; Meyer, 2013).

The most important of these external conditions is public opinion. Following the model of dynamic representation, parties respond to the shift of voter's preferences ((Adams et al., 2004; Erikson, MacKuen and Stimson, 2002; Stimson et al., 1995). However, the most widely discussed question is which party responds to whom? Parties are constantly engaged in balancing the preferences of core voters against the preferences of median or swing voters (Aldrich, 1995). Adams et al. (2006) qualified the responsiveness of parties by distinguishing between niche and mainstream parties<sup>1</sup>. They find only mainstream parties to be responsive to public opinion shifts. Consistently, Ezrow et al. (2010) have shown that niche parties respond rather to their core constituencies than to the change of the median voter. Additionally, opposition parties tend to be more responsive to their voters and niche parties to voter position shifts in the core issue they own (Spoon and Klüver, 2014). In other terms, Lehrer (2012) distinguishes between inclusive and exclusive parties. Inclusive parties are responsive to their party voters while exclusive parties react to the median voter (Lehrer, 2012; Schumacher, De Vries and Vis, 2013).

Others have challenged the assumption that mainstream parties react uniformly to public opinion shifts. Party voter shifts are more important than mean voter shifts for parties' positional responsiveness (Schumacher, De Vries and Vis, 2013). However, and this is a crucial point for our argument, different economic signals can have different effects for different parties such that their response is not uniform but asymmetric. For example, left- and right-wing parties respond differently to rising economic globalisation (Haupt, 2010). In the same vein, unemployment and inflation evoke different position shifts for centre-left or centre-right parties (Hellwig, 2012). A typical pattern is that while issues are relevant to the entire electorate, they trigger different responses among different voters. For instance, voters of the political right seek protection from redistributive pressure and potentially higher taxes which can be caused by rising unemployment. In contrast, the constituencies of the left are disproportionately affected by unemployment so that they demand protection as well as investment in employment opportunities (Cusack, Iversen and Rehm, 2006; Rehm, 2009; Iversen and Soskice, 2001). Rising unemployment should, therefore, polarise by driving the right further to the right and the left further to the left because it activates core threats of left and right core voters and makes them demand signals from their representatives. In contrast, economic growth releases the ideological left and right from economic pressure and reduces the urgency of political parties to renew or radicalise their signals. In times of low pressure on the core issues of mainstream parties, those parties can spend their emphasis on more diversified and moderate signals in order to expand their electoral base.

There are other developments which do not affect the constituencies of all parties. Pontusson and Rueda (2010) argue that inequality drives left parties to leftist moves when low-income voters are strongly mobilised. Left parties should be particularly responsive to wage inequality because low-income voter groups as their core constituencies consist of voters who derive their income overwhelmingly from dependent employment (Pontusson and Rueda, 2008, p.313). In contrast, right-wing voters

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<sup>1</sup>Despite the different effects on niche and mainstream parties, both party types seem to influence each other's agenda significantly (Adams et al., 2006; Abou-Chadi, 2016; van de Wardt, 2015).



perceive the value of assets more pressing than wage income distributions (Ansell, 2014). Furthermore, the partisanship literature has argued that right-wing parties are more likely to shift the burden of macroeconomic adjustments to lower income groups to keep inflation in check in an effort to protect asset values (Hibbs, 1977). In the same vein, recent studies show that e.g. house price changes strongly affect the wealth of predominantly right-wing voters who then adjust their policy preferences and voting behaviour (Ansell, 2014; André et al., 2016). Right-wing governments use these preference changes and cut social expenditure during house price booms. Similarly, the economic voting literature suggests that asset ownership increases electoral support for right-wing parties (Persson and Martinsson, 2016).

These examples illustrate that the theorised uniform responses of political parties to external conditions are not very likely. Moreover, it is not necessarily the case that party type is a stable determinant of whether parties rather respond to their core or the median voter. On a more abstract level, we can summarise the literature concerning the expectations on party position shifts in two strands. One strand of literature derives predictions on party positions shifts via the type of party (niche versus mainstream) and its effect on the strategic balance between core and median voter orientation whereas the other strand of literature prioritises the specific meaning of external changes to specific core voter groups. We propose following the latter and show that it subsumes the supposedly different strategic behaviour of niche and mainstream parties. The missing link between both is a more generalisable argument about when parties follow the core voters and when they turn to the median voter.

We start to develop our theory by assuming that all parties have close ties to core voter groups (Pontusson and Rueda, 2010). At the same time, parties are caught in the decision to strike a balance between interests and preferences of these core voters and non-core voters, e.g. the median voter, in order to maximise electoral success (Aldrich, 1995). Although closely linked, the two objectives of targeting core voters and the median voter often pull parties in different directions ((Pontusson and Rueda, 2010). Theoretically, if we want to move past the assumption that party orientation on voter groups is stable for party types, we are left with the task to characterise conditions under which parties choose either to send signals to their core voters or to the median voter. Our take on this task is to formulate an argument about the relative importance of core voters which changes with developments in the external environment. In essence, we suggest that party support by core voters is more likely when these core voters are comparably well off. In such a situation, parties have leeway for moderation and can reach out to the median voter as core voters do not demand specific policy signals. The strategic landscape for parties changes in the opposite situation, when core voters are under pressure by an external development of importance. Consequently, we expect parties to send signals to their core voters when these are under pressure which results in a polarising move.

This rationale subsumes the supposedly outlying behaviour of niche parties. For example, a regionalist party striving for authority at the sub-national level is under constant pressure to deliver authority to their core voters of regionalists or separatists (Rabushka and Shepsle, 1972). In periods where authority is delivered, for example via a decentralisation reform, these parties usually shift more emphasis to mainstream and

moderate issues in order to retain a dominant position in a newly decentralised system (Massetti, 2009). Our argument also explains why parties seem to respond to party shifts of their competitors, in particular when these parties are perceived to be in the same ideological camp (Adams and Somer-Topcu, 2009; Williams, 2015). Due to our reasoning, this might be the case because the same ideological camp faces the same pressure on core voters by the same socio-economic developments. Accordingly, our framework allows both niche and mainstream parties to focus on core or mean voters in their programmatic position.

In a nutshell, we argue, parties radicalise their ideological stance if their core voters are under pressure. Vice versa, they moderate their positional signals when core issues are well satisfied. This has different implications for the development of party systems in general. Party systems can either converge or diverge as a result of parties' positional responses. An interesting corollary is that not all socio-economic developments represent salient issues to the entire electorate. In such a case, we would expect convergence or polarisation on the party level being driven by one ideological camp, the left or the right. For example, Ura and Ellis (2012) show that spending preferences of Republican partisans in the US are a major driver of what they call an asymmetric polarisation, caused by a radicalisation of voters supporting the political right when spending increases. Equally asymmetric is the reaction of Republicans and Democrats to rising economic inequality with Republicans moving faster to the right than Democrats (McCarty, Poole and Rosenthal, 2014).

## **4.3 The empirical verification. Identification, data, and results**

### **4.3.1 Selection of socio-economic developments**

To empirically test our theoretical claims on the party level, we select four indicators of socio-economic change which should trigger different responses by different parties. An important criterion for the selection is that the literature clearly points to asymmetric reactions to these developments by voters with different ideologies which we can then translate into expectations for the analysis at the party level. The first indicator we select for our analyses is economic growth. We consider that economic growth is an overarching goal that all parties attempt to achieve. Left-wing parties link economic growth to distributional equality while right-wing parties have a more general interest in economic expansion as it benefits business (Boix, 1998). Although parties have different opinions on how to achieve economic growth, we argue that economic expansion matters to all constituencies and should lead to more moderate party positions. The move towards the centre is better visible by the inverse interpretation that under an economic recession, parties have incentives to polarise to reassure the interests of their core voters. For instance, Bremer (2018) shows that left-wing parties moved leftwards with respect to the welfare state and economic liberalism. At the same time, the literature also argues that right-wing or centre-right governments and parties move to the right when

the economy is contracting, in particular through cuts to the welfare state (Korpi and Palme, 2003; Amable, Gatti and Schumacher, 2006).

We select house price developments as the second indicator and argue that it taps more directly into the policy preferences of right-wing voters. Ansell (2014) has shown that right-wing voters develop more conservative redistribution and tax preferences under increasing house prices. As right-wing parties represent disproportionately many homeowners, there is a clear electoral connection to consider house prices. Left-wing voters, on the other hand, have not been shown to systematically respond to housing markets<sup>2</sup>. By our argument of economic pressure on core constituencies, we expect rising house prices to lead to convergence as they relax commitment constraints for right-wing parties and allow them to moderate their positional signals to broaden electoral support from moderate voters. Again, the argument is best visible when considering housing market crises where core voters of the political right come under pressure and right-wing parties have an incentive to send out reassuring signals.

The third indicator is gross government debt. Right-wing governments are typically considered to run more balanced budgets whereas left-wing governments display less fiscal discipline (see Cusack (1999) for an overview). This implies that right-wing governments prefer balanced budgets which they can achieve by promoting fewer interventionist policies and spending cuts when public debt increases. Partisanship is usually thought to moderate fiscal policy preferences such that right-wing voters object to higher spending and higher debt (Stevenson, 2001). For the US case, Ura and Ellis (2012) show that spending preferences of Republican partisans are a major driver of what they call an asymmetric polarisation which is driven by a radicalisation of voters supporting the political right when spending increases. Other studies similarly find that ideology drives voter preferences for fiscal consolidation and public debt more generally (Heinemann and Hennighausen, 2012; Stix, 2013). A typical finding is that while deficit reduction is seen as an important issue, partisanship moderates the preferred method of reduction with rightist voters preferring spending cuts over tax increases to a higher degree than leftist voters (Blinder and Krueger, 2004). Similarly, while leftist voters and parties may agree with the general need for a limit on public borrowing, they are at the same time more likely to protect public schemes such as unemployment or social insurance from fiscal consolidation efforts (Bojar, 2018; Bremer, 2018). As a result, we consider increasing government indebtedness as an issue that is relevant to the entire electorate polarises the voters.

Finally, we select income inequality as the fourth indicator. Equality is the normative core claim of the political left (Bobbio, 1996). Changing patterns of inequality are seen to influence the strategic positioning of parties. Following the canonical model of Meltzer and Richard (1981), democracy is self-correcting in terms of inequality. Inequality increases the redistributive demands of the median voter and drives political parties to follow these demands. Bolton and Roland (1997), as well as Romer

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<sup>2</sup>Left-wing voters can theoretically also be affected by house price changes, e.g. if homeownership expands to the middle class and thus represents less of a socio-economic cleavage. In addition, through their effect on the market for rental housing and rent prices, leftist voters can be adversely affected by rising house prices and polarise. The literature in this regard is, however, less clear so that we decide to argue in favour of an asymmetric argument with respect to house prices.

(1975) have put forward similar arguments. However, low turnout of the low economic strata can lead to situations where the pivotal voter has an income above the median (McCarthy, 2006). Benabou (2000) further qualifies this relationship by highlighting potential efficiency gains from redistribution. The implication is that societies with low levels of inequality have higher preferences for redistribution than societies with higher levels (Benabou, 2000). The economic power of the higher income earners might block the self-correcting tendencies of inequality (McCarthy, 2006; Bonica et al., 2013). Data from the US suggests a relationship between inequality (top income shares) and polarisation which is driven by two tendencies. The Republicans moving stronger to the right than the Democrats (a right-skewed polarisation, see McCarty, Poole and Rosenthal (2014)). On the US-state level, polarisation follows higher levels of inequality as well (Garand, 2010). However, this evidence is based on a majoritarian system and more proportional systems have been shown to yield more equal income distributions (Austen-Smith, 2000; Iversen and Soskice, 2006; Persson, Roland and Tabellini, 2007).

Left parties should be particularly responsive to wage inequality because low-income voter groups as their core constituencies consist of voters who derive their income overwhelmingly from dependent employment (Pontusson and Rueda, 2008, p. 313). Right parties have for a long time now engaged in the negligence of inequality as a problem for societies at all (Hickson, 2009). Both findings combined support expectations of a left-skewed polarisation (Pontusson and Rueda, 2008, p. 313); in particular in constellations of highly mobilised low-income voters (Pontusson and Rueda, 2010). Overall, the literature on partisan responses to inequality starts from the assumption of a symmetric left shift but increasingly qualifies the expectations into the hypothesis of an asymmetric left-skewed response. In Table 4.1, we summarise the selected indicators of socio-economic change and the expected partisan response.

	Expected party level effect		Party system implication
	Left	Right	
$\Delta$ GDP	Move right	Move left	Moderation
$\Delta$ Public debt	Move left	Move right	polarisation
$\Delta$ House prices	No effect	Move left	Moderation
$\Delta$ Inequality	Move left	No effect	polarisation

**Table 4.1:** Expected party system response to the selected indicators

We would like to recall that we expect parties to base their strategic balance between core and median voter orientation on a simple formula. When core constituencies move towards the median, parties should follow because moderating shifts reduce the distance to both voter groups. However, we have argued that core voters move away from the median in cases when they are negatively affected by socio-economic developments which are important to them. In contrast, if core voters are indifferent or positively affected by socio-economic developments, parties ideally move to the median in order to broaden their electoral support. In the following part, we present the data we use for the empirical evaluation of our claims.

## 4.4 Case selection, data, and identification at the party level

### 4.4.1 Case selection

Partisan programmatic responsiveness is a phenomenon we can at best expect in democracies. A case within the universe of such democracies constitutes a positional shift of a party between two elections. We admittedly limit the scope of the argument and consequently the sample to parties with visible socio-economic preferences and exclude ethnic and special issue parties as defined by the CMP/Marpur coding scheme (Volkens et al., 2017). Moreover, we limit the period under investigation to the years 1980 to 2017 for two reasons. First, political scientists have identified a watershed in ideational and structural conditions before and after the golden age of embedded liberalism (Ruggie, 1982) and second, as niche parties are an important aspect of our argument we acknowledge their rising importance from the 1980s onwards. The scope conditions in terms of time and partisan types are relaxed in the robustness section in the appendix. The remaining restrictions of the cases included in our analysis do not follow a purposeful selection but constraints of data availability.

### 4.4.2 Data

We take advantage of the CMP/Marpur database providing party manifesto signals differentiated in 54 issue categories (Volkens et al., 2017). Conventionally, party positions are aggregate measures of theoretically selected issue categories which are measured as a percentage of category counts (see for example Budge and Laver (1992) for the default index of left and right (RILE)). We depart, from the conventional measurement of the RILE for two reasons. First, we are theoretically interested in the impact of socio-economic development on the socio-economic positioning of political parties. The RILE, however, entails issue categories referring to cultural and foreign policy issue for which we see no theoretical justification to be influenced by the main independent variables under scrutiny. Second, the measurement decisions involved in the aggregation procedure of the RILE index has been shown to not produce the most valid estimates of party positions (Röth, 2017; Röth, Afonso and Spies, 2018). Accordingly, we select a measurement procedure based on CMP/Marpur data developed to provide comparable party positions on the economic dimension over countries and time (see Röth (2017) for the procedure<sup>3</sup>). Henceforth the terminology of interventionist versus left or market liberal versus right is exchangeable. Party positions shifts are measured as first differences of party positions between two elections. Theoretically, we assume the level of a party position in  $t-1$  to moderate the effect of socio-economic developments on party position shifts because asymmetric responses of left and right parties are at the core of our argument. Overall, this leaves us with around 2000 party position shifts in 37 countries from 1980 until 2017.

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<sup>3</sup>As a matter of verification for this argument we test every model with the Rile index instead of the party position on a purely socio-economic dimension in the robustness section.

We test our theoretical expectations using four socio-economic developments. Economic growth is measured in percentage change (World Bank, 2018). Note that change rates appear higher as usual as we calculated the change rates for electoral periods instead of years. Debt data have been taken from the Comparative Political Dataset (Armingeon et al., 2015) and were updated with more recent figures via OECD sources (OECD, 2018). Changes in house prices are measured using data from the Bank of International Settlements' property price database which covers 18 countries from 1970 onwards (BIS, 2018). In addition, house price indexes for three countries have been added from the national statistical offices. Although house prices vary strongly within countries, we argue that this data is still the best proxy that captures most of the variation we are interested in, namely the visible changes in overall residential property values over time in countries. We measure inequality by the top one percent income share (WIID, 2018) as top income shares are better comparable than Gini-coefficients.

### 4.4.3 Identification

We are interested in the effect of socio-economic change for political parties' positional shifts, moderated by the ideological position of that party. Although we look at changes in the dependent variable, party system and time trends might not be fully captured by our controls. There is clear evidence for auto-correlation following the standard test of serial correlation (Wooldridge, 2010; Drukker, 2003). Accordingly, we estimate random effects models with panel specific auto-correlation (Beck and Katz, 1995) including country fixed effects<sup>4</sup>. Furthermore, party position shifts might demand clustered standard errors on the country level in order to take party system specific dynamics seriously<sup>5</sup>. However, it has been shown that clustered standard errors in samples with cluster-size being lower 50 are potentially subject to severe bias (Cameron, Gelbach and Miller, 2006; Kézdi, 2004). We opt for an empirical strategy to identify potential cluster-effects by calculating intraclass correlation coefficients (ICC) (see Killip, Mahfoud and Pearce (2004)). We demonstrate empirically that intraclass variance is substantially higher than cross-cluster variance (very low ICC) and thus justify our abstention from country clustered standard errors (compare appendix for the individual ICC p-values).

Our main effect of interest is modelled as an interaction between the four different treatments and the lagged party position respectively. As interaction effects are ideally presented graphically (Berry, Golder and Milton, 2012; Brambor, Clark and Golder, 2006; Hainmueller, Mummolo and Xu, 2018), we only report three types of results below (underlying regression tables can be consulted in the appendix). We first visualise party responses across a range of observed socio-economic dynamics to illustrate the

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<sup>4</sup>We provide results from various different specifications in the supplementary material. Most importantly, we also report findings from models using party fixed effects which represent a very tough empirical test as only within-variation of parties over time is used for the estimation. For these models, we provide detailed tables and graphs in the appendix.

<sup>5</sup>In previous work on party position shifts others have clustered the observation at the election level (Adams et al., 2006; Adams, Haupt and Stoll, 2008; Adams and Somer-Topcu, 2009). We do not follow this approach. The interaction effect reduces relevant observations within elections to very few observations.

substantive magnitude of our results for interventionist (parties scoring 0.2 on a 0-1 standardised index of the economic dimension), moderates (selected by the median in the distribution of 0.5) and market liberal parties (0.8) over the four different socio-economic treatments. Secondly, we show the average marginal effects computed with a kernel density estimator (Xu et al., 2017). The kernel density estimator is a very conservative test because it relaxes the linearity assumptions and thereby avoids the otherwise typical interpolation across areas in the distribution with few or no observations (Hainmueller, Mummolo and Xu, 2018)<sup>6</sup>. In the case of the economic dimension, we have a normal Gaussian distribution with fewer observations at the margins, a highly vulnerable set-up for spurious findings at the margins with linear interaction effects. Thirdly, we depict interactions for niche and mainstream parties separately. As we have four different treatments we avoid bothering readers with a long discussion of controls and continue with a generalised procedure of selecting necessary control variables (confounders) based on the back-door criteria of causal identification (see Pearl (2000) and Morgan and Winship (2007, pp. 105-139)) which we briefly discuss in the following section.

#### 4.4.4 A general identification procedure for necessary control variables

We expect party supporters and parties to move their positions in response to changes in the socio-economic environment. To identify the average treatment effect between changes in the socio-economic conditions and the change in party positions we apply a generalised procedure of causal identification.

Estimating causal effects requires closing all back-door paths (Morgan and Winship, 2007, pp. 105-139; Pearl, 2000). Back-door paths are closed when no causal variance flows systematically from a confounder to the treatment variable and the outcome variable<sup>7</sup>. These are basically the two conditions to identify useful confounders or also often called control variables. To check for possible back-door paths, we have to identify the confounding variables for every relationship between a socio-economic change and the party position. We automatised the procedure with a program checking both conditions for a long list of theoretically justified confounders and selected different sets of control variables for the six different relationships. The two conditions are met if a variable has a systematic effect on the treatment as well as a systematic effect on the outcome<sup>8</sup>.

Our case is more complicated because the treatment is modelled as an interaction with a continuous variable. The treatment is an interaction between the level of a party

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<sup>6</sup>Interflex models are estimated with OLS regressions including country dummies and robust standard errors. Bandwidths are optimised for models with robust standard errors only. Results from models with party fixed effects and party clusters can be found in the appendix.

<sup>7</sup>Additionally, mediators and colliders should be not included in the model because the first picks up much of the variance of interest and the inclusion of colliders leads to spurious findings or non-findings. However, we do not consider any of the included controls as potential mediator or collider.

<sup>8</sup>We estimate random effects models to capture between as well as within variance (Bell and Jones, 2015). We used 95 per cent confidence levels to consider an effect as systematic.

position in  $t-1$  and the change in the different socio-economic variables. Interactions in a consistently applied framework of blocked back-door paths can be perceived as identification over multiple groups (see Morgan and Winship (2007, pp.278-290)). We can think of a closed back-door path for a relationship between socio-economic changes and a party position shift for, let us say, a group of very market liberal parties and a group of very interventionist parties. The whole approach of asymmetric effects should not only let us assume that the treatment has different effects across a dimension of party positions but that the back-door paths might be different as well. That means we might need to select different controls in the case of market liberal and interventionist parties. Accordingly, we used the same automatised procedure with the two conditions for two different groups of parties. The first being parties  $\geq 0.5$  on a market liberalism scale representing market liberal parties (1 being the conceptual extreme point of market liberalism) and parties  $\leq 0.5$  representing interventionist parties (0 being the extreme point of very interventionist parties). In case the treatment, as well as the outcome, is systematically affected, we include the potential confounder in the respective regression model. We report the full selection of control variables and the underlying procedure at length in the supplementary material (see Table SM3.1) and continue with a parsimonious presentation of the results in the following parts. It is important to name two additional aspects of the selection of controls. First, we proved that the inclusion of controls which are not selected by the procedure described above has no impact on our average treatment effect of concern. Second, a variable being a treatment in one model can be a control variable in another. This applies regularly in our case because, for example, GDP growth affects the change in government debt as well as the change in party positions and is accordingly, included in a model estimating the impact of a change in debt on party position change<sup>9</sup>.

## 4.5 Results

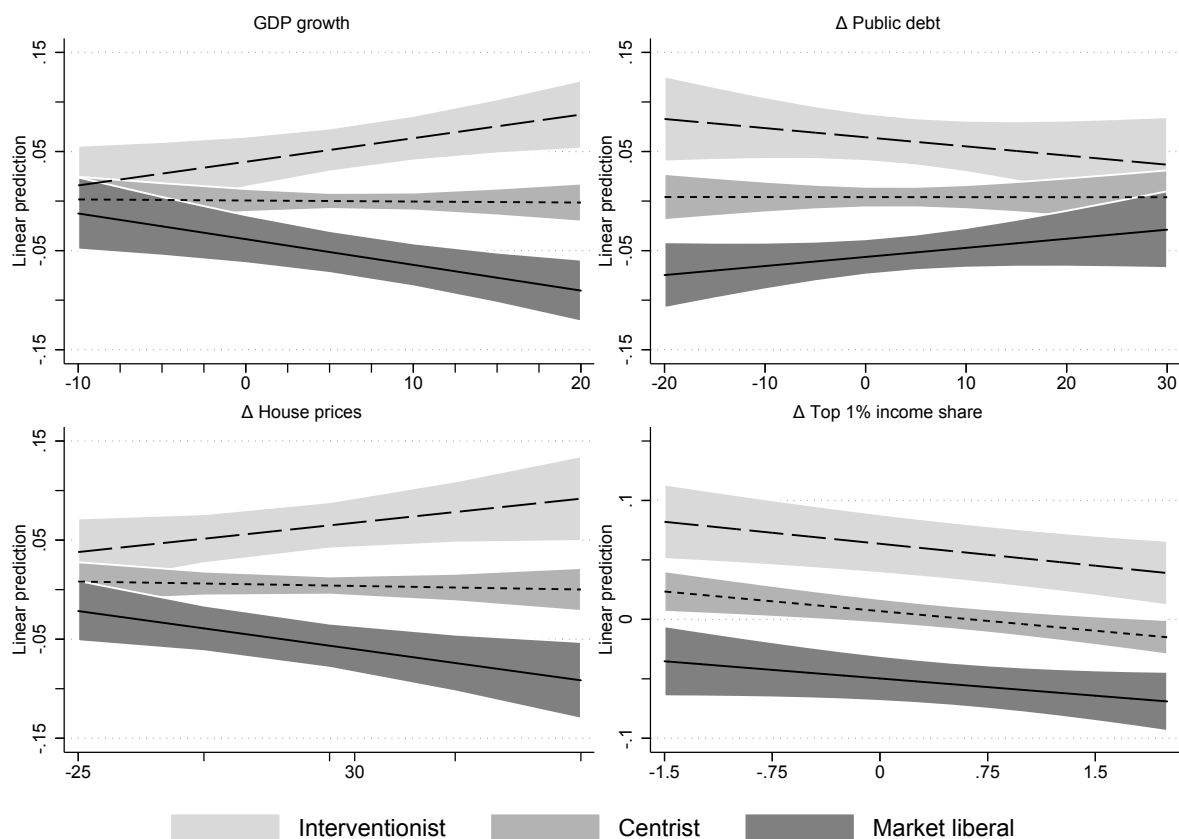
To test the theorised implications for partisan shifts, we estimate interaction effects of the party position in  $t-1$  and the specific socio-economic treatment. Figure 4.1 depicts linear predictions for three selected partisan groups across all four indicators.

The figure maps party shifts across a range of observed changes in the socio-economic treatment. The level of the effect of the market liberal parties below the moderate and left parties might be irritating at first sight. On average, parties moderate their stance and this regression to the mean tendency explains the level of the effects. The levels are, however, meaningless to us because the real effect of interest to us is the difference between the slopes induced by the selected treatments. Discounting for the differences in the intercept, the substantive leftward shift of a market liberal party under the mean expansion (9.4 per cent in GDP) as predicted by the model amounts to -0.024. In the mean recession (-3.3 per cent GDP), these parties shift to the right by roughly 0.01 points on the index. Given the median leftward and rightward shifts of market liberal

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<sup>9</sup>For reasons of data availability, we exclude income inequality as control variable from some models as it disproportionately reduces the sample size.





**Figure 4.1:** Linear predictions of socio-economic developments on party position shifts

Shaded areas represent 95 per cent confidence intervals around the respective point estimates.

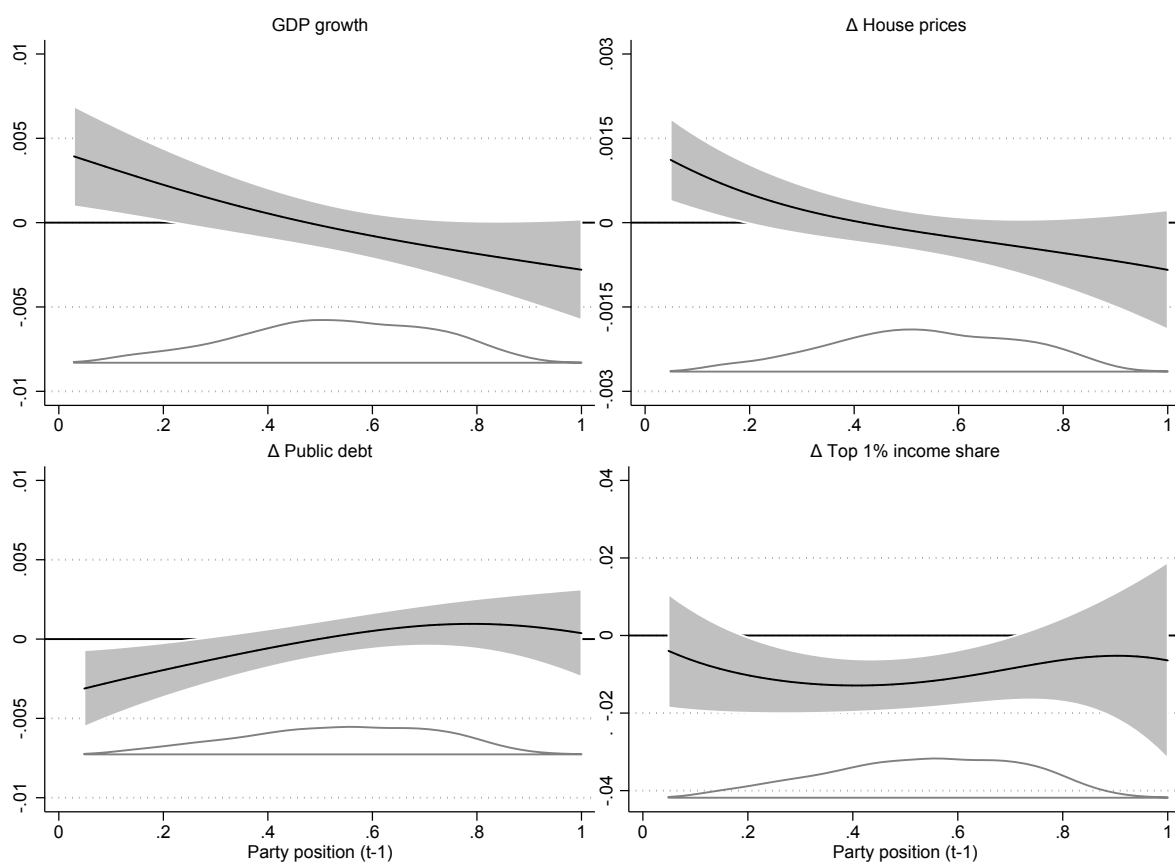
parties of -0.07 and 0.08, the predicted effects account for roughly one third to one eighth of the entire positional movement between elections.

Focusing on the slopes of the predicted movements, it follows from the first three of the four graphs that there are considerable asymmetries between party responses to economic growth, changes in house prices and public debt. Economic growth as quickly described above has the expected moderating effect on interventionist and market liberal parties. Interestingly, and somewhat counter-intuitive to our expectations, booming housing markets lead to a moderation of the party system driven by market liberal as well as interventionist parties. The effect is more nuanced for the former type of parties but nevertheless, it appears that also interventionist parties contributed to the overall moderation in response to house prices.

An expansion of government debt, in contrast, induces polarising responses by parties of the left and the right. Ultimately, different parties do not respond differently to changes in inequality but all rather move to the left. The parallel slopes indicate that the effect of changes in inequality on party position shift is not moderated by ideology.

These graphs are primarily helpful to illustrate the substantive magnitude of our results. Due to the discussed regression to the mean tendency, the direction of position shifts as well as for which parties our results hold cannot easily be discerned from the

graphs. Equally important, we seek to dispel potential reservations against the importance of the categorical distinction of very market liberal and very interventionist parties for our findings. We apply kernel density estimations to obtain marginal effects across the entire continuous dimension of market liberalism to further illustrate our findings<sup>10</sup>. In order to make marginal effects based on few observations transparent, we show the underlying distribution across the economic dimension (see Figure 4.2). Overall, the estimates based on the kernel estimator confirm the patterns depicted in Figure 4.1. However, there are also noteworthy differences where the linearity assumption from the linear predictions is falsified. For example, GDP growth (top left panel) only systematically shifts interventionist parties to the centre. The point estimate of the average marginal effect for market liberal parties has the expected signs but the confidence intervals are too large to constitute a systematic effect. Overall, GDP growth appears to have a moderating effect on party systems which is, however, driven disproportionately by interventionist parties shifting rightwards.



**Figure 4.2:** Marginal effect of socioeconomic treatments across the entire market liberalism scale

Note: Estimations computed with the interflex package to evaluate interaction models (Hainmueller et al. 2017). Robust standard errors and country dummies included.

One of the most robust findings across the four indicators are the effects of house prices on party position shifts (top right panel). House prices are of predominant

<sup>10</sup>Linear marginal effects plots can be found in the appendix for purpose of comparison.

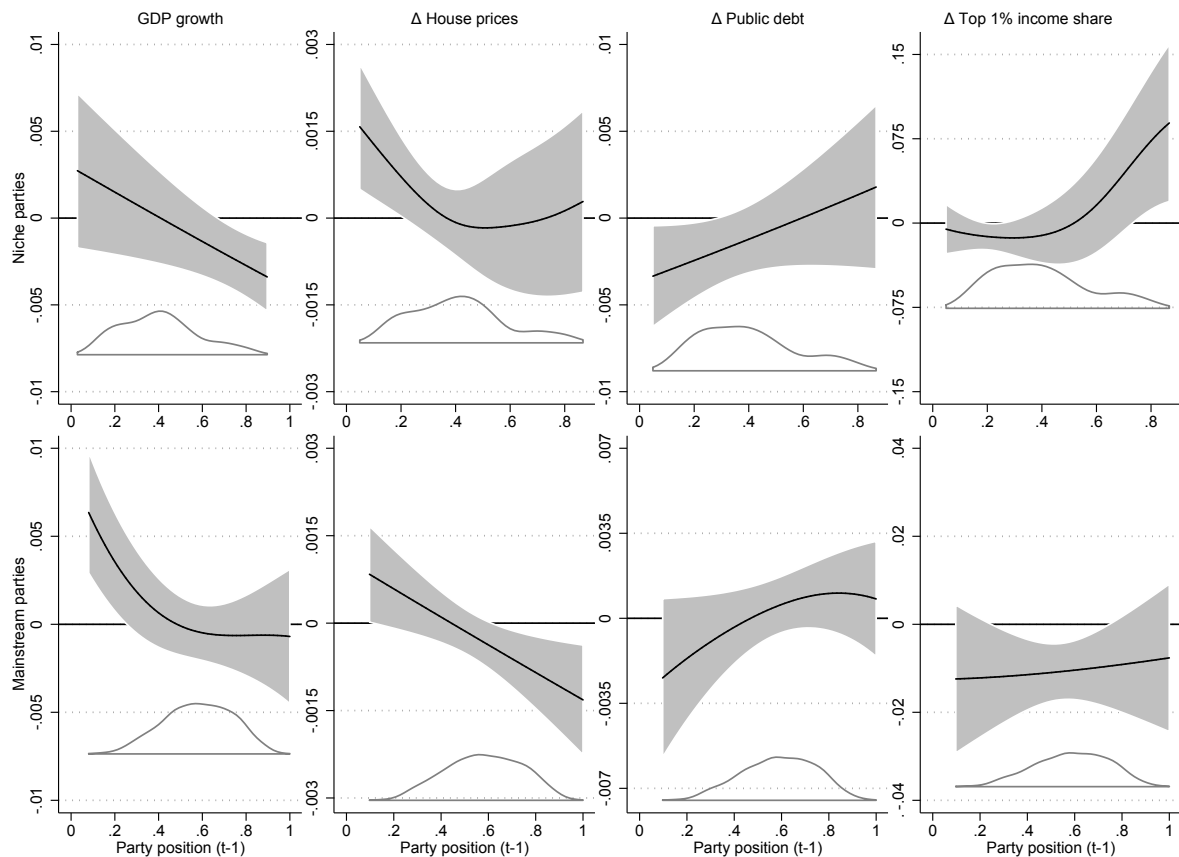
concern to economic right-wing parties (Ansell, 2014). According to our argument, higher house prices should disproportionately benefit voters of the right and therefore open strategic room for market liberal parties to move to the centre. In the opposite situation, however, reassuring core voters who are under pressure should move market liberal parties to the right. For left-wing voters, the literature does not predict a systematic response. Our results support these arguments in part. The point estimate for more market liberal parties is negative indicating they move systematically to the left when house prices increase, but the confidence intervals are rather large. At the same time, we find a moderating response by interventionist parties to house prices. As we control for economic growth, there is a systematic response to house price dynamics by parties of the right and the left exceeding a pure growth effect. House price booms lead to an overall moderation of the party system while negative market developments have a polarising effect.

Theoretically, we assumed public debt to be a core issue for right- and left-wing parties, albeit for different reasons, with a polarising effect on the party system. While our expectation is met for interventionist parties, market liberal parties do not systematically shift to the right (bottom left panel). Interestingly, the average marginal effect is slightly non-linear with a decreasing slope for market liberal parties. The substantive response by interventionist parties by the point estimate is therefore slightly stronger than for market liberals, an interpretation which is apparently concealed by the linear predictions in Figure 4.1. It is worth mentioning, however, that this is a consistent finding against the tendencies of the regression to mean. We interpret this result as driven by different motivations for left- and right-wing parties. While market liberal parties should favour a smaller state in general, it follows by implication that a rising stock of public debt leads to some sort of ideological signal to their supporters to limit public borrowing. We see a tendency of these shifts in the results. Leftist parties, in turn, are not by definition opposed to public borrowing in general. Still, we deem their core voters to be particularly exposed to fiscal consolidation which is why they send out signals which can be interpreted as protecting these interests (Bojar, 2018; Bremer, 2018). Accordingly, they move leftwards in response to increasing debt. Rising debt has a polarising effect on the party system.

The expectations on the impact of rising inequality on party position shifts are inconsistent (bottom right panel). The results, however, portray a consistent picture in line with the canonical Meltzer and Richard (1981) model and furthermore support arguments of Romer (1975) or Bolton and Roland (1997). Higher top income shares are associated with a consistent left-shift across the entire ideological spectrum although the ideological extremes depict broad confidence intervals leading to insignificant effects. This might be connected to the smaller sample size in the case of inequality and few observations on the poles of the ideology distribution. Our own expectations as well as the findings of (Pontusson and Rueda, 2010) towards an asymmetric response of the left are not confirmed.

So far, we have only considered asymmetric responses by political parties based on their previous party positions. Our results match the expectations on ideology as a moderating factor to respond to socio-economic developments. The second assumption we question is whether niche or mainstream parties are stable predictors of core

voters or median voter orientation. Figure 4.3 presents the average marginal effects plots for split samples of niche and mainstream parties. We follow conventional approaches in the literature (Adams et al., 2006) and classify niche parties by party family indicator from the CMP data. Niche parties are communist, green and nationalist parties while social democratic, liberal, Christian democratic and conservative parties are mainstream parties. Crucially, both split samples contain parties of the left and the right on the economic policy dimension such that we can, at least theoretically, expect similar patterns.



**Figure 4.3:** Marginal effect of socioeconomic treatments across the entire market liberalism scale by party type

Note: Estimations computed with the *interflex* package to evaluate interaction models (Hainmueller et al. 2017). Robust standard errors and country dummies included. estimates.

The top row of Figure 4.3 depicts the average marginal effect on the party position change estimated for niche parties while the bottom row reports the results for mainstream parties. Overall, the general patterns remain similar to the results shown in Figure 4.2 for niche and mainstream parties. GDP growth and house price changes induce the same moderating effects while public debt triggers polarisation. However, when we interpret the confidence intervals strictly, some differences to the overall results emerge. Firstly, with respect to GDP growth, it appears that the moderation of the left and the right is driven by different party types. Moderation by the left seems to be driven by mainstream interventionist parties while there is more variation for niche interventionist parties. In contrast, however, moderation by market liberal parties is

mainly driven by niche market liberal parties while mainstream market liberals are not systematically responding to growth.

The results on house price changes support our theoretical expectation. Systematic moderation on the left seems to be driven by positional moves from interventionist niche parties. Responses from market liberal parties are only systematic for mainstream parties. From the point of view of our theoretical argument, this pattern makes sense: Niche parties with more right-wing economic policy positions are mostly nationalist parties for whom we think there is less of a rationale to respond to volatile asset markets. Similarly, it fits the picture that mainstream interventionist parties show no systematic response. We are more puzzled by the moderating responses by niche interventionist parties to house price changes. The positions associated with a significant response, contain about a fourth of all observations. Potential explanations from a theoretical point of view entail that homeownership extends towards the middle class and wider shares of the population which makes interventionist niche parties respond. Additionally, house price changes might be associated with other dynamics for which we do not control and that drive the effects. At the same time, reading our argument for parties whose core issues are not affected might also yield an explanation. As neither leftist voters nor leftist parties care particularly about house prices, a dynamic on this indicator might drive them further to the centre of the policy space as they seek to attract more voters when house prices are booming.

Surprisingly, disentangling party responses to changes in public debt by party type reveals that systematic polarising responses to rising public debt are mostly driven from interventionist parties, and even more so by niche interventionist parties. Market liberal parties, in contrast, show a tendency to moderate but our results fail to reveal a systematic pattern. This points to the fact that from a party perspective, shielding core voters from adverse effects of more pressure towards fiscal consolidation is a stronger driver for interventionist parties than pushing for fiscal consolidation as such by market liberal parties.

Moving to inequality, it turns out that the full sample effect is almost identically replicated for mainstream parties. Mainstream parties of the centre moderate in response to rising inequality. Interestingly, when studying the graph in the top right corner on niche parties, interventionist niche parties are not responsive but market liberal niche parties polarise when inequality rises. This effect is quite interesting and raises questions on who is represented by mostly nationalist parties which populate the right half of the ideological spectrum for niche parties.

Overall, when zooming out of the individual indicators again and relating the results back to our second research interest, we find no strong evidence that niche and mainstream parties are fundamentally different in their responses to the chosen socio-economic developments. As such, we think this represents initial evidence that party type does not clearly determine to whom parties are responsive.

It is important to note, however, that we decided to display rather conservative estimation results. We provide several additional specifications for every indicator in the supplementary material, most of which replicate and often improve the results presented here as to how they match our expectations. What seems important to reiterate

is the fact that almost every model confirms our core claim. Partisan shifts in response to socio-economic change are overwhelmingly asymmetric and thereby challenge the conventional theorising and modelling of uniform partisan shifts.

The entire results are derived from models which have departed from the conventional usage of a general left and right dimension for party position shifts (see for example Adams and Somer-Topcu (2009); (Adams, 2012); (Adams, Haupt and Stoll, 2008)). Purposefully we selected party positions and party position shifts on a purely socio-economic dimension because we wanted to narrow the causal chain between ideological positioning and socio-economic developments and avoid confounding signals from policy areas beyond our theoretical scope (see Hellwig (2012) for a similar procedure). This decision turns out to be of importance because a replication of our results with the RILE index (Budge and Laver, 1992), does show considerably fewer systematic partisan shift patterns (compare Figure SM3.12, Figure SM3.13 and Table SM3.6 in the supplementary material). In our view, this strengthens the value of our approach as using a dimension based on issues that are better comparable and closely linked to our theoretical argument (Röth, Afonso and Spies, 2018).

## 4.6 Conclusion

polarisation and convergence are at the core of any dynamic perspective on democracy because democracy is perceived as working best on a knife's edge between too much convergence and too much polarisation. Explaining the gravitation of party systems around that edge is to explain why parties shift their position. The existing literature on that matter has advanced a lot in recent years and has brought many plausible explanations to the forefront. However, we would like to encourage and empirically underline a rethinking of two aspects which still dominate the research on party position shifts. (1) From a theoretical point of view, it is highly likely that parties with different ideologies respond asymmetrically and not uniformly to the very same change in external conditions. (2) We do not think that mainstream parties consistently respond to the median voter and niche parties to core voters but that addressing voter groups depends on how changing external conditions affect core and median voters the right, left, and niche parties respectively. We expect parties to radicalise when their core voters are under pressure while moderating when they fare comparatively well. As parties of the economic left and right have different core voters and accordingly core voters are different, if at all, affected by the socio-economic change, we assume parties to respond asymmetrically. Additionally, these asymmetric dynamics can be driven by shifts of economic right or left parties or both at the same time. Overall, this leads to skewed dynamics of moderation and polarisation on the party system level.

We select four socio-economic indicators which we consider to theoretically tap into the described categories (GDP growth, house prices, public debt, and income inequality) and test the relationship empirically using data from the Comparative Manifestos Project. We model party positions shifts in response to a socio-economic change in order to compare the consistency of partisan responses. The analysis builds on 18 to 36 countries from 1980 to 2017. Theoretically, we expect to see moderation when GDP

grows and house prices rise while increasing public debt and rising inequality should induce polarisation in the party system. Our empirical analysis overall confirms this pattern. Firstly, leftist and rightist parties respond very differently to three of the four indicators. We interpret this finding to question the assumption that parties respond uniformly to the same change in external conditions. Secondly, we disentangle the response by niche and mainstream parties. The overall pattern remains similar thereby showing that a core or median voter focus can be found with mainstream and with niche parties. We interpret this as support for our claim that external conditions make parties prioritise either core or median voters depending on the effect these developments have on their core voters than just their party type. The results give evidence to rethink some of the partisan shifts associated to a socio-economic change in the literature (for example house prices and income inequality) and support a view which stresses the consistency between micro and partisan responses for the future.





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CHAPTER

**FIVE**

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SUPPLEMENTARY MATERIAL

# SM1 Patrimonial Economic Voting in the UK: Homeownership and House Price Appreciation

## SM1.1 Transition to homeownership

### SM1.1.1 Summary statistics

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
Remains tenant	256	294	286	292	273	289	443	399	368	375	208	159	155
Transitions to HO	68	64	91	79	99	92	132	106	100	96	87	47	78
Total	324	358	377	371	372	381	575	505	468	471	295	206	233

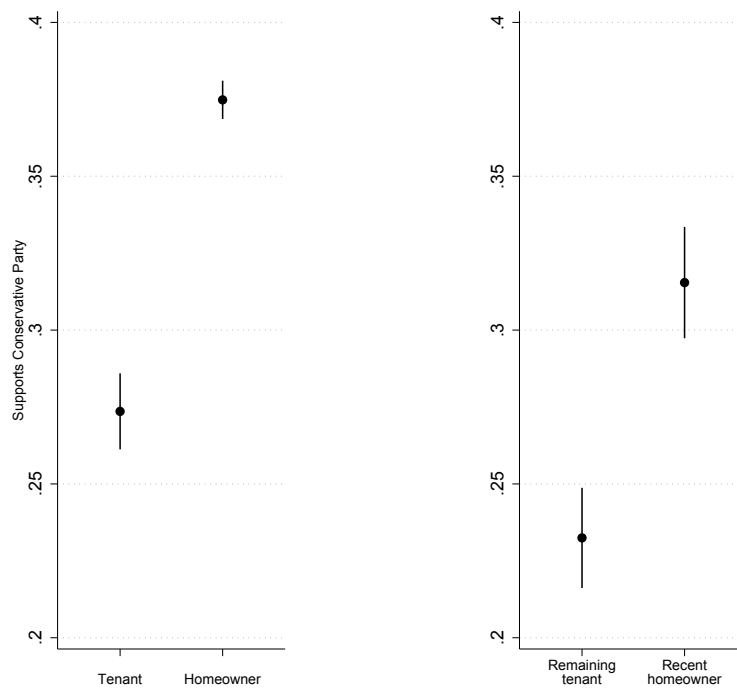
	2005	2006	2007	2008	2010	2011	2012	2013	2014	2015	2016	2017	Total
Remains tenant	176	166	159	156	1171	2488	2134	2019	1955	1900	1172	96	17389
Transitions to HO	60	50	69	38	92	195	200	219	187	224	113	15	2601
Total	236	216	228	194	1263	2683	2334	2238	2142	2124	1285	111	19990

**Table SM1.1:** Summary statistics

	(1)			(2)			(3)			(4)		
	count	Tenants		count	Homeowners		count	Remaining tenants		count	Recent homeowners	
		mean	sd		mean	sd		mean	sd		mean	sd
Dummy: supports Conservatives	34140	0.236	0.425	122307	0.377	0.485	17389	0.203	0.402	2601	0.315	0.465
Age	34140	37.064	12.738	122307	42.739	12.653	17389	39.728	13.019	2601	33.269	10.400
Female	34140	0.508	0.500	122307	0.498	0.500	17389	0.517	0.500	2601	0.498	0.500
Education	34140	5.476	2.999	122307	5.091	2.866	17389	5.847	3.036	2601	4.406	2.776
Occupation	34140	4.729	2.530	122307	3.917	2.412	17389	5.100	2.532	2601	3.774	2.312
Log total income (last month)	34140	7.148	0.809	122307	7.355	0.896	17389	7.158	0.772	2601	7.323	0.841
Living in Urban/rural area	34140	0.825	0.380	122307	0.765	0.424	17389	0.829	0.377	2601	0.796	0.403
Has children	34140	0.332	0.474	122307	0.361	0.480	17389	0.360	0.480	2601	0.300	0.458
Single/never married	34140	0.324	0.468	122307	0.161	0.367	17389	0.308	0.462	2601	0.265	0.441
Married/living together/civil union	34140	0.559	0.497	122307	0.765	0.424	17389	0.559	0.497	2601	0.674	0.469
Widowed	34140	0.013	0.114	122307	0.012	0.109	17389	0.019	0.136	2601	0.007	0.081
Divorced/separated	34140	0.104	0.305	122307	0.063	0.243	17389	0.115	0.318	2601	0.055	0.227
Parl. Const: Safe Tory	31298	0.246	0.430	110795	0.316	0.465	15728	0.228	0.420	2432	0.292	0.455
Parl. Const: Safe Labour	31298	0.394	0.489	110795	0.299	0.458	15728	0.409	0.492	2432	0.333	0.472
Parl. Const: Safe/marginal LibDem	31298	0.060	0.237	110795	0.058	0.234	15728	0.056	0.230	2432	0.064	0.244
Parl. Const: Marginal Tory	31298	0.016	0.124	110795	0.016	0.127	15728	0.014	0.119	2432	0.015	0.121
Parl. Const: Marginal Labour	31298	0.210	0.407	110795	0.234	0.424	15728	0.213	0.409	2432	0.224	0.417
Parl. Const: Mixed	31298	0.075	0.263	110795	0.077	0.266	15728	0.079	0.270	2432	0.072	0.258
Ideology index	5917	3.243	1.161	25426	3.536	1.135	2139	3.128	1.146	620	3.466	1.150

### SM1.1.2 Incumbency effects

In addition to the results across the entire period under investigation, elections and their outcomes may affect the presented effect. Given that the Tories won elections in 1992, 2010 and 2015 while losing in between introduces a dynamic political context into the data. The expectation from these dynamics would be that in the period where the Conservative party won, the effect should be larger as a majority of the electorate swung to the right, as well. The effect for the years of Labour winning the General election should represent the lower bound of the estimate on the causal mechanism for two reasons. Firstly, of course, Labour secured a majority and therefore fewer people on average supported the Tories. At the same time, Labour moved programmatically strong to the right on a pro-market platform, therefore reducing the incentive for recent property owners to support the Conservatives. Figure SM1.1 shows results from split sample estimations on all observations before 1997 and past 2010 (marked as Tory incumbency) and in between (Labour incumbency) and in between (Labour incumbency).



**Figure SM1.1:** Homeownership and transition to homeownership and probability to vote Conservative by government incumbency

Note: Tory government on the left, Labour government on the right.

The results support these expectations. Overall, there is still a systematic difference between remaining tenants and recent homeowners. With an incumbent Labour government though, the difference between both groups slightly shrinks both in magnitude and significance. The results have two main implications. Firstly, it appears that there is still some incumbency effect present in the results. Purchasing a house might reflect economic well-being for which voters can potentially reward incumbent governments. At the same time, political parties can influence the electoral effect of asset ownership by making explicit programmatic offers to owners. With the data at

hand, it is not possible to further disentangle these dynamics which should be subject to further research. With respect to the main effect under investigation, however, these additional models further support the results.

**Table SM1.2:** Transition to homeownership: Labour and Tory governments

	Labour government (1)	Tory government (2)
Transition to homeownership	0.414 (0.005)	0.479 (0.000)
Age	0.008 (0.191)	0.010 (0.012)
Female	-0.055 (0.695)	-0.324 (0.000)
Education	0.019 (0.512)	0.066 (0.000)
Occupation	-0.035 (0.202)	-0.122 (0.000)
Log total income (last month)	0.202 (0.098)	0.192 (0.004)
Living in Urban/rural area	-0.488 (0.003)	-0.658 (0.000)
Has children	-0.183 (0.232)	-0.082 (0.346)
Marital status (ref: single)		
Married/living together/civil union	0.007 (0.969)	0.057 (0.560)
Widowed	1.129 (0.094)	-0.068 (0.882)
Divorced/separated	0.108 (0.677)	-0.097 (0.585)
Observations	4008	15982
Pseudo $R^2$	0.072	0.073

*p*-values in parentheses

Respondent clustered standard errors & region dummies included.

### SM1.1.3 Alternative dependent variables

**Table SM1.3:** Homeownership: Tory identification as DV

	(1)	(2)	(3)	(4)
Homeownership status	0.563 (0.000)	0.563 (0.000)	0.563 (0.000)	0.618 (0.000)
Age	-0.001 (0.661)	-0.001 (0.759)	-0.001 (0.751)	0.002 (0.616)
Female	-0.272 (0.000)	-0.268 (0.000)	-0.279 (0.000)	-0.216 (0.006)
Education	0.076 (0.000)	0.084 (0.000)	0.087 (0.000)	0.116 (0.000)
Occupation	-0.108 (0.000)	-0.090 (0.000)	-0.107 (0.000)	-0.129 (0.000)
Log total income (last month)	0.067 (0.006)	0.101 (0.001)	0.074 (0.002)	-0.048 (0.188)
Living in Urban/rural area	-0.609 (0.000)	-0.583 (0.000)	-0.427 (0.000)	-0.412 (0.000)
Has children	-0.152 (0.000)	-0.148 (0.002)	-0.171 (0.000)	-0.060 (0.396)
Marital status (ref: single)				
Married/living together/civil union	0.250 (0.000)	0.221 (0.001)	0.227 (0.000)	0.016 (0.862)
Widowed	0.282 (0.145)	0.040 (0.850)	0.249 (0.228)	0.350 (0.318)
Divorced/separated	0.241 (0.002)	0.322 (0.002)	0.226 (0.007)	0.070 (0.603)
Average council tax rate		0.000 (0.000)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.839 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.227 (0.010)	
Parl. Const: Marginal Tory			-0.123 (0.367)	
Parl. Const: Marginal Labour			-0.375 (0.000)	
Parl. Const: Mixed			-0.217 (0.009)	
Ideology (ref: very leftist)				
Ideology: Leftist				0.202 (0.124)
Ideology: Center				0.588 (0.000)
Ideology: Rightist				1.042 (0.000)
Ideology: Very rightist				1.794 (0.000)
Observations	115963	49969	106276	25900
Pseudo $R^2$	0.070	0.069	0.078	0.123

*p*-values in parentheses

Respondent clustered standard errors, year & region dummies included.

**Table SM1.4:** Homeownership: Tory vote intention as DV

	(1)	(2)	(3)	(4)
Homeownership status	0.346 (0.000)	0.353 (0.000)	0.359 (0.000)	0.188 (0.073)
Age	0.000 (0.832)	-0.005 (0.088)	-0.002 (0.243)	-0.012 (0.020)
Female	-0.211 (0.000)	-0.181 (0.001)	-0.202 (0.000)	-0.201 (0.087)
Education	0.019 (0.026)	0.034 (0.001)	0.028 (0.001)	0.077 (0.001)
Occupation	-0.049 (0.000)	-0.047 (0.000)	-0.056 (0.000)	-0.014 (0.564)
Log total income (last month)	0.198 (0.000)	0.111 (0.003)	0.185 (0.000)	0.050 (0.468)
Living in Urban/rural area	-0.367 (0.000)	-0.294 (0.000)	-0.274 (0.000)	-0.471 (0.000)
Has children	-0.076 (0.092)	-0.004 (0.942)	-0.042 (0.340)	0.097 (0.393)
Marital status (ref: single)				
Married/living together/civil union	0.199 (0.000)	0.254 (0.001)	0.212 (0.000)	0.315 (0.020)
Widowed	0.087 (0.641)	0.165 (0.510)	0.231 (0.217)	0.645 (0.106)
Divorced/separated	0.066 (0.449)	0.114 (0.330)	0.077 (0.379)	0.449 (0.034)
Average council tax rate		0.001 (0.000)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.362 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.095 (0.339)	
Parl. Const: Marginal Tory			0.146 (0.310)	
Parl. Const: Marginal Labour			-0.201 (0.001)	
Parl. Const: Mixed			-0.120 (0.139)	
Ideology (ref: very leftist)				
Ideology: Leftist				0.049 (0.833)
Ideology: Center				-0.094 (0.666)
Ideology: Rightist				0.140 (0.543)
Ideology: Very rightist				0.270 (0.234)
Observations	40667	18426	37802	5443
Pseudo $R^2$	0.047	0.039	0.034	0.035

*p*-values in parentheses

Respondent clustered standard errors, year & region dummies included.

**Table SM1.5:** Transition to homeownership: Tory identification as DV

	(1)	(2)	(3)	(4)
Transition to homeownership	0.503 (0.000)	0.578 (0.000)	0.444 (0.000)	0.468 (0.015)
Age	0.008 (0.038)	0.007 (0.211)	0.009 (0.044)	0.001 (0.922)
Female	-0.220 (0.009)	-0.150 (0.227)	-0.234 (0.008)	-0.135 (0.457)
Education	0.077 (0.000)	0.074 (0.002)	0.087 (0.000)	0.130 (0.000)
Occupation	-0.097 (0.000)	-0.097 (0.000)	-0.107 (0.000)	-0.079 (0.068)
Log total income (last month)	0.169 (0.011)	0.147 (0.197)	0.180 (0.011)	0.036 (0.776)
Living in Urban/rural area	-0.642 (0.000)	-0.644 (0.000)	-0.470 (0.000)	-0.757 (0.000)
Has children	-0.161 (0.070)	-0.215 (0.083)	-0.208 (0.028)	-0.232 (0.280)
Marital status (ref: single)				
Married/living together/civil union	0.089 (0.374)	0.197 (0.206)	0.077 (0.459)	-0.145 (0.510)
Widowed	0.402 (0.356)	0.310 (0.627)	0.289 (0.549)	0.778 (0.363)
Divorced/separated	0.105 (0.534)	0.241 (0.332)	0.083 (0.638)	-0.338 (0.386)
Average council tax rate		0.001 (0.004)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.694 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.289 (0.077)	
Parl. Const: Marginal Tory			-0.637 (0.056)	
Parl. Const: Marginal Labour			-0.652 (0.000)	
Parl. Const: Mixed			-0.383 (0.018)	
Ideology (ref: very leftist)				
Ideology: Leftist				0.751 (0.166)
Ideology: Center				0.920 (0.078)
Ideology: Rightist				1.357 (0.009)
Ideology: Very rightist				1.840 (0.000)
Observations	13459	5878	12373	2147
Pseudo $R^2$	0.069	0.075	0.080	0.136

*p*-values in parentheses

Respondent clustered standard errors, year & region dummies.

**Table SM1.6:** Transition to homeownership: Tory vote intention as DV

	(1)	(2)	(3)	(4)
Transition to homeownership	0.331 (0.002)	0.216 (0.174)	0.314 (0.005)	0.589 (0.098)
Age	0.009 (0.105)	0.003 (0.705)	0.009 (0.158)	0.020 (0.309)
Female	-0.272 (0.017)	-0.204 (0.226)	-0.318 (0.007)	-0.510 (0.136)
Education	-0.015 (0.505)	0.001 (0.975)	-0.005 (0.848)	0.067 (0.374)
Occupation	-0.085 (0.001)	-0.052 (0.152)	-0.069 (0.011)	0.072 (0.362)
Log total income (last month)	0.204 (0.038)	0.034 (0.826)	0.210 (0.040)	-0.120 (0.452)
Living in Urban/rural area	-0.545 (0.000)	-0.304 (0.124)	-0.466 (0.002)	-0.700 (0.071)
Has children	0.137 (0.263)	0.190 (0.302)	0.118 (0.358)	0.790 (0.062)
Marital status (ref: single)				
Married/living together/civil union	-0.106 (0.441)	-0.284 (0.157)	-0.099 (0.501)	-0.194 (0.697)
Widowed	-1.299 (0.012)	-2.140 (0.013)	-1.235 (0.015)	-2.119 (0.121)
Divorced/separated	-0.176 (0.498)	0.279 (0.461)	-0.121 (0.657)	0.708 (0.380)
Average council tax rate		0.001 (0.004)		
Parl. constituency (ref: Safe Tory)				
Parl. Const: Safe Labour			-0.575 (0.002)	
Parl. Const: Safe/marginal LibDem			-0.021 (0.933)	
Parl. Const: Marginal Tory			-0.225 (0.639)	
Parl. Const: Marginal Labour			-0.267 (0.096)	
Parl. Const: Mixed			0.321 (0.121)	
Ideology (ref: very leftist)				
Ideology: Leftist				3.152 (0.005)
Ideology: Center				2.190 (0.039)
Ideology: Rightist				2.745 (0.012)
Ideology: Very rightist				2.880 (0.008)
Observations	7133	3015	6234	598
Pseudo $R^2$	0.067	0.041	0.068	0.184

*p*-values in parentheses

Respondent clustered standard errors, year & region dummies.



## SM1.2 House price developments

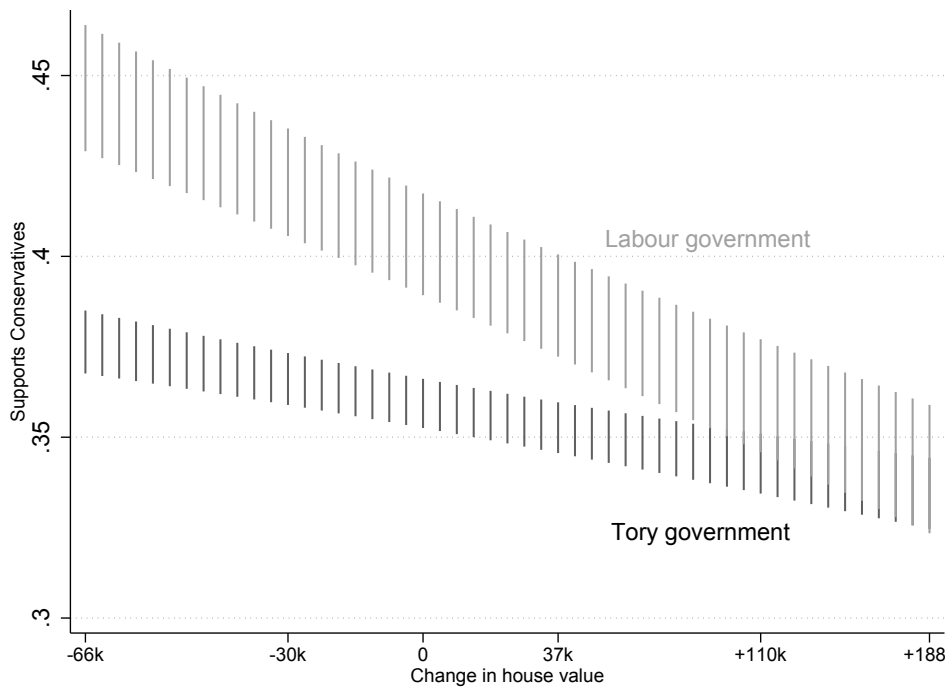
### SM1.2.1 Summary statistics

**Table SM1.7:** Summary statistics: self-reported house values and median house price index by constituency

	count	mean	sd	1 <sup>st</sup> pctile	99 <sup>th</sup> pctile
House value	87994	227552	397999	32000	1000000
Log of house value	87994	12.026	0.751	10.373	13.816
Change in house value	87994	8125	530682	-130000	200000
Log change of house value	87994	0.051	0.337	-0.588	0.780
Constituency median house value	69823	1647.332	595.932	657.000	3247.000
Log constituency median house value	69823	7.340	0.372	6.488	8.085
Change in constituency median house value	67093	52.978	313.831	-1203.000	667.000
Change in log constituency median house value	67093	0.038	0.180	-0.715	0.358

### SM1.2.2 Incumbency effects

Similar to the transition models, the house price change models can also be affected by government incumbency. Rising asset values might lead voters to reward the sitting government while decreasing values might lead to punishment at the voting booth. To disentangle potential incumbency effects, I re-estimate the house price models for split samples of Labour and Tory governments of the sample and present the results in Figure SM1.2 and Table SM1.8. The results from the main text mostly prevail. Under both governments, rising house prices reduce the likelihood to support the Tories, although the effect is stronger under a Labour government. Tory incumbency does, however, mitigate the negative effect of house price increases.



**Figure SM1.2:** House price changes and probability to vote Conservative by incumbent government

**Table SM1.8:** House price changes: Labour and Tory governments

	Tory government (1)	Labour government (2)
Log of house value	0.468 (0.000)	0.556 (0.000)
Log change of house value	-0.155 (0.000)	-0.405 (0.000)
Age	-0.002 (0.271)	0.003 (0.367)
Female	-0.193 (0.000)	-0.262 (0.000)
Education	0.082 (0.000)	0.091 (0.000)
Occupation	-0.058 (0.000)	-0.060 (0.000)
Log total income (last month)	0.076 (0.000)	0.001 (0.976)
Living in Urban/rural area	-0.381 (0.000)	-0.295 (0.000)
Has children	-0.162 (0.000)	-0.246 (0.000)
Marital status (ref: single)		
Married/living together/civil union	0.237 (0.000)	0.267 (0.007)
Widowed	0.494 (0.001)	0.359 (0.209)
Divorced/separated	0.224 (0.006)	0.323 (0.031)
Constant	-7.105 (0.000)	-8.105 (0.000)
Observations	58476	29518
Pseudo $R^2$	0.073	0.069

*p*-values in parentheses

Individual clustered standard errors and region dummies included

### SM1.2.3 Official house price index

**Table SM1.9:** Constituency median house values: Logit Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
<b>Log constituency median house value</b>	<b>0.652 (0.000)</b>	<b>0.513 (0.000)</b>	<b>0.257 (0.000)</b>	<b>0.118 (0.405)</b>	<b>0.686 (0.000)</b>	<b>0.525 (0.000)</b>	<b>0.272 (0.000)</b>	<b>0.112 (0.436)</b>
<b>Change in log constituency median house value</b>					<b>-0.340 (0.000)</b>	<b>-0.113 (0.251)</b>	<b>-0.125 (0.065)</b>	<b>0.060 (0.720)</b>
Age	0.007 (0.000)	0.006 (0.000)	0.007 (0.000)	0.009 (0.001)	0.007 (0.000)	0.006 (0.000)	0.007 (0.000)	0.009 (0.001)
Female	-0.189 (0.000)	-0.175 (0.000)	-0.204 (0.000)	-0.198 (0.001)	-0.189 (0.000)	-0.175 (0.000)	-0.204 (0.000)	-0.198 (0.001)
Education	0.057 (0.000)	0.064 (0.000)	0.062 (0.000)	0.069 (0.000)	0.057 (0.000)	0.064 (0.000)	0.062 (0.000)	0.069 (0.000)
Occupation	-0.077 (0.000)	-0.067 (0.000)	-0.075 (0.000)	-0.053 (0.000)	-0.077 (0.000)	-0.067 (0.000)	-0.075 (0.000)	-0.053 (0.000)
Log total income (last month)	0.116 (0.000)	0.122 (0.000)	0.108 (0.000)	0.048 (0.110)	0.115 (0.000)	0.122 (0.000)	0.108 (0.000)	0.048 (0.109)
Living in Urban/rural area	-0.525 (0.000)	-0.453 (0.000)	-0.371 (0.000)	-0.418 (0.000)	-0.524 (0.000)	-0.453 (0.000)	-0.372 (0.000)	-0.419 (0.000)
Has children	-0.152 (0.000)	-0.122 (0.001)	-0.156 (0.000)	-0.165 (0.006)	-0.152 (0.000)	-0.122 (0.001)	-0.156 (0.000)	-0.165 (0.006)
Marital status (ref: single)								
Married/living together/civil union	0.262 (0.000)	0.230 (0.000)	0.268 (0.000)	0.194 (0.026)	0.262 (0.000)	0.229 (0.000)	0.267 (0.000)	0.194 (0.026)
Widowed	0.210 (0.131)	0.018 (0.916)	0.200 (0.165)	0.189 (0.486)	0.210 (0.130)	0.018 (0.917)	0.200 (0.164)	0.190 (0.484)
Divorced/separated	0.075 (0.268)	0.121 (0.135)	0.063 (0.364)	0.119 (0.379)	0.073 (0.274)	0.121 (0.137)	0.062 (0.366)	0.119 (0.378)
Average council tax rate		0.001 (0.000)				0.001 (0.000)		
Parl. constituency (ref: Safe Tory)								
Parl. Const: Safe Labour			-0.684 (0.000)				-0.680 (0.000)	
Parl. Const: Safe/marginal LibDem			-0.223 (0.001)				-0.223 (0.001)	
Parl. Const: Marginal Tory			0.038 (0.736)				0.039 (0.730)	
Parl. Const: Marginal Labour			-0.330 (0.000)				-0.328 (0.000)	
Parl. Const: Mixed			-0.210 (0.001)				-0.208 (0.001)	
Ideology (ref: very leftist)								
Ideology: Leftist				0.232 (0.065)				0.232 (0.065)
Ideology: Center				0.549 (0.000)				0.549 (0.000)
Ideology: Rightist				0.907 (0.000)				0.907 (0.000)
Ideology: Very rightist				1.351 (0.000)				1.351 (0.000)
Observations	90230	44386	87222	16153	90230	44386	87222	16153
Pseudo $R^2$	0.054	0.054	0.062	0.082	0.054	0.054	0.062	0.082

*p*-values in parentheses

Respondent clustered standard errors, wave & region dummies included.

## SM2 An Asymmetric Partisanship Effect: House Price Fluctuations and Party Positions

**Table SM2.1:** Summary statistics

Variable	N	Mean	Std. Deviation
$\Delta$ Real House Prices (from prev. Election)	903	13.693	30.415
Franzmann/Kaiser	903	4.753	2.320
$\Delta$ Franzmann/Kaiser	903	0.029	0.581
RILE	903	-1.296	22.619
$\Delta$ RILE	903	0.717	15.667
Benoit/Laver	903	-0.370	0.490
$\Delta$ Benoit/Laver	903	-0.000	0.352
Competition from the right: FK	903	3.028	2.468
Competition from the right: RILE	903	3.008	2.481
Competition from the right: BL	903	2.993	2.461
$\Delta$ Gross gov. debt in % GDP (ppt. from prev. election)	903	2.621	12.787
Real GDP growth (% $\Delta$ from previous year)	903	2.511	2.204
$\Delta$ Unemployment (% pt. $\Delta$ from previous election)	903	0.202	2.118
Long-term interest rate on government bonds	903	7.777	3.910
Inflation (CPI % $\Delta$ from previous year)	903	4.382	4.003
Openness of the economy: (imports + exports)/GDP	903	74.660	34.576
Homeownership rate	903	58.798	11.883
Log Population	903	9.530	1.131
$\Delta$ Population over 65 (% pt. $\Delta$ from previous election)	903	0.427	0.476
Urban Population	903	78.801	9.779
Duration legislative term	903	3.426	0.993
Government (yes/no)	903	0.375	0.484
Effective number of parties	903	5.108	1.815
Voter turnout in election	903	77.624	13.857
Inequality (Gini coefficient)	903	44.323	3.850
Vote share (t-1)	903	16.294	13.620
Electoral system (PR=1)	903	1.708	0.589

**Countries included in the sample (n=18):**

Sweden, Norway, Denmark, Finland, Belgium, Netherlands, France, Italy, Spain, Germany, Switzerland, Great Britain, Ireland, United States, Canada, Australia, New Zealand, Japan

**SM2.1 Measuring party positions: Description and additional results**

I measure party positions using data from the Comparative Manifesto Project (CMP) (Volkens et al., 2015). For the CMP dataset, human coders analyse the content of party manifestos by assigning quasi-sentences to policy categories such as welfare or defence. The number of quasi-sentences allocated to one issue is aggregated and its relative share of the entire document is reported. The CMP approach is saliency-based which assumes that parties have different preferences for different policies and will signal those preferences in their manifesto through the amount of space they concede to the respective issue.

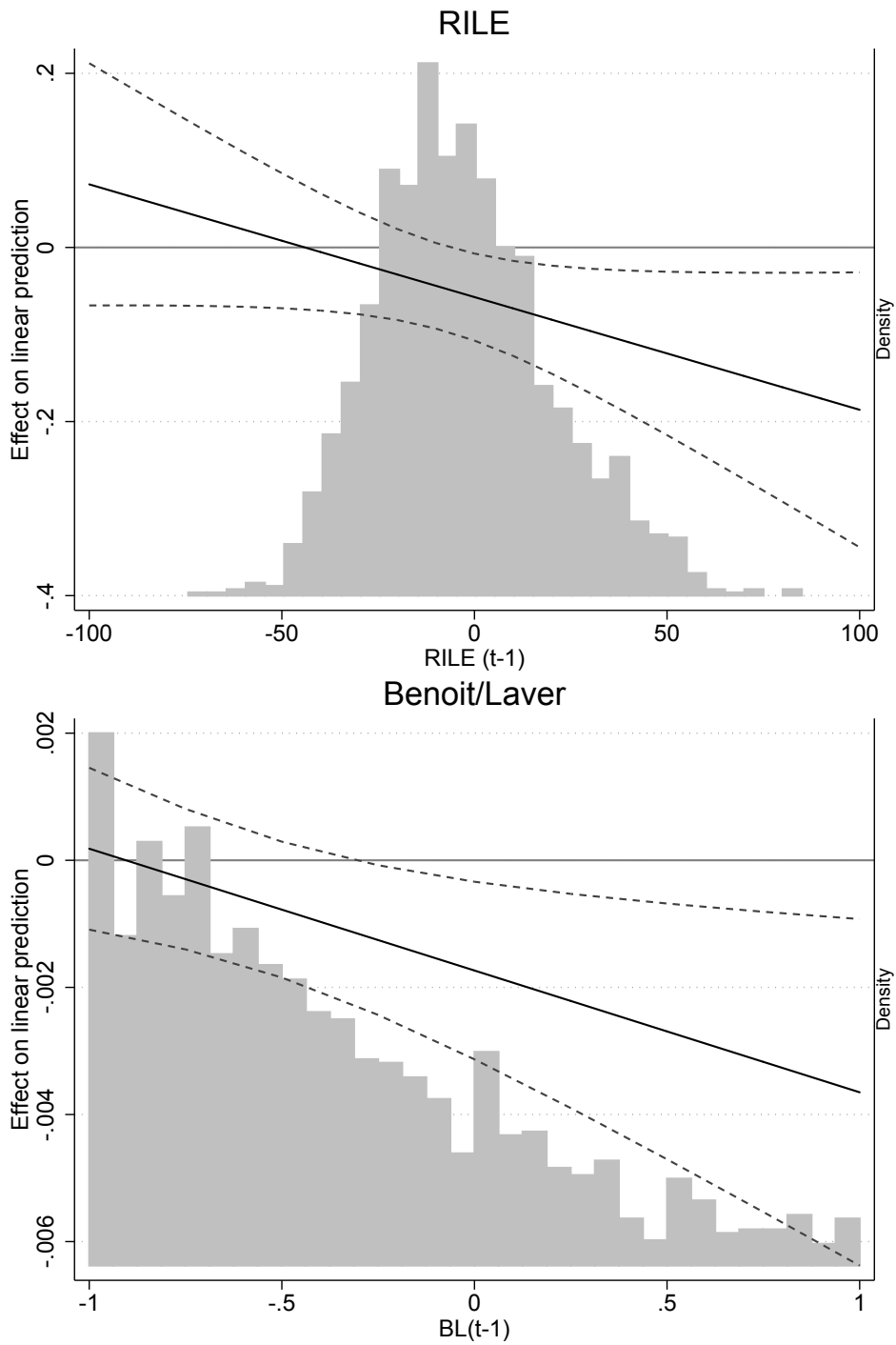
The CMP is the only data source that allows for an analysis of party position change over time and across countries. However, the data do not come without problems. For instance, the relative importance reported for each category only consists of point estimates without any indication of measurement error. Hence, within party variation in one issue can be due to measurement error or an actual positional shift (Benoit and Laver, 2007). Unfortunately, the CMP issues are also not sufficiently fine-grained to explicitly measure changes in parties' stances concerning e.g. redistribution. The conventional approach to work with the CMP data is to locate parties on a left-right dimension and evaluate positional shifts along this dimension. As a robustness check, I present results from two additional left/right measurements here in the appendix. These represent just a selection of numerous options proposed in the literature which are highly correlated but differ in the number and selection of items as well as the method of aggregation. Selecting (in total) three different indicators should account for some of the shortcomings inherent in every positional measurement and increase the robustness of the empirical results.

The measurement I use in the main text is the index by Franzmann and Kaiser (2006). The authors argue that not all CMP issues are informative about the positions that parties take and therefore distinguish between valence and positional issues for each country. As party competition differs by political context, a country-specific selection of the most relevant issues is suggested as a better measurement than using a set of issues across all countries to derive positions. In addition, the authors distinguish between a general left-right, a socio-economic and an economic affairs dimension. I use the latter dimension ranking parties on a scale from 1 to 10 with one representing the most leftist and 10 the most rightist position. Using this scale represents a particularly tough empirical test as its country-specificity reduces the overall variation between countries that can be statistically exploited.

As a robustness check, I include below models using two additional indexes. The first one is the CMP provided, issue-based left-right scale (called RILE) which assigns

parties a value between -100 (left) and 100 (right). The value of the scale is computed by aggregating the percentages of certain issues that signal rightist positions and subtracting the combined percentages of leftist issues (Budge and Laver, 1992). Of the three scales employed in this paper, the RILE scale is the broadest measurement as it includes the most left-right dimensions. For instance, it includes non-economic issues such as the position on international relations (military involvement or peace). It is unlikely that using this index biases estimates in favour of my argument. Including more categories for which no reasonable theoretical prediction can be established should rather introduce more noise into the data and thus weaken any systematic relationship.

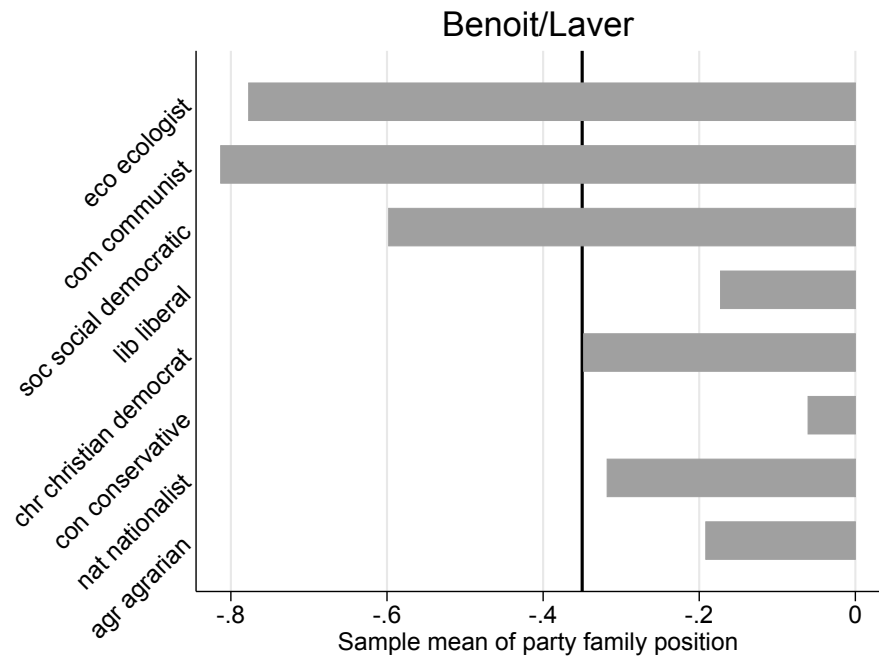
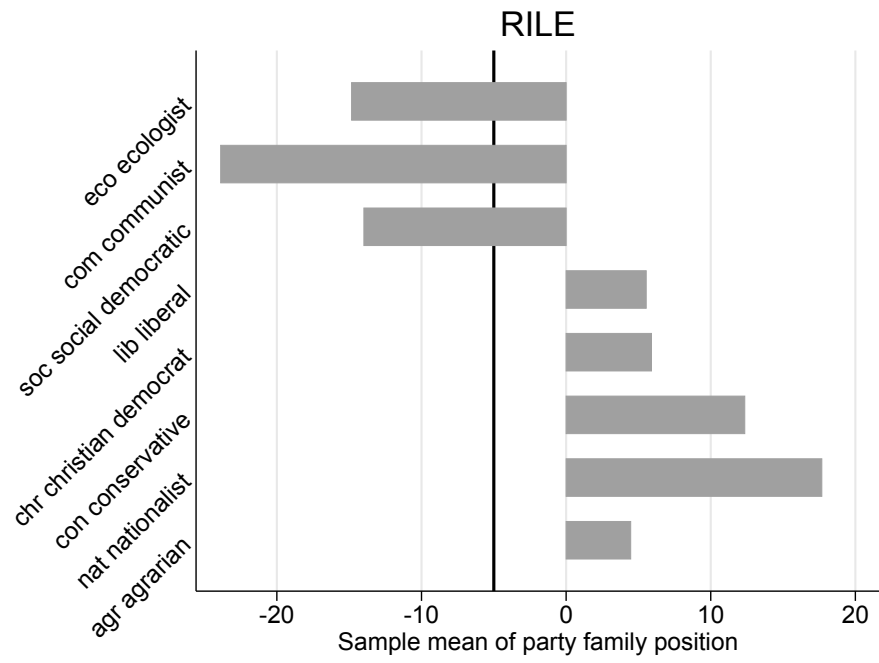
The third alternative scale is a left-right scale derived from Benoit and Laver (2007). The authors split the items of the RILE scale into two different subgroups on economic and social policy. I use the economic policy dimension as it measures issues relevant to questions of redistribution and includes some aspects of social policy. The indicator consists of fewer categories than RILE and is dimension-based. This implies that the salience of different items is measured as the proportion of all items on this policy dimension. While other scales compute saliency in relation to the entire manifesto, dimension-based measurements calculate saliency as a share of the sum of all statements on a single dimension. Technically, this leads to a scale ranging from -1 (left) to 1 (right). This scale differentiates more directly between party positions on the economic policy dimension.



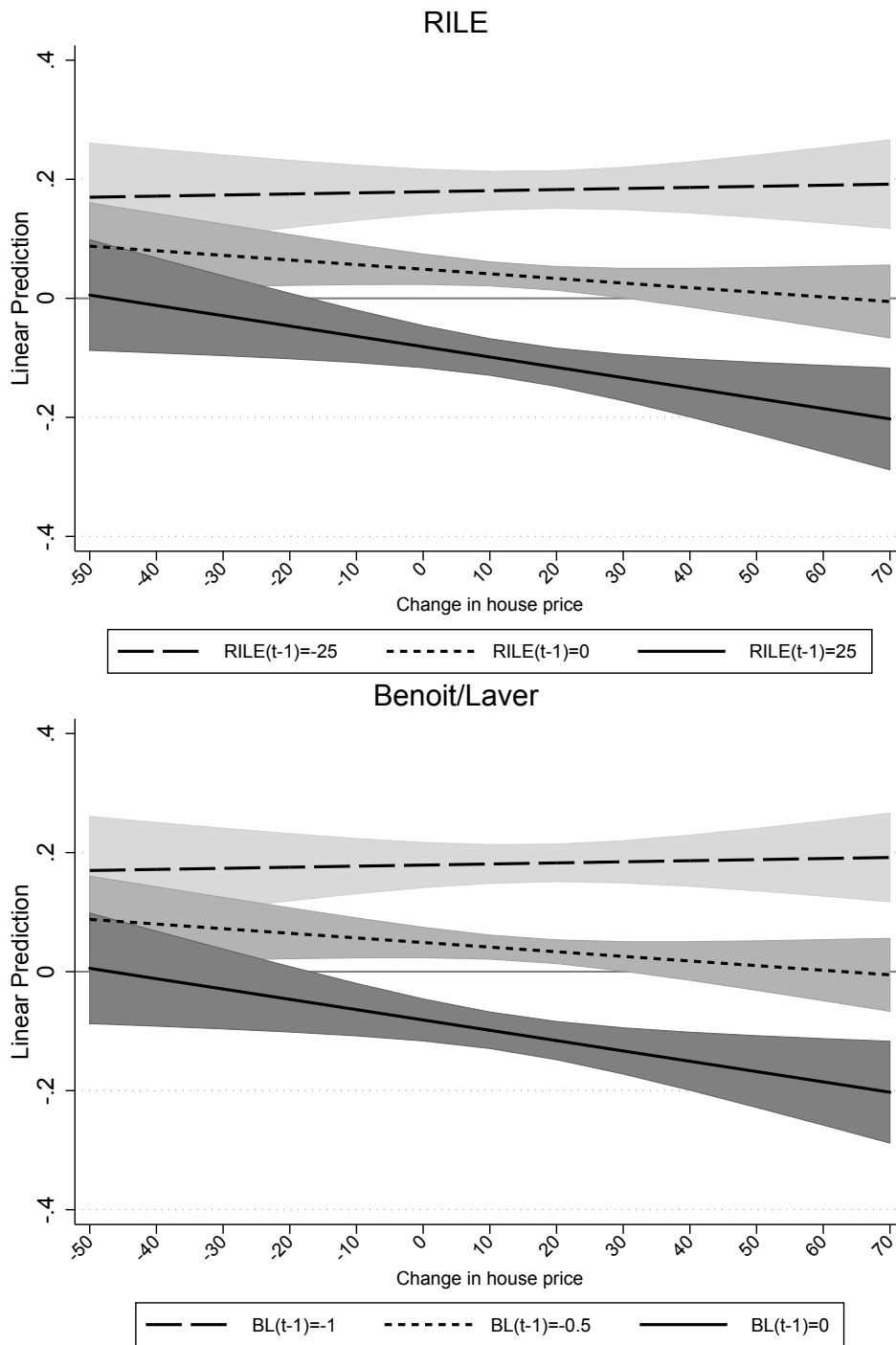
**Figure SM2.1:** Marginal effects of house price change over previous party position, by measurement

Dotted lines represent 95 per cent confidence intervals around point estimates. Models from column 3 in Table SM3 and SM4 are the basis of the graphs.





**Figure SM2.2:** Average party position by party family (across all elections); based on CMP party family coding, by measurement



**Figure SM2.3:** Simulated responsiveness to different house price changes

By previous party position (from left to right: left-wing, centrist, right-wing) and measurement.

Shaded areas represent 95 per cent confidence intervals around the respective point estimates. Models from column 3 in Table SM3 and SM4 are the basis of the graphs.

## SM2.2 Empirical results - full tables and robustness checks

**Table SM2.2:** Determinants of shifts in party positions – Full models: Franzmann/Kaiser

	(1)	(2)	(3)	(4)
$\Delta$ Real house prices	-0.002 (0.157)	0.001 (0.750)	0.000 (0.873)	0.001 (0.660)
Party Position (t-1)	-0.041 (0.000)	-0.034 (0.000)	-0.036 (0.000)	-0.161 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>		<b>-0.001 (0.077)</b>	<b>-0.001 (0.089)</b>	<b>-0.000 (0.075)</b>
Center of gravity			0.072 (0.043)	0.126 (0.000)
Competition from the right				-0.155 (0.000)
$\Delta$ Gross government debt	0.001 (0.849)	0.000 (0.920)	-0.000 (0.939)	0.001 (0.778)
Real GDP growth	-0.010 (0.603)	-0.008 (0.691)	-0.009 (0.627)	-0.003 (0.890)
$\Delta$ Unemployment rate	-0.013 (0.413)	-0.011 (0.492)	-0.013 (0.405)	-0.006 (0.664)
Government bond interest rate	-0.021 (0.336)	-0.020 (0.339)	-0.022 (0.294)	-0.004 (0.836)
Inflation rate	-0.004 (0.796)	-0.004 (0.790)	-0.000 (0.994)	-0.005 (0.716)
Openness of the economy	-0.005 (0.194)	-0.005 (0.194)	-0.005 (0.188)	-0.002 (0.509)
Homeownership rate	-0.012 (0.251)	-0.011 (0.310)	-0.005 (0.615)	-0.007 (0.484)
Population (logs)	1.741 (0.011)	1.850 (0.007)	1.984 (0.004)	1.887 (0.007)
$\Delta$ over 65-year olds	-0.106 (0.056)	-0.109 (0.050)	-0.123 (0.028)	-0.167 (0.002)
Urban Population	0.005 (0.637)	0.004 (0.723)	0.001 (0.944)	0.013 (0.195)
Duration legislative term	-0.005 (0.883)	-0.001 (0.979)	0.002 (0.943)	-0.004 (0.899)
Government (yes/no)	-0.025 (0.557)	-0.021 (0.627)	-0.022 (0.605)	-0.048 (0.239)
Effective number of parties	0.039 (0.398)	0.040 (0.386)	0.036 (0.435)	0.082 (0.057)
Voter turnout in election	0.004 (0.626)	0.004 (0.649)	0.006 (0.491)	0.000 (0.958)
Inequality (Gini coefficient)	-0.019 (0.137)	-0.019 (0.127)	-0.012 (0.332)	-0.013 (0.270)
Vote share (t-1)	0.002 (0.319)	0.002 (0.266)	0.002 (0.271)	0.001 (0.402)
Electoral system (PR=1)	0.019 (0.935)	0.021 (0.927)	0.092 (0.694)	0.123 (0.556)
Constant	-14.811 (0.017)	-15.789 (0.012)	-17.899 (0.004)	-17.039 (0.008)
Observations	903	903	903	903
$R^2$	0.141	0.145	0.149	0.263

*p*-values in parentheses

Robust standard errors, country & year dummies included.

**Table SM2.3:** Determinants of shifts in party positions – Full models: RILE

	(1)	(2)	(3)	(4)
$\Delta$ Real house prices	-0.046 (0.111)	-0.055 (0.058)	-0.052 (0.066)	-0.041 (0.077)
Party Position (t-1)	-0.265 (0.000)	-0.248 (0.000)	-0.257 (0.000)	-0.628 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>		<b>-0.001 (0.036)</b>	<b>-0.001 (0.073)</b>	<b>-0.001 (0.103)</b>
Center of gravity			0.476 (0.000)	0.591 (0.000)
Competition from the right				-5.326 (0.000)
$\Delta$ Gross government debt	0.148 (0.038)	0.141 (0.047)	0.042 (0.569)	0.082 (0.128)
Real GDP growth	-0.517 (0.280)	-0.533 (0.257)	-0.048 (0.916)	0.671 (0.055)
$\Delta$ Unemployment rate	0.033 (0.929)	-0.043 (0.910)	-0.201 (0.582)	-0.171 (0.548)
Government bond interest rate	0.307 (0.594)	0.332 (0.566)	-0.077 (0.887)	0.230 (0.562)
Inflation rate	-0.361 (0.404)	-0.401 (0.355)	0.194 (0.642)	0.385 (0.213)
Openness of the economy	0.092 (0.269)	0.086 (0.297)	-0.072 (0.378)	0.009 (0.898)
Homeownership rate	0.828 (0.007)	0.818 (0.007)	0.594 (0.046)	0.620 (0.007)
Population (logs)	25.588 (0.185)	24.499 (0.203)	40.772 (0.026)	49.958 (0.001)
$\Delta$ over 65-year olds	-2.108 (0.157)	-2.077 (0.162)	-2.885 (0.039)	-3.196 (0.005)
Urban Population	-0.830 (0.001)	-0.853 (0.001)	-0.918 (0.000)	-0.229 (0.242)
Duration legislative term	-2.070 (0.012)	-2.086 (0.011)	-1.063 (0.180)	-1.198 (0.062)
Government (yes/no)	0.436 (0.686)	0.578 (0.589)	0.746 (0.471)	0.043 (0.956)
Effective number of parties	-2.077 (0.054)	-2.141 (0.047)	-0.128 (0.907)	1.547 (0.077)
Voter turnout in election	0.197 (0.379)	0.213 (0.345)	0.148 (0.477)	0.012 (0.940)
Inequality (Gini coefficient)	-0.164 (0.588)	-0.145 (0.631)	-0.043 (0.884)	-0.205 (0.364)
Vote share (t-1)	0.004 (0.926)	0.004 (0.922)	-0.002 (0.968)	-0.014 (0.634)
Electoral system (PR=1)	9.515 (0.192)	10.055 (0.169)	7.372 (0.279)	3.510 (0.486)
Constant	-229.788 (0.189)	-220.228 (0.206)	-345.036 (0.038)	-462.475 (0.000)
Observations	903	903	902	902
$R^2$	0.282	0.285	0.324	0.627

*p*-values in parentheses

Robust standard errors, country &amp; year dummies included.

**Table SM2.4:** Determinants of shifts in party positions – Full models: Benoit/Laver

	(1)	(2)	(3)	(4)
$\Delta$ Real house prices	-0.001 (0.021)	-0.002 (0.004)	-0.002 (0.012)	-0.002 (0.004)
Party Position (t-1)	-0.280 (0.000)	-0.264 (0.000)	-0.262 (0.000)	-0.620 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>		<b>-0.002 (0.031)</b>	<b>-0.002 (0.016)</b>	<b>-0.002 (0.000)</b>
Center of gravity			0.310 (0.000)	0.439 (0.000)
Competition from the right				-0.119 (0.000)
$\Delta$ Gross government debt	0.001 (0.434)	0.001 (0.498)	-0.001 (0.438)	-0.000 (0.786)
Real GDP growth	-0.028 (0.005)	-0.028 (0.006)	-0.017 (0.090)	0.003 (0.704)
$\Delta$ Unemployment rate	0.014 (0.099)	0.013 (0.153)	0.012 (0.194)	0.013 (0.040)
Government bond interest rate	0.019 (0.103)	0.020 (0.085)	0.014 (0.251)	0.026 (0.005)
Inflation rate	-0.013 (0.188)	-0.014 (0.173)	-0.007 (0.495)	-0.001 (0.856)
Openness of the economy	0.003 (0.130)	0.003 (0.137)	0.001 (0.748)	0.002 (0.057)
Homeownership rate	0.014 (0.010)	0.014 (0.011)	0.018 (0.002)	0.016 (0.001)
Population (logs)	0.322 (0.378)	0.289 (0.430)	0.400 (0.293)	0.325 (0.270)
$\Delta$ over 65-year olds	-0.088 (0.007)	-0.085 (0.009)	-0.049 (0.135)	-0.046 (0.070)
Urban Population	-0.010 (0.069)	-0.011 (0.052)	-0.009 (0.096)	0.002 (0.677)
Duration legislative term	-0.012 (0.501)	-0.012 (0.487)	0.002 (0.913)	0.002 (0.880)
Government (yes/no)	0.008 (0.726)	0.011 (0.636)	0.020 (0.389)	-0.023 (0.187)
Effective number of parties	-0.035 (0.126)	-0.036 (0.123)	-0.049 (0.030)	-0.004 (0.803)
Voter turnout in election	-0.003 (0.476)	-0.003 (0.545)	-0.002 (0.711)	-0.005 (0.152)
Inequality (Gini coefficient)	-0.005 (0.447)	-0.005 (0.441)	0.001 (0.833)	0.002 (0.649)
Vote share (t-1)	0.001 (0.516)	0.001 (0.500)	0.001 (0.257)	-0.000 (0.583)
Electoral system (PR=1)	0.091 (0.484)	0.101 (0.443)	0.096 (0.498)	-0.065 (0.486)
Constant	-2.378 (0.473)	-2.066 (0.534)	-3.511 (0.314)	-3.290 (0.219)
Observations	903	903	865	865
$R^2$	0.319	0.323	0.346	0.657

*p*-values in parentheses

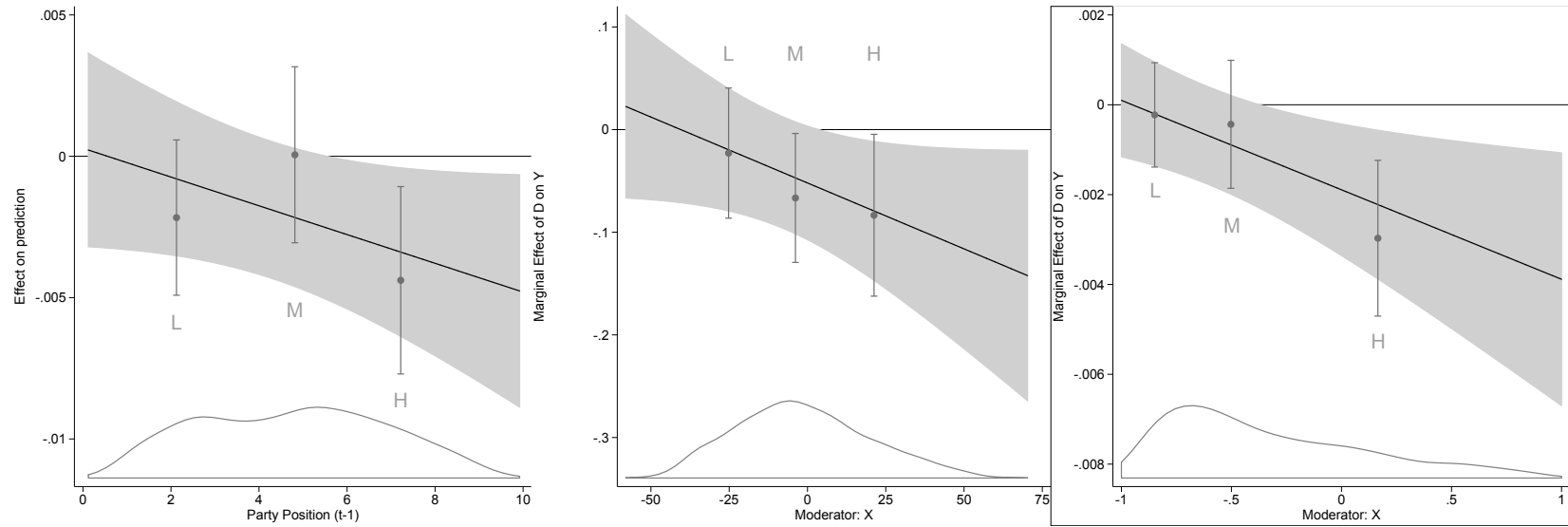
Robust standard errors &amp; year dummies included.

**Table SM2.5:** Robustness – Models with lagged dependent variable

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	0.002 (0.376)	-0.065 (0.023)	-0.002 (0.005)
Party Position (t-1)	-0.040 (0.000)	-0.199 (0.000)	-0.233 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.001 (0.036)</b>	<b>-0.001 (0.048)</b>	<b>-0.002 (0.004)</b>
$\Delta$ Party Position (t-1)	0.341 (0.000)	-0.332 (0.000)	-0.214 (0.000)
Center of gravity	0.064 (0.077)	0.506 (0.000)	0.367 (0.000)
$\Delta$ Gross government debt	0.000 (0.984)	0.036 (0.644)	-0.002 (0.277)
Real GDP growth	-0.014 (0.420)	0.246 (0.615)	-0.012 (0.238)
$\Delta$ Unemployment rate	-0.013 (0.438)	-0.504 (0.204)	0.008 (0.344)
Government bond interest rate	-0.020 (0.380)	-0.344 (0.531)	0.011 (0.383)
Inflation rate	0.008 (0.630)	-0.038 (0.936)	-0.005 (0.681)
Openness of the economy	-0.004 (0.403)	-0.120 (0.168)	-0.002 (0.341)
Homeownership rate	-0.002 (0.885)	0.848 (0.011)	0.015 (0.025)
Population (logs)	1.298 (0.070)	54.347 (0.003)	0.188 (0.655)
$\Delta$ over 65-year olds	-0.088 (0.132)	-1.959 (0.165)	-0.028 (0.403)
Urban Population	0.002 (0.845)	-0.686 (0.004)	-0.005 (0.294)
Duration legislative term	0.024 (0.498)	-0.926 (0.273)	0.005 (0.798)
Government (yes/no)	0.019 (0.681)	1.260 (0.235)	0.041 (0.090)
Effective number of parties	0.014 (0.782)	-0.672 (0.535)	-0.032 (0.175)
Voter turnout in election	0.008 (0.456)	0.276 (0.205)	0.001 (0.841)
Inequality (Gini coefficient)	0.000 (0.973)	-0.195 (0.538)	-0.002 (0.799)
Vote share (t-1)	-0.000 (0.790)	-0.012 (0.770)	0.000 (0.656)
Electoral system (PR=1)	0.045 (0.864)	9.643 (0.166)	0.152 (0.321)
Constant	-12.500 (0.054)	-495.924 (0.003)	-2.614 (0.501)
Observations	762	761	728
$R^2$	0.260	0.432	0.431

*p*-values in parentheses

Robust standard errors, country & year dummies included.



**Figure SM2.4:** Non-linear marginal effects of house prices on change in party position, by measurement.

Graphs created with the help of Stata’s “interflex” package (Hainmueller, Mummolo and Xu, 2018; Xu et al., 2017). Shaded areas represent linear marginal effects with 95 per cent confidence intervals around the point estimates. The spikes represent the point estimates with 95 per cent CIs for the so-called “binning estimators”. For these estimations, the moderating variable has been broken down into three categories (low, middle, high) for which the effect has been evaluated separately. This allows for non-linearities and guarantees common support. All models use the same control variables as in column (3) of Table SM2.1, SM2.2 and SM2.3. The models also include country & year fixed effects and robust standard errors.

**Table SM2.6:** Robustness – Models with party fixed effects

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	0.002 (0.241)	-0.039 (0.138)	-0.002 (0.004)
Party Position (t-1)	-0.249 (0.000)	-0.885 (0.000)	-0.812 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.001 (0.012)</b>	<b>-0.002 (0.017)</b>	<b>-0.003 (0.000)</b>
Center of gravity	0.143 (0.000)	0.529 (0.000)	0.459 (0.000)
$\Delta$ Gross government debt	-0.001 (0.732)	0.079 (0.222)	-0.001 (0.749)
Real GDP growth	-0.012 (0.549)	0.526 (0.183)	-0.000 (0.964)
$\Delta$ Unemployment rate	-0.007 (0.659)	-0.553 (0.148)	0.009 (0.319)
Government bond interest rate	-0.013 (0.619)	-0.269 (0.555)	0.025 (0.022)
Inflation rate	-0.010 (0.542)	0.374 (0.282)	-0.008 (0.361)
Openness of the economy	-0.004 (0.416)	-0.022 (0.762)	0.002 (0.286)
Homeownership rate	-0.010 (0.425)	0.907 (0.000)	0.011 (0.073)
Population (logs)	2.459 (0.001)	67.226 (0.000)	0.477 (0.147)
$\Delta$ over 65-year olds	-0.114 (0.079)	-1.057 (0.331)	-0.005 (0.872)
Urban Population	0.008 (0.430)	-0.463 (0.093)	-0.006 (0.246)
Duration legislative term	0.013 (0.666)	-0.848 (0.172)	-0.006 (0.644)
Government (yes/no)	-0.054 (0.390)	0.472 (0.651)	0.013 (0.640)
Effective number of parties	0.033 (0.532)	0.233 (0.779)	-0.017 (0.397)
Voter turnout in election	-0.005 (0.586)	-0.022 (0.908)	-0.005 (0.250)
Inequality (Gini coefficient)	0.001 (0.952)	0.273 (0.319)	0.003 (0.633)
Vote share (t-1)	-0.008 (0.157)	-0.062 (0.624)	-0.001 (0.833)
Electoral system (PR=1)	-0.068 (0.773)	-4.276 (0.599)	-0.142 (0.199)
Constant	-22.130 (0.002)	-656.445 (0.000)	-4.117 (0.196)
Observations	903	902	865
$R^2$	0.213	0.568	0.585
Number of parties	155	155	155

*p*-values in parentheses

Year dummies included



**Table SM2.7:** Robustness – Models with party random effects

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	0.000 (0.875)	-0.052 (0.075)	-0.002 (0.003)
Party Position (t-1)	-0.036 (0.000)	-0.257 (0.000)	-0.262 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.001 (0.106)</b>	<b>-0.001 (0.052)</b>	<b>-0.002 (0.004)</b>
Center of gravity	0.072 (0.033)	0.476 (0.000)	0.310 (0.000)
$\Delta$ Gross government debt	-0.000 (0.943)	0.042 (0.591)	-0.001 (0.464)
Real GDP growth	-0.009 (0.648)	-0.048 (0.918)	-0.017 (0.088)
$\Delta$ Unemployment rate	-0.013 (0.430)	-0.201 (0.644)	0.012 (0.248)
Government bond interest rate	-0.022 (0.328)	-0.077 (0.873)	0.014 (0.209)
Inflation rate	-0.000 (0.994)	0.194 (0.634)	-0.007 (0.480)
Openness of the economy	-0.005 (0.242)	-0.072 (0.332)	0.001 (0.724)
Homeownership rate	-0.005 (0.600)	0.594 (0.009)	0.018 (0.002)
Population (logs)	1.984 (0.006)	40.772 (0.025)	0.400 (0.229)
$\Delta$ over 65-year olds	-0.123 (0.036)	-2.885 (0.013)	-0.049 (0.098)
Urban Population	0.001 (0.946)	-0.918 (0.000)	-0.009 (0.065)
Duration legislative term	0.002 (0.937)	-1.063 (0.166)	0.002 (0.911)
Government (yes/no)	-0.022 (0.646)	0.746 (0.474)	0.020 (0.398)
Effective number of parties	0.036 (0.488)	-0.128 (0.892)	-0.049 (0.020)
Voter turnout in election	0.006 (0.537)	0.148 (0.474)	-0.002 (0.684)
Inequality (Gini coefficient)	-0.012 (0.405)	-0.043 (0.883)	0.001 (0.824)
Vote share (t-1)	0.002 (0.284)	-0.002 (0.966)	0.001 (0.216)
Electoral system (PR=1)	0.092 (0.701)	7.372 (0.182)	0.096 (0.454)
Constant	-17.899 (0.007)	-345.036 (0.032)	-3.511 (0.250)
Observations	903	902	865
Number of parties	155	155	155

*p*-values in parentheses

Robust standard errors & year dummies included.

**Table SM2.8:** Robustness – Models with generalized least squares

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	-0.000 (0.821)	-0.076 (0.000)	-0.002 (0.000)
Party Position (t-1)	-0.035 (0.000)	-0.235 (0.000)	-0.246 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.000 (0.023)</b>	<b>-0.001 (0.169)</b>	<b>-0.003 (0.000)</b>
Center of gravity	0.077 (0.000)	0.415 (0.000)	0.270 (0.000)
$\Delta$ Gross government debt	0.002 (0.298)	0.009 (0.816)	-0.002 (0.105)
Real GDP growth	-0.002 (0.884)	0.307 (0.303)	-0.015 (0.012)
$\Delta$ Unemployment rate	0.004 (0.617)	0.078 (0.713)	0.006 (0.228)
Government bond interest rate	-0.020 (0.106)	-0.527 (0.079)	0.008 (0.302)
Inflation rate	0.011 (0.247)	0.277 (0.242)	-0.012 (0.037)
Openness of the economy	-0.003 (0.071)	-0.094 (0.047)	-0.001 (0.628)
Homeownership rate	-0.013 (0.062)	0.834 (0.000)	0.016 (0.000)
Population (logs)	1.736 (0.000)	54.839 (0.000)	0.369 (0.116)
$\Delta$ over 65-year olds	-0.070 (0.086)	-2.156 (0.005)	-0.043 (0.022)
Urban Population	0.006 (0.458)	-0.692 (0.000)	-0.005 (0.112)
Duration legislative term	-0.022 (0.221)	-0.314 (0.530)	-0.003 (0.759)
Government (yes/no)	-0.028 (0.318)	1.200 (0.053)	0.056 (0.000)
Effective number of parties	-0.009 (0.712)	-0.025 (0.969)	-0.037 (0.006)
Voter turnout in election	0.001 (0.786)	-0.067 (0.585)	-0.003 (0.179)
Inequality (Gini coefficient)	-0.010 (0.237)	0.031 (0.866)	0.003 (0.436)
Vote share (t-1)	0.001 (0.252)	-0.009 (0.737)	0.000 (0.927)
Electoral system (PR=1)	-0.007 (0.957)	4.748 (0.149)	0.134 (0.035)
Constant	-15.038 (0.000)	-471.896 (0.000)	-3.227 (0.120)
Observations	882	881	843
Number of parties	134	134	133

*p*-values in parentheses

Country & year dummies included. Standard errors are panel-specific (AR1) and corrected for panel heteroskedasticity.

**Table SM2.9:** Robustness – Models with panel corrected standard errors

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	0.001 (0.722)	-0.053 (0.045)	-0.002 (0.017)
Party Position (t-1)	-0.051 (0.000)	-0.224 (0.000)	-0.242 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.000 (0.085)</b>	<b>-0.001 (0.069)</b>	<b>-0.002 (0.021)</b>
Center of gravity	0.086 (0.012)	0.448 (0.000)	0.299 (0.000)
$\Delta$ Gross government debt	0.002 (0.541)	0.037 (0.568)	-0.001 (0.368)
Real GDP growth	-0.009 (0.585)	-0.033 (0.945)	-0.017 (0.084)
$\Delta$ Unemployment rate	-0.020 (0.142)	-0.143 (0.692)	0.012 (0.145)
Government bond interest rate	-0.021 (0.292)	-0.088 (0.860)	0.013 (0.262)
Inflation rate	0.002 (0.895)	0.167 (0.662)	-0.007 (0.424)
Openness of the economy	-0.004 (0.277)	-0.080 (0.303)	0.000 (0.835)
Homeownership rate	-0.001 (0.898)	0.599 (0.020)	0.018 (0.001)
Population (logs)	1.772 (0.009)	39.135 (0.012)	0.413 (0.256)
$\Delta$ over 65-year olds	-0.094 (0.101)	-2.644 (0.032)	-0.044 (0.125)
Urban Population	0.002 (0.870)	-0.909 (0.000)	-0.009 (0.109)
Duration legislative term	0.002 (0.938)	-1.016 (0.190)	0.002 (0.929)
Government (yes/no)	-0.002 (0.957)	0.688 (0.469)	0.020 (0.375)
Effective number of parties	-0.008 (0.836)	-0.145 (0.889)	-0.049 (0.025)
Voter turnout in election	0.006 (0.448)	0.131 (0.496)	-0.002 (0.661)
Inequality (Gini coefficient)	-0.010 (0.419)	-0.089 (0.752)	0.001 (0.886)
Vote share (t-1)	0.001 (0.493)	-0.001 (0.975)	0.001 (0.219)
Electoral system (PR=1)	0.034 (0.879)	7.817 (0.186)	0.103 (0.436)
Constant	-16.084 (0.010)	-327.755 (0.019)	-3.584 (0.274)
Observations	903	902	865
$R^2$	0.136	0.311	0.340
Number of parties	155	155	155

*p*-values in parentheses

Country & year dummies included. Standard errors are AR1 and corrected for panel heteroskedasticity.

**Table SM2.10:** Robustness – Models with Level Party Position as DV

	(1) Franzmann/Kaiser	(2) RILE	(3) Benoit/Laver
$\Delta$ Real house prices	-0.001 (0.532)	-0.063 (0.038)	-0.002 (0.007)
Party Position (t-1)	0.966 (0.000)	0.748 (0.000)	0.743 (0.000)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.001 (0.074)</b>	<b>-0.001 (0.071)</b>	<b>-0.002 (0.008)</b>
Center of gravity	0.081 (0.022)	0.458 (0.000)	0.305 (0.000)
Gross government debt	-0.006 (0.005)	-0.061 (0.141)	-0.002 (0.085)
Real GDP growth	-0.004 (0.811)	-0.192 (0.627)	-0.022 (0.014)
Unemployment rate	-0.009 (0.597)	0.053 (0.882)	0.008 (0.344)
Government bond interest rate	-0.034 (0.126)	-0.112 (0.834)	0.011 (0.380)
Inflation rate	0.006 (0.693)	0.184 (0.630)	-0.006 (0.531)
Openness of the economy	-0.008 (0.024)	-0.091 (0.242)	0.000 (0.864)
Homeownership rate	-0.009 (0.384)	0.559 (0.059)	0.018 (0.002)
Population (logs)	0.888 (0.185)	27.357 (0.115)	0.052 (0.896)
over 65-year olds	0.017 (0.523)	0.158 (0.794)	0.010 (0.469)
Urban Population	0.000 (0.972)	-0.864 (0.000)	-0.012 (0.033)
Duration legislative term	-0.014 (0.645)	-1.215 (0.120)	-0.003 (0.865)
Government (yes/no)	-0.043 (0.320)	0.695 (0.508)	0.020 (0.404)
Effective number of parties	0.052 (0.219)	-0.619 (0.535)	-0.053 (0.013)
Voter turnout in election	0.005 (0.537)	0.148 (0.450)	0.002 (0.565)
Inequality (Gini coefficient)	-0.013 (0.317)	-0.058 (0.847)	-0.004 (0.620)
Vote share (t-1)	0.003 (0.063)	-0.008 (0.849)	0.001 (0.438)
Electoral system (PR=1)	0.300 (0.032)	6.007 (0.112)	0.113 (0.103)
Constant	-8.140 (0.191)	-219.590 (0.171)	-0.361 (0.922)
Observations	916	915	877
$R^2$	0.947	0.672	0.670

*p*-values in parentheses

Robust standard errors, country & year dummies included.

**Table SM2.11:** Robustness – Models with party-family based left-right dummies

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	-0.002 (0.146)	-0.025 (0.492)	-0.000 (0.745)
Right	-0.005 (0.920)	-0.496 (0.692)	-0.003 (0.911)
<b>Right <math>\times</math> <math>\Delta</math> House prices</b>	<b>-0.001 (0.719)</b>	<b>-0.055 (0.087)</b>	<b>-0.002 (0.020)</b>
Center of gravity	0.030 (0.452)	0.478 (0.000)	0.261 (0.000)
$\Delta$ Gross government debt	-0.001 (0.612)	0.056 (0.528)	-0.002 (0.256)
Real GDP growth	-0.010 (0.664)	-0.563 (0.355)	-0.028 (0.015)
$\Delta$ Unemployment rate	-0.015 (0.410)	-0.477 (0.256)	0.015 (0.103)
Government bond interest rate	-0.040 (0.103)	-0.780 (0.246)	-0.008 (0.557)
Inflation rate	0.006 (0.748)	0.299 (0.579)	-0.012 (0.308)
Openness of the economy	-0.006 (0.121)	-0.085 (0.371)	-0.000 (0.917)
Homeownership rate	-0.004 (0.715)	0.467 (0.206)	0.018 (0.006)
Population (logs)	2.282 (0.001)	38.395 (0.079)	0.528 (0.234)
$\Delta$ over 65-year olds	-0.125 (0.042)	-2.879 (0.080)	-0.054 (0.144)
Urban Population	0.002 (0.885)	-0.999 (0.001)	-0.007 (0.209)
Duration legislative term	0.018 (0.617)	-1.424 (0.141)	-0.005 (0.820)
Government (yes/no)	-0.040 (0.413)	1.119 (0.377)	-0.007 (0.796)
Effective number of parties	0.068 (0.196)	0.189 (0.885)	-0.045 (0.085)
Voter turnout in election	0.005 (0.623)	0.282 (0.251)	0.001 (0.827)
Inequality (Gini coefficient)	-0.019 (0.167)	-0.102 (0.780)	-0.001 (0.871)
Vote share (t-1)	0.001 (0.554)	-0.015 (0.762)	0.001 (0.440)
Electoral system (PR=1)	0.079 (0.764)	10.633 (0.178)	0.316 (0.028)
Constant	-20.352 (0.002)	-313.519 (0.114)	-4.917 (0.226)
Observations	754	753	726
$R^2$	0.135	0.214	0.229

*p*-values in parentheses

Robust standard errors, country & year dummies included.

Left-right dummies coded according to party family membership in CMP. Right=1 indicates Liberal, Christian Democrats and Conservative parties, right=0 Ecologist, Communist, and Social Democratic parties.

**Table SM2.12:** Robustness – Models with interaction by party family

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	-0.000 (0.880)	-0.049 (0.242)	-0.001 (0.535)
party family membership	0.000 (0.716)	-0.014 (0.593)	-0.000 (0.537)
<b><math>\Delta</math> House prices <math>\times</math> party family membership</b>	<b>-0.000 (0.103)</b>	<b>-0.000 (0.791)</b>	<b>-0.000 (0.286)</b>
Center of gravity	0.060 (0.095)	0.452 (0.000)	0.247 (0.000)
$\Delta$ Gross government debt	-0.000 (0.893)	0.003 (0.975)	-0.002 (0.226)
Real GDP growth	-0.015 (0.467)	-0.342 (0.534)	-0.024 (0.029)
$\Delta$ Unemployment rate	-0.016 (0.307)	0.037 (0.926)	0.018 (0.071)
Government bond interest rate	-0.026 (0.224)	-0.276 (0.640)	0.001 (0.908)
Inflation rate	0.002 (0.906)	0.174 (0.714)	-0.003 (0.790)
Openness of the economy	-0.005 (0.169)	-0.114 (0.200)	-0.000 (0.857)
Homeownership rate	-0.008 (0.464)	0.446 (0.169)	0.020 (0.001)
Population (logs)	1.897 (0.004)	36.089 (0.069)	0.508 (0.222)
$\Delta$ over 65-year olds	-0.111 (0.050)	-3.014 (0.045)	-0.054 (0.126)
Urban Population	0.002 (0.891)	-1.030 (0.000)	-0.009 (0.115)
Duration legislative term	-0.004 (0.901)	-1.025 (0.254)	0.005 (0.801)
Government (yes/no)	-0.042 (0.344)	0.380 (0.741)	-0.012 (0.631)
Effective number of parties	0.037 (0.439)	-0.044 (0.970)	-0.055 (0.024)
Voter turnout in election	0.009 (0.315)	0.232 (0.298)	0.001 (0.838)
Inequality (Gini coefficient)	-0.013 (0.314)	-0.128 (0.687)	0.000 (0.955)
Vote share (t-1)	0.002 (0.288)	-0.004 (0.933)	0.001 (0.211)
Electoral system (PR=1)	0.090 (0.709)	10.786 (0.143)	0.159 (0.275)
Constant	-17.404 (0.004)	-289.679 (0.110)	-4.645 (0.221)
Observations	903	902	865
$R^2$	0.124	0.194	0.217

*p*-values in parentheses

country & year dummies included.

Model estimated with party family as continuous variable.

**Table SM2.13:** Robustness – Models with interaction by party family dummies

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ Real house prices	0.000 (0.921)	-0.006 (0.929)	-0.001 (0.559)
Ecologist	0.001 (0.988)	-1.187 (0.679)	-0.024 (0.625)
Social democratic	0.080 (0.236)	0.684 (0.756)	0.008 (0.868)
Liberal	0.095 (0.245)	0.816 (0.738)	0.022 (0.683)
Christian democrat	-0.055 (0.498)	-0.722 (0.769)	-0.050 (0.310)
Conservative	0.110 (0.186)	-0.508 (0.847)	0.024 (0.633)
Nationalist	0.099 (0.375)	-0.688 (0.859)	-0.062 (0.466)
Agrarian	0.104 (0.269)	1.134 (0.702)	0.040 (0.605)
Ethnic-regional	-0.084 (0.526)	-0.127 (0.970)	-0.112 (0.223)
Special issue	0.095 (0.442)	-2.422 (0.512)	-0.017 (0.817)
Ecologist $\times$ $\Delta$ Real house prices	0.002 (0.533)	0.020 (0.818)	0.002 (0.062)
Social democratic $\times$ $\Delta$ Real house prices	-0.004 (0.095)	-0.056 (0.437)	-0.001 (0.661)
Liberal $\times$ $\Delta$ Real house prices	-0.002 (0.415)	-0.082 (0.303)	-0.001 (0.328)
Christian democrat $\times$ $\Delta$ Real house prices	0.000 (0.865)	-0.047 (0.542)	-0.000 (0.939)
Conservative $\times$ $\Delta$ Real house prices	-0.004 (0.113)	-0.100 (0.203)	-0.002 (0.138)
Nationalist $\times$ $\Delta$ Real house prices	-0.007 (0.340)	-0.139 (0.301)	0.000 (0.877)
Agrarian $\times$ $\Delta$ Real house prices	-0.003 (0.281)	-0.057 (0.569)	-0.002 (0.501)
Ethnic-regional $\times$ $\Delta$ Real house prices	0.006 (0.142)	0.081 (0.544)	0.006 (0.074)
Special issue $\times$ $\Delta$ Real house prices	-0.006 (0.034)	0.032 (0.695)	-0.001 (0.732)
Observations	903	902	865
$R^2$	0.143	0.204	0.234

*p*-values in parentheses

Robust standard errors, country & year dummies included.

Reference category: Party family: Communist (20)

Models estimated with full control variables as in previous specifications. For reasons of presentation, coefficients of control variables are not reported. Results are available on request.

**Table SM2.14:** Robustness – House price increase/decreases

	(1)	(2)
	HP increase	HP decrease
Party Position (t-1)	-0.039 (0.012)	-0.013 (0.556)
$\Delta$ Real house prices	0.001 (0.677)	0.027 (0.833)
<b><math>\Delta</math> House prices <math>\times</math> Party Position (t-1)</b>	<b>-0.000 (0.408)</b>	<b>0.001 (0.673)</b>
Center of gravity	0.021 (0.690)	0.019 (0.957)
$\Delta$ Gross government debt	0.001 (0.767)	0.002 (0.969)
Real GDP growth	0.008 (0.782)	-0.034 (0.945)
$\Delta$ Unemployment rate	-0.012 (0.679)	0.083 (0.579)
Government bond interest rate	-0.044 (0.160)	0.038 (0.929)
Inflation rate	0.023 (0.399)	-0.043 (0.871)
Openness of the economy	-0.011 (0.064)	0.051 (0.503)
Homeownership rate	-0.013 (0.391)	0.089 (0.344)
Population (logs)	0.857 (0.537)	-1.333 (0.790)
$\Delta$ over 65-year olds	-0.138 (0.191)	0.127 (0.924)
Urban Population	0.033 (0.059)	-0.096 (0.071)
Duration legislative term	-0.071 (0.241)	0.203 (0.779)
Government (yes/no)	-0.035 (0.495)	0.017 (0.818)
Effective number of parties	0.240 (0.002)	-0.549 (0.793)
Voter turnout in election	0.005 (0.743)	0.008 (0.913)
Inequality (Gini coefficient)	-0.025 (0.285)	-0.088 (0.583)
Vote share (t-1)	-0.000 (0.898)	0.005 (0.083)
Electoral system (PR=1)	-0.448 (0.225)	0.590 (0.784)
Constant	-8.392 (0.505)	14.972 (0.796)
Observations	613	290
$R^2$	0.204	0.303

*p*-values in parentheses

Robust standard errors, country & year dummies included.



**Table SM2.15:** Robustness – Models with categorised house price changes

	(1)	(2)	(3)
	Franzmann/Kaiser	RILE	Benoit/Laver
$\Delta$ HP: strong decreases	0.118 (0.426)	4.013 (0.138)	0.148 (0.031)
$\Delta$ HP: moderate decreases	-0.268 (0.013)	-0.044 (0.980)	-0.054 (0.263)
$\Delta$ HP: strong increases	-0.043 (0.719)	-0.520 (0.805)	-0.050 (0.348)
$\Delta$ HP: very strong increases	0.161 (0.422)	-0.563 (0.825)	-0.121 (0.088)
Party Position (t-1)	-0.047 (0.000)	-0.211 (0.000)	-0.263 (0.000)
$\Delta$ HP: strong decreases $\times$ Party Position (t-1)	0.035 (0.151)	-0.039 (0.577)	0.062 (0.454)
$\Delta$ HP: moderate decreases $\times$ Party Position (t-1)	0.019 (0.324)	-0.065 (0.286)	-0.015 (0.806)
$\Delta$ HP: strong increases $\times$ Party Position (t-1)	-0.005 (0.818)	-0.147 (0.047)	-0.036 (0.566)
$\Delta$ HP: very strong increases $\times$ Party Position (t-1)	-0.030 (0.383)	-0.166 (0.024)	-0.153 (0.071)
Observations	899	898	861
$R^2$	0.170	0.335	0.358

*p*-values in parentheses

Robust standard errors, country & year dummies included.

Models estimated with full control variables as before. Coefficients not shown for reasons of presentation. Full results available on request.

To analyse in how far house price changes have an asymmetric effect, I categorised house price changes into five categories: strong decreases, moderate decreases, moderate increases, strong increases, and very strong increases. The table above presents results from models using these house price change categories as categorical variables with moderate increases as reference categories. Although not at conventional levels of statistical significance (most likely due to a low number of observations in the respective categories), in two of three measurements, the signs of the coefficients support the hypothesised move to the right when house prices decrease and move to the left when they increase. Most interestingly, the results seem to be driven by sharp decreases in house prices which drive parties of the right to polarise.

## SM3 Asymmetric Responsiveness. The Effects of Socio-economic Developments on Party Position Shifts

### SM3.1 Covariate selection

As stated in the identification section of the paper, we selected the covariates for our models by a systematic approach using the backdoor-path criterion. On basis of the existing literature and theories, we created a list of potential confounding variables and systematically tested whether those variables were systematically associated with the treatment and the outcome variable. If a variable met both criteria, we decided to include it into our analyses as it had potentially biasing effect on our estimation results. In the following, we provide the full record of all models which we estimated to test for association between a possible confounder and treatment or outcome. As we have several socio-economic indicators of interest on both levels of analysis, we grouped the results by the indicator as we assume different causal structures to exist behind every investigated dependent variable.

The tables are structured as follows. In column one, the variable names are described while columns 2-7 list the descriptive statistics (mean, variance, skewness) of all possible covariates for treatment and control group. Columns 8 and 9 lists the coefficient and standard error for the effect of the covariate on the treatment variable. Column 10 and 11 are similar with respect to the association of the covariate and the outcome variable. In column 12, our decision to include a variable on basis of the statistical association between covariate and treatment/outcome is listed.

We tested for confounding variables among a list of macro variables. We interpreted the socio-economic indicator of choice as treatment and dichotomies those variables into a binary treatment to test for possible confounders. The regressions guiding our decisions to include covariates thus include tests for statistical association between a covariate and a category of the binary socio-economic indicator as an auxiliary treatment variable as well as the outcome, i.e. the change in party positions. As the moderator in this regression is a continuous variable, we binned the lagged ideological positions in t-1 into two groups (position  $>0.5$  and  $<0.5$  on a 0-1 economic dimension) and ran multilevel regressions of the potential confounders on the treatments in both subgroups and the outcome accordingly. All variables fulfilling the conditions of systematically affecting the treatments in one of the sub-groups as well as the outcome are selected as a confounder in the final model <sup>1</sup>.

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<sup>1</sup>For reasons of data availability, we dropped income the change in income inequality as control variable from the GDP and debt models as it decreased sample size by almost one half.

**Table SM3.1:** Covariate selection

Leftist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	Δ GDP		low	Δ GDP		low	coefficient	std error	coefficient	std error	
	mean	variance	skewness	mean	variance	skewness					
Union density	40.989	436.895	0.390	37.468	516.685	0.661	-0.009	0.032	0.000	0.000	NO
EMU membership	0.118	0.105	2.363	0.215	0.169	1.390	-3.797	0.803	-0.006	0.008	NO
Capital openness	0.757	0.083	-0.678	0.890	0.034	-1.544	-2.743	1.123	-0.040	0.013	YES
Openness of the economy	63.917	733.132	0.567	63.106	691.948	1.041	-0.045	0.014	0.000	0.000	NO
Turnout	77.001	65.207	0.027	77.725	85.082	-0.267	0.095	0.046	0.001	0.000	YES
Fractionalisation index	0.747	0.003	0.151	0.752	0.004	-0.140	-28.006	6.806	-0.119	0.050	YES
Disproportionality index	5.707	27.797	1.727	5.542	26.108	1.116	-0.460	0.109	-0.001	0.001	NO
Public debt	58.960	551.488	0.393	64.766	1169.561	1.336	-0.104	0.010	0.000	0.000	NO
Gross domestic product	36833	207278652	1.301	40860	222607256	1.436	0.000	0.000	0.000	0.000	NO
Δ GDP											
Δ House price	26.713	656.065	1.219	23.001	1204.487	0.916	0.071	0.007	0.000	0.000	NO
Δ Public debt	0.442	156.313	0.509	4.981	146.303	0.700	-0.322	0.020	0.001	0.000	NO
Δ Top 1% income	0.298	2.437	-1.108	0.120	4.869	0.201	0.457	0.168	-0.006	0.003	YES
Δ Top 10% Income	0.204	5.220	-0.746	0.204	7.033	0.266	0.064	0.126	-0.003	0.002	NO
Δ Unemployment	-0.809	4.968	-1.020	1.097	5.298	1.958	-1.984	0.088	0.002	0.001	NO

Rightist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	Δ GDP		high	Δ GDP		high	coefficient	std error	coefficient	std error	
	mean	variance	skewness	mean	variance	skewness					
Union density	40.989	436.895	0.390	37.468	516.685	0.661	-0.004	0.025	0.000	0.000	NO
EMU membership	0.118	0.105	2.363	0.215	0.169	1.390	-6.115	0.720	-0.003	0.009	NO
Capital openness	0.757	0.083	-0.678	0.890	0.034	-1.544	-3.602	0.988	-0.003	0.014	NO
Openness of the economy	63.917	733.132	0.567	63.106	691.948	1.041	-0.084	0.012	0.000	0.000	NO
Turnout	77.001	65.207	0.027	77.725	85.082	-0.267	0.140	0.041	0.000	0.000	NO
Fractionalisation index	0.747	0.003	0.151	0.752	0.004	-0.140	-26.380	5.647	-0.004	0.046	NO
Disproportionality index	5.707	27.797	1.727	5.542	26.108	1.116	-0.484	0.092	0.000	0.001	NO
Public debt	58.960	551.488	0.393	64.766	1169.561	1.336	-0.094	0.010	0.000	0.000	NO
Gross domestic product	36833	207278652	1.301	40860	222607256	1.436	0.000	0.000	0.000	0.000	NO
Δ GDP											
Δ House price	26.713	656.065	1.219	23.001	1204.487	0.916	0.069	0.008	0.000	0.000	NO
Δ Public debt	0.442	156.313	0.509	4.981	146.303	0.700	-0.301	0.018	0.001	0.000	YES
Δ Top 1% income	0.298	2.437	-1.108	0.120	4.869	0.201	0.439	0.170	-0.011	0.003	YES
Δ Top 10% Income	0.204	5.220	-0.746	0.204	7.033	0.266	0.109	0.119	-0.007	0.002	NO
Δ Unemployment	-0.809	4.968	-1.020	1.097	5.298	1.958	-1.678	0.080	0.007	0.001	YES

Leftist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	Δ House price		low	Δ House price		low	coefficient	std error	coefficient	std error	
	mean	variance	skewness	mean	variance	skewness					
Union density	40.662	546.715	0.340	37.128	391.912	0.805	-0.222	0.112	0.000	0.000	NO
EMU membership	0.207	0.165	1.447	0.121	0.107	2.324	25.109	3.586	-0.006	0.008	NO
Capital openness	0.844	0.054	-1.035	0.806	0.070	-1.212	38.367	5.668	-0.040	0.013	YES
Openness of the economy	64.868	578.976	0.739	61.700	877.265	0.906	0.212	0.066	0.000	0.000	NO
Turnout	77.363	77.189	-0.315	77.413	74.198	0.097	-0.395	0.187	0.001	0.000	YES
Fractionalisation index	0.753	0.003	-0.309	0.744	0.004	0.322	-40.672	27.514	-0.119	0.050	NO
Disproportionality index	5.702	28.133	1.591	5.512	25.300	1.148	-0.581	0.388	-0.001	0.001	NO
Public debt	54.568	521.194	0.553	71.702	1196.271	1.166	-0.283	0.050	0.000	0.000	NO
Gross domestic product	42874	281847133	1.103	33921	93227482	0.572	0.001	0.000	0.000	0.000	NO
Δ GDP	8.782	38.183	1.528	5.447	30.938	0.053	2.032	0.202	-0.001	0.000	NO
Δ House price											
Δ Public debt	-1.861	122.075	1.014	8.942	134.073	0.270	-1.460	0.081	0.001	0.000	NO
Δ Top 1% income	0.233	5.373	-0.116	0.166	1.613	-0.588	0.354	0.774	-0.006	0.003	NO
Δ Top 10% Income	0.094	8.713	0.037	0.347	2.868	-0.467	0.296	0.566	-0.003	0.002	NO
Δ Unemployment	-0.406	4.876	-0.887	0.989	6.474	1.590	-6.344	0.459	0.002	0.001	NO

Rightist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	Δ House price		high	Δ House price		high	coefficient	std error	coefficient	std error	
	mean	variance	skewness	mean	variance	skewness					
Union density	43.029	569.265	0.330	36.413	432.196	1.088	-0.196	0.097	0.000	0.000	NO
EMU membership	0.182	0.150	1.650	0.162	0.137	1.832	14.460	3.226	-0.003	0.009	NO
Capital openness	0.827	0.060	-0.869	0.853	0.057	-1.800	22.609	4.807	-0.003	0.014	NO
Openness of the economy	65.640	669.103	0.974	61.334	1124.348	1.164	0.083	0.052	0.000	0.000	NO
Turnout	78.685	73.586	-0.560	78.717	84.528	-0.160	-0.229	0.151	0.000	0.000	NO
Fractionalisation index	0.769	0.003	-0.489	0.757	0.004	0.300	-0.159	22.808	-0.004	0.046	NO
Disproportionality index	5.462	34.022	1.501	5.085	23.218	1.022	-0.570	0.321	0.000	0.001	NO
Public debt	61.170	668.775	0.389	70.179	992.692	0.886	-0.228	0.044	0.000	0.000	NO
Gross domestic product	40965	215020476	1.357	35586	87191975	0.664	0.001	0.000	0.000	0.000	NO
Δ GDP	8.805	36.775	1.386	5.264	20.923	0.265	1.720	0.182	-0.002	0.000	YES
Δ House price											
Δ Public debt	-1.212	153.255	1.237	8.401	98.529	0.164	-1.221	0.079	0.001	0.000	YES
Δ Top 1% income	0.202	3.081	-1.137	0.178	1.574	-0.973	-0.356	0.768	-0.011	0.003	NO
Δ Top 10% Income	0.304	5.606	-0.658	0.368	2.615	-0.656	-0.202	0.529	-0.007	0.002	NO
Δ Unemployment	-0.396	4.489	-0.326	0.684	4.364	1.116	-4.813	0.437	0.007	0.001	YES

Leftist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	$\Delta$ Public debt mean	variance	low skewness	$\Delta$ Public debt mean	variance	low skewness	coefficient	std error	coefficient	std error	
Union density	35.652	406.018	0.747	42.707	535.829	0.292	-0.057	0.035	0.000	0.000	NO
EMU membership	0.137	0.119	2.116	0.203	0.163	1.474	-4.130	1.228	-0.006	0.008	NO
Capital openness	0.808	0.069	-1.113	0.847	0.053	-1.151	-3.189	1.906	-0.040	0.013	NO
Openness of the economy	59.037	783.189	0.987	68.087	595.381	0.790	-0.010	0.016	0.000	0.000	NO
Turnout	76.197	70.135	0.019	78.613	78.851	-0.335	-0.077	0.054	0.001	0.000	NO
Fractionalisation index	0.750	0.003	0.110	0.749	0.003	-0.170	9.460	9.629	-0.119	0.050	NO
Disproportionality index	6.013	29.004	1.284	5.212	24.412	1.573	0.592	0.149	-0.001	0.001	NO
Public debt	69.922	1116.170	1.234	53.892	520.594	0.493	0.163	0.016	0.000	0.000	NO
Gross domestic product	37942	278024866	1.705	40032	156697976	0.593	0.000	0.000	0.000	0.000	NO
$\Delta$ GDP	5.532	27.725	-0.041	9.184	41.353	1.451	-0.777	0.049	-0.001	0.000	NO
$\Delta$ House price	13.174	757.798	1.327	36.706	866.829	0.985	-0.258	0.014	0.000	0.000	NO
$\Delta$ Public debt											
$\Delta$ Top 1% income	0.029	5.557	-0.010	0.384	1.788	-0.070	-0.019	0.309	-0.006	0.003	NO
$\Delta$ Top 10% Income	0.049	8.088	0.061	0.364	4.161	-0.318	0.148	0.221	-0.003	0.002	NO
$\Delta$ Unemployment	1.172	5.934	1.441	-0.800	4.189	-1.280	2.853	0.136	0.002	0.001	NO

Rightist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	$\Delta$ Public debt mean	variance	high skewness	$\Delta$ Public debt mean	variance	high skewness	coefficient	std error	coefficient	std error	
Union density	34.945	420.820	1.078	45.613	560.247	0.261	-0.067	0.044	0.000	0.000	NO
EMU membership	0.171	0.143	1.744	0.173	0.144	1.733	1.230	1.260	-0.003	0.009	NO
Capital openness	0.847	0.061	-1.575	0.832	0.055	-0.957	2.834	1.959	-0.003	0.014	NO
Openness of the economy	59.165	1056.416	1.294	68.838	660.520	0.952	0.041	0.018	0.000	0.000	NO
Turnout	77.713	83.673	-0.182	79.936	70.649	-0.526	-0.033	0.061	0.000	0.000	NO
Fractionalisation index	0.762	0.004	0.140	0.764	0.003	-0.365	12.392	10.099	-0.004	0.046	NO
Disproportionality index	5.501	28.709	1.280	4.984	28.310	1.474	0.820	0.168	0.000	0.001	NO
Public debt	72.637	939.315	0.814	57.079	609.366	0.418	0.192	0.017	0.000	0.000	NO
Gross domestic product	37669	179488314	1.904	38969	129482322	0.626	0.000	0.000	0.000	0.000	NO
$\Delta$ GDP	5.419	23.116	0.105	9.012	35.714	1.760	-0.901	0.054	-0.002	0.000	YES
$\Delta$ House price	10.181	477.462	1.653	30.684	593.695	1.098	-0.249	0.016	0.000	0.000	NO
$\Delta$ Public debt											
$\Delta$ Top 1% income	0.071	3.121	-1.095	0.338	1.277	-0.405	2.561	0.144	0.007	0.001	YES
$\Delta$ Top 10% income	0.246	4.844	-0.782	0.450	3.136	-0.395	-0.003	0.003	0.000	0.000	NO
$\Delta$ Unemployment	0.863	4.243	0.988	-0.743	3.873	-0.482	0.289	0.181	-0.003	0.009	NO

Leftist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	$\Delta$ Top 1 % mean	income variance	low skewness	$\Delta$ Top 1 % mean	income variance	low skewness	coefficient	std error	coefficient	std error	
Union density	36.891	462.119	0.704	41.786	493.424	0.332	-0.005	0.004	0.000	0.000	NO
EMU membership	0.168	0.141	1.773	0.171	0.142	1.750	0.119	0.219	-0.006	0.008	NO
Capital openness	0.873	0.045	-1.388	0.773	0.076	-0.853	0.848	0.295	-0.040	0.013	YES
Openness of the economy	61.029	712.766	0.801	66.424	693.908	0.857	0.000	0.003	0.000	0.000	NO
Turnout	76.498	89.063	0.071	78.445	58.046	-0.403	-0.020	0.007	0.001	0.000	YES
Fractionalisation index	0.747	0.003	0.069	0.752	0.003	-0.130	0.484	1.169	-0.119	0.050	NO
Disproportionality index	6.205	28.560	1.134	4.919	24.026	1.853	0.026	0.015	-0.001	0.001	NO
Public debt	62.840	874.391	0.864	61.086	902.505	1.726	0.002	0.003	0.000	0.000	NO
Gross domestic product	38757	220221367	1.341	39223	218465369	1.368	0.000	0.000	0.000	0.000	NO
$\Delta$ GDP	8.562	39.696	1.525	5.853	31.463	0.002	0.032	0.010	-0.001	0.000	NO
$\Delta$ House price	27.976	940.734	0.842	20.881	934.784	1.164	0.002	0.003	0.000	0.000	NO
$\Delta$ Public debt	0.666	151.177	0.538	5.461	149.527	0.658	-0.001	0.008	0.001	0.000	NO
$\Delta$ Top 1% income											
$\Delta$ Top 10% Income	1.578	3.635	2.563	-1.438	4.246	-2.320	0.642	0.013	-0.003	0.002	NO
$\Delta$ Unemployment	-0.507	5.236	-0.676	1.050	5.703	1.862	-0.061	0.033	0.002	0.001	NO

Rightist parties	Treatment group			Treatment group			Effect on treatment		Effect on outcome		Selection as confounder
	$\Delta$ Top 1 % mean	income variance	high skewness	$\Delta$ Top 1 % mean	income variance	high skewness	coefficient	std error	coefficient	std error	
Union density	37.833	500.140	0.875	42.027	514.858	0.451	-0.003	0.003	0.000	0.000	NO
EMU membership	0.152	0.129	1.942	0.198	0.160	1.519	0.289	0.181	-0.003	0.009	NO
Capital openness	0.874	0.042	-1.353	0.798	0.076	-1.106	0.608	0.235	-0.003	0.014	NO
Openness of the economy	57.838	699.887	1.139	70.572	1070.714	0.887	0.004	0.003	0.000	0.000	NO
Turnout	77.774	89.020	-0.171	79.872	64.113	-0.524	-0.015	0.006	0.000	0.000	NO
Fractionalisation index	0.756	0.004	0.136	0.771	0.003	-0.302	-0.541	0.860	-0.004	0.046	NO
Disproportionality index	6.423	29.530	0.917	3.816	23.602	2.272	0.032	0.011	0.000	0.001	NO
Public debt	68.663	1107.911	0.630	62.006	505.306	0.713	0.004	0.002	0.000	0.000	NO
Gross domestic product	37630	142436216	1.465	39026	175909291	1.438	0.000	0.000	0.000	0.000	NO
$\Delta$ GDP	8.279	34.519	1.546	5.419	24.029	0.217	0.026	0.010	-0.002	0.000	YES
$\Delta$ House price	21.577	755.200	1.016	16.408	464.377	1.301	-0.001	0.003	0.000	0.000	NO
$\Delta$ Public debt	2.599	148.511	0.335	4.967	146.068	0.654	-0.004	0.006	0.001	0.000	NO
$\Delta$ Top 1% income											
$\Delta$ Top 10% Income	1.455	1.961	2.722	-1.076	3.199	-2.872	0.598	0.013	-0.007	0.002	YES
$\Delta$ Unemployment	-0.223	5.093	0.101	0.620	3.847	1.087	-0.049	0.027	0.007	0.001	NO



## SM3.2 Verification of clustered standard errors

Clustered standard errors in samples with cluster-size being lower 50 are potentially subject to severe bias (Kézdi, 2004; Cameron, Gelbach and Miller, 2006). We opt for an empirical strategy to identify the potential of cluster-effects by calculating intra-cluster correlation coefficients (ICC) (see Killip, Mahfoud and Pearce, 2004). The ICC basically compares within country versus cross-country variance. ICC values close to 1 indicate strong cluster effects whereas values around 0 assign no cluster effects. In our case, we need to assess the ICC for the four treatments as well as for ideological sub-groups of position shifts of left as well as right parties because we have an interactive argument. We demonstrate empirically, that intracluster correlation is substantially higher than cross-cluster correlation (very low ICC) and thus, motivate our abstention from country clustered standard errors (compare below for the individual ICC p-values). ICC's are calculated using `clttest` in Stata (Donner and Klar, 2000). Cluster effects are slightly higher within the groups of left and right parties in comparison to the combined sample. However, ICCs are still very close to zero and accordingly clustered standard errors are not justified.

**Table SM3.2:** Intracluster correlation of party position shifts within countries

Sample	Treatment	Cluster	ICC	N clusters	N
Left-right combined	GDP growth	Country	0.000	35	1941
Left-right combined	$\Delta$ House prices	Country	0.000	19	1241
Left-right combined	$\Delta$ Public debt	Country	0.001	34	1549
Left-right combined	$\Delta$ Top 1 % income share	Country	0.000	17	1104
Only left parties	GDP growth	Country	0.010	35	986
Only left parties	$\Delta$ House prices	Country	0.005	18	600
Only left parties	$\Delta$ Public debt	Country	0.004	34	782
Only left parties	$\Delta$ Top 1 % income share	Country	0.010	17	527
Only right parties	GDP growth	Country	0.021	35	955
Only right parties	$\Delta$ House prices	Country	0.003	19	641
Only right parties	$\Delta$ Public debt	Country	0.000	32	767
Only right parties	$\Delta$ Top 1 % income share	Country	0.027	17	577



### SM3.3 Additional results: Tables and graphs

**Table SM3.3:** Prais-Winsten regression results (models behind Figures 4.1, 4.2 and 4.3)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Full sample				Niche parties				Mainstream parties			
VARIABLES	GDP growth	Δ Public debt	Δ House prices	Δ Top 1 % income	GDP growth	Δ Public debt	Δ House prices	Δ Top 1 % income	GDP growth	Δ Public debt	Δ House prices	Δ Top 1 % income
Party position t -1	-0.130***	-0.222	-0.151***	-0.189***	-0.285***	-0.376***	-0.279***	-0.420***	-0.232***	-0.307***	-0.217***	-0.263
Δ GDP	0.004**	-	-	-	0.003	-	-	-	0.003**	-	-	-
Δ GDP × Party position t -1	-0.008***	-	-	-	-0.007**	-	-	-	-0.006**	-	-	-
Gross domestic product t -1	-0.000	-	-	-	-0.000	-	-	-	-0.000	-	-	-
Δ Public debt	-	-0.003	-	-	-	-0.004***	-	-	-	-0.003**	-	-
Δ Debt × Party position t -1	-	0.006	-	-	-	0.007**	-	-	-	0.005**	-	-
Public debt t -1	-	-0.001	-	-	-	-0.000	-	-	-	-0.001***	-	-
Δ House price	-	-	0.001**	-	-	-	0.001*	-	-	-	0.001*	-
Δ House price × Party position t -1	-	-	-0.002**	-	-	-	-0.002	-	-	-	-0.003**	-
House price t -1	-	-	0.000	-	-	-	-0.000*	-	-	-	0.000	-
Δ Top 1% income	-	-	-	-0.013*	-	-	-	-0.019	-	-	-	-0.010
Δ Top 1% income × Party position t -1	-	-	-	0.004	-	-	-	0.028	-	-	-	0.001
Top 1% income t -1	-	-	-	-0.006*	-	-	-	-0.010	-	-	-	-0.007
Constant	-0.287**	0.120	-0.029	0.081	-0.113	0.112***	0.011	0.094	-0.230	0.182***	0.031	0.357
Observations	1045	1045	762	598	294	306	198	155	751	774	564	472
Number of parties	247	247	159	127	79	83	48	38	168	172	111	89
Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Note: All models for linear predictions estimated with Prais-Winsten regressions with country dummies and panel corrected standard errors. Non-linear marginal effects plots are computed using OLS estimations with country fixed effects and robust standard errors. For the GDP and public debt models, our covariate selection approach identified income inequality as a control variable. Due to data availability, the inclusion reduced our sample by almost one half, so we decided to drop the variable to maximise sample size.

**Table SM3.4:** Panel regression models with party fixed effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Full sample				Niche parties				Mainstream parties			
VARIABLES	GDP growth	$\Delta$ Public debt	$\Delta$ House prices	$\Delta$ Top 1 % income	GDP growth	$\Delta$ Public debt	$\Delta$ House prices	$\Delta$ Top 1 % income	GDP growth	$\Delta$ Public debt	$\Delta$ House prices	$\Delta$ Top 1 % income
Party position t -1	-0.743***	-0.834***	-0.742***	-0.804***	-0.818***	-0.863***	-0.847***	-0.955***	-0.734***	-0.833***	-0.730***	-0.777***
$\Delta$ GDP	0.005***	-	-	-	0.001	-	-	-	0.006**	-	-	-
$\Delta$ GDP $\times$ Party position t -1	-0.008***	-	-	-	-0.002	-	-	-	-0.009**	-	-	-
Gross domestic product t -1	-0.000	-	-	-	-0.000	-	-	-	-0.000	-	-	-
$\Delta$ Public debt	-	-0.003***	-	-	-	-0.003**	-	-	-	-0.004***	-	-
$\Delta$ Debt $\times$ Party position t -1	-	0.007***	-	-	-	0.005*	-	-	-	0.008***	-	-
Public debt t -1	-	-0.000**	-	-	-	-0.001**	-	-	-	-0.000	-	-
$\Delta$ House price	-	-	0.001***	-	-	-	0.001	-	-	-	0.002***	-
$\Delta$ House price $\times$ Party position t -1	-	-	-0.003***	-	-	-	-0.002*	-	-	-	-0.003***	-
House price t -1	-	-	0.000	-	-	-	-0.000**	-	-	-	0.000	-
$\Delta$ Top 1% income	-	-	-	-0.009*	-	-	-	-0.022*	-	-	-	-0.008
$\Delta$ Top 1% income $\times$ Party position t -	-	-	-	0.003	-	-	-	0.032	-	-	-	0.001
Top 1% income t -1	-	-	-	-0.010**	-	-	-	-0.026**	-	-	-	-0.008*
Constant	0.117	0.461***	0.467***	0.651***	-0.049	0.403***	0.157	0.360*	0.215	0.493***	0.540***	0.728***
Observations	1045	1045	762	598	294	294	198	152	751	751	564	446
Number of parties	247	247	159	127	79	79	48	38	168	168	111	89
Country dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$  Note: All models for linear predictions estimated with Prais-Winsten regressions with country dummies and panel corrected standard errors. Non-linear marginal effects plots are computed using OLS estimations with country fixed effects and robust standard errors. For the GDP and public debt models, our covariate selection approach identified income inequality as a control variable. Due to data availability, the inclusion reduced our sample by almost one half, so we decided to drop the variable to maximise sample size.

### SM3.3.1 Robustness: Alternative specifications and control variables configurations

In the robustness section, we put the interaction effects of the main models reported above to a critical assessment. For purpose of comparison, we provide the results from the main specifications presented above in the first two columns. For both specifications, Prais-Winston regressions with panel-corrected standard errors and party fixed effects with robust standard errors, we then include year dummies to control for time trends, exclude and include all potential controls from our dataset and lift the sample restriction of time and partisan types. Finally, we present results from specifications with party random effects (including time dummies due to the time structure of the dataset) and OLS estimations with country-clustered jackknife standard errors. In addition, we test the impact of unemployment as an additional and salient indicator of socio-economic change. We only depict the interaction effect but constitutive terms of the interaction are part of every model. Controls are also not shown in order to improve the clarity of the tables.

**Table SM3.5:** Robustness of main effect for each indicator

Treatment	$\Delta$ GDP growth									
	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Panel (robust)	OLS jackknife
$\Delta$ GDP $\times$ Party position t -1	-0.008***	-0.008***	-0.008***	-0.008***	-0.007**	-0.009**	-0.006**	-0.004*	-0.008***	-0.008**
Observations	1045	1045	1045	1045	989	989	1438	1438	1045	1045
Number of parties	247	247	247	247	230	230	305	305	247	-
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	YES	NO
Party RE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Year dummies	NO	NO	YES	YES	NO	NO	NO	NO	YES	NO
Full controls	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Unrestricted sample	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
Replications	-	-	-	-	-	-	-	-	-	31

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Treatment	$\Delta$ House prices									
	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Panel (robust)	OLS jackknife
$\Delta$ HP $\times$ Party position t -1	<b>-0.002**</b>	<b>-0.003***</b>	<b>-0.002**</b>	<b>-0.003***</b>	<b>-0.002**</b>	<b>-0.003***</b>	<b>-0.002**</b>	<b>-0.003***</b>	<b>-0.002***</b>	<b>-0.002**</b>
Observations	762	762	762	762	752	752	1062	1062	762	762
Number of parties	159	159	159	159	158	158	202	202	159	-
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	YES	NO
Party RE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Year dummies	NO	NO	YES	YES	NO	NO	NO	NO	YES	NO
Full controls	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Unrestricted sample	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
Replications	-	-	-	-	-	-	-	-	-	18

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Treatment	$\Delta$ Public debt									
	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Panel (robust)	OLS jackknife
$\Delta$ Debt $\times$ Party position t -1	<b>0.006***</b>	<b>0.007***</b>	<b>0.006***</b>	<b>0.008***</b>	<b>0.005**</b>	<b>0.008***</b>	<b>0.004**</b>	<b>0.005***</b>	<b>0.006***</b>	<b>0.006**</b>
Observations	1045	1045	1045	1045	989	989	1438	1438	1045	1045
Number of parties	247	247	247	247	230	230	305	305	247	-
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	YES	NO
Party RE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Year dummies	NO	NO	YES	YES	NO	NO	NO	NO	YES	NO
Full controls	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Unrestricted sample	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
Replications	-	-	-	-	-	-	-	-	-	16

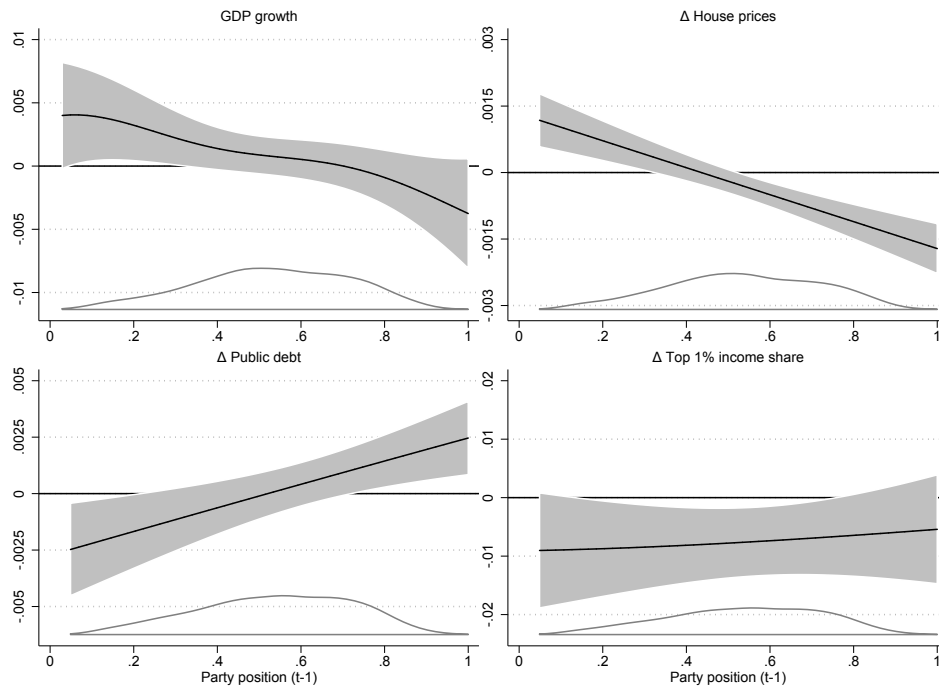
\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Treatment	$\Delta$ Top 1 % income share									
	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Panel (robust)	OLS jackknife
$\Delta$ Top1 $\times$ Party position t -1	<b>0.004</b>	<b>0.003</b>	<b>0.01</b>	<b>0.01</b>	<b>0.004</b>	<b>0.003</b>	<b>-0.0003</b>	<b>0.004</b>	<b>0.01</b>	<b>0.004</b>
Observations	598	598	598	598	591	591	812	812	598	598
Number of parties	127	127	127	127	126	126	162	162	127	-
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	YES	NO
Party RE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Year dummies	NO	NO	YES	YES	NO	NO	NO	NO	YES	NO
Full controls	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Unrestricted sample	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
Replications	-	-	-	-	-	-	-	-	-	16

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

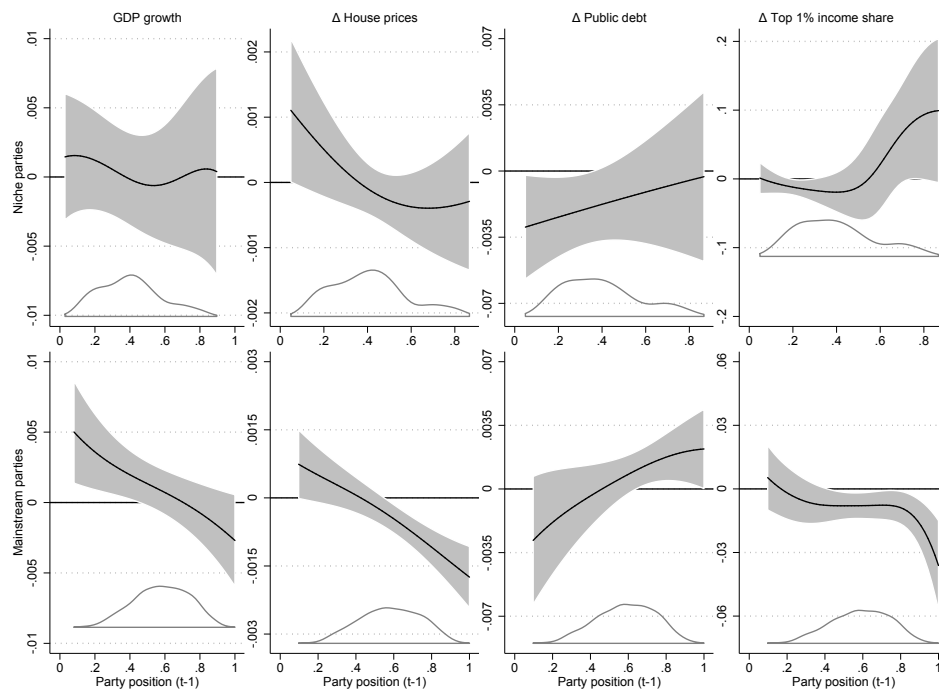
Treatment	$\Delta$ Unemployment									
	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Prais-Winston	Panel (robust)	Panel (robust)	OLS jackknife
$\Delta$ Unemp $\times$ Party position t -1	<b>0.02***</b>	<b>0.02***</b>	<b>0.02***</b>	<b>0.02**</b>	<b>0.02**</b>	<b>0.03**</b>	<b>0.02**</b>	<b>0.02***</b>	<b>0.02**</b>	<b>0.02**</b>
Observations	1045	1045	1045	1045	989	989	1438	1438	1045	1045
Number of parties	247	247	247	247	230	230	305	305	247	-
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	YES	NO
Party RE	NO	NO	NO	NO	NO	NO	NO	NO	NO	NO
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
Year dummies	NO	NO	YES	YES	NO	NO	NO	NO	YES	NO
Full controls	NO	NO	NO	NO	YES	YES	NO	NO	NO	NO
Unrestricted sample	NO	NO	NO	NO	NO	NO	YES	YES	NO	NO
Replications	-	-	-	-	-	-	-	-	-	31

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



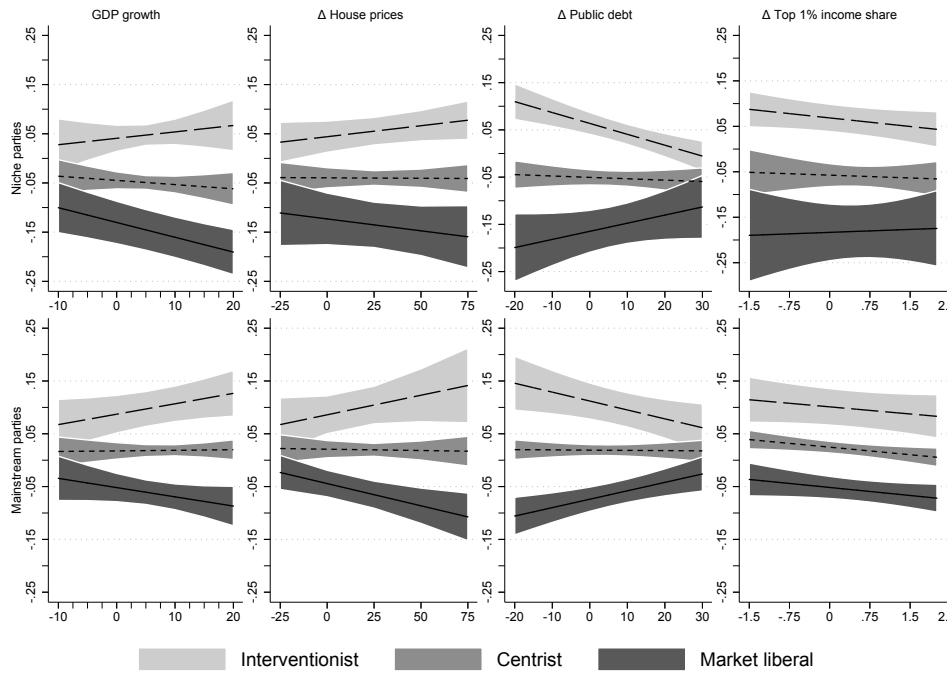
**Figure SM3.1:** Non-linear marginal effects with party fixed effects: full sample

Note: Results derived from OLS regression with country dummies and robust standard errors. Bandwidth optimized for models with only robust standard errors.



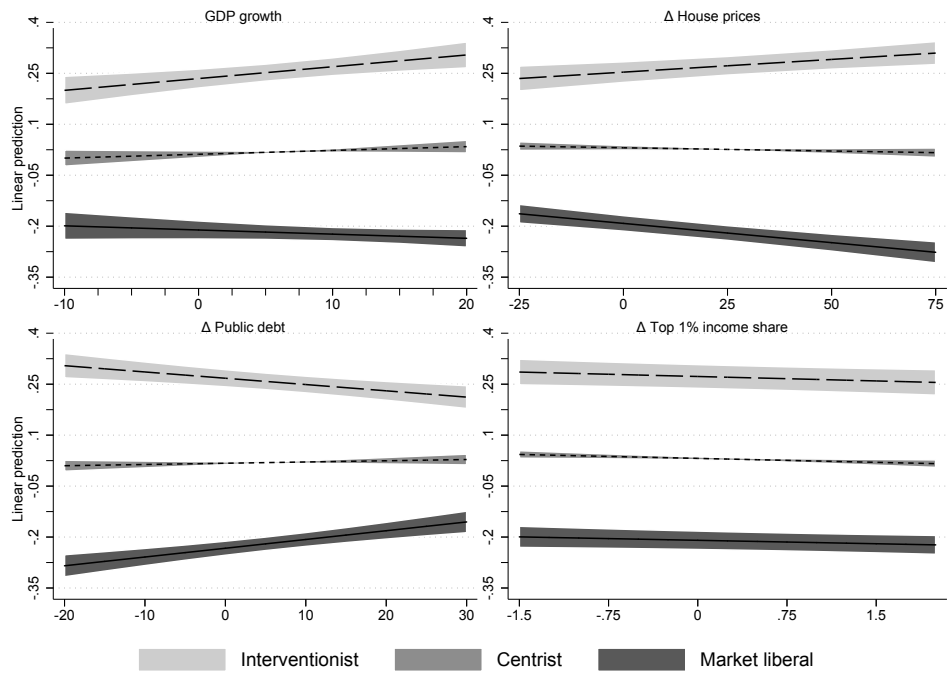
**Figure SM3.2:** Non-linear marginal effects with party fixed effects: split sample

Note: Results derived from OLS regression with country dummies and robust standard errors. Bandwidth optimised for models with only robust standard errors.



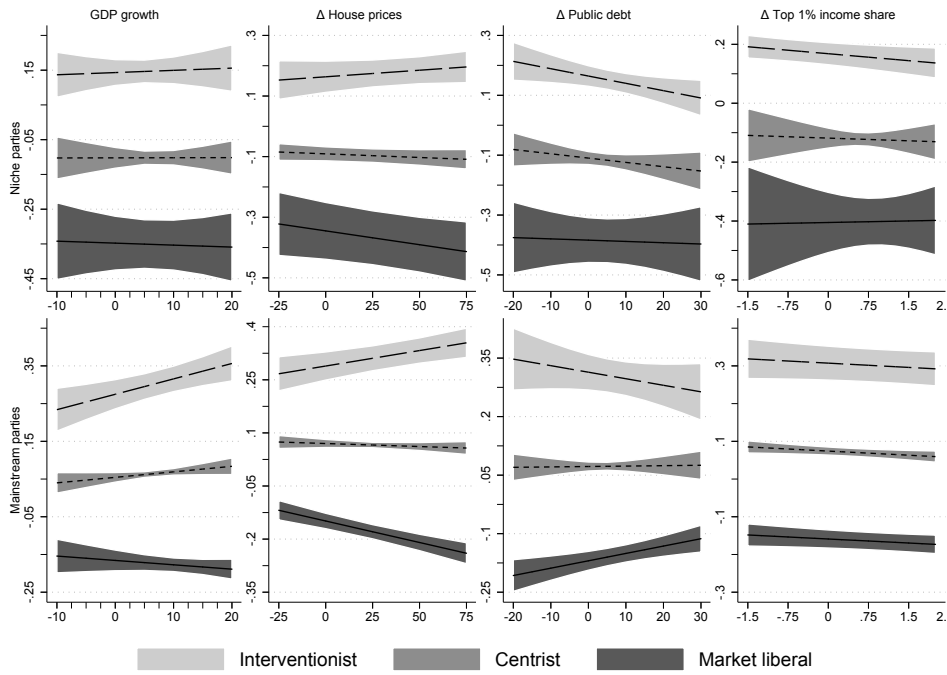
**Figure SM3.3:** Linear predictions: split sample

Note: Results derived from Prais-Winsten regression with panel-corrected standard errors.



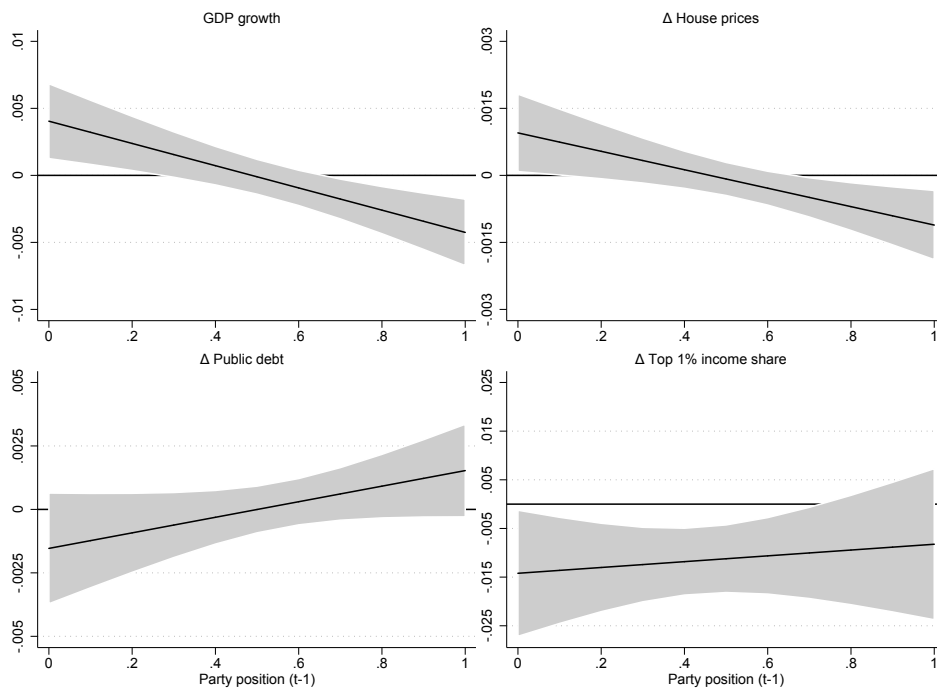
**Figure SM3.4:** Linear predictions with party fixed effects: full sample

Note: Results derived from panel regression with party fixed effects and robust standard errors.



**Figure SM3.5:** Linear predictions with party fixed effects: split sample

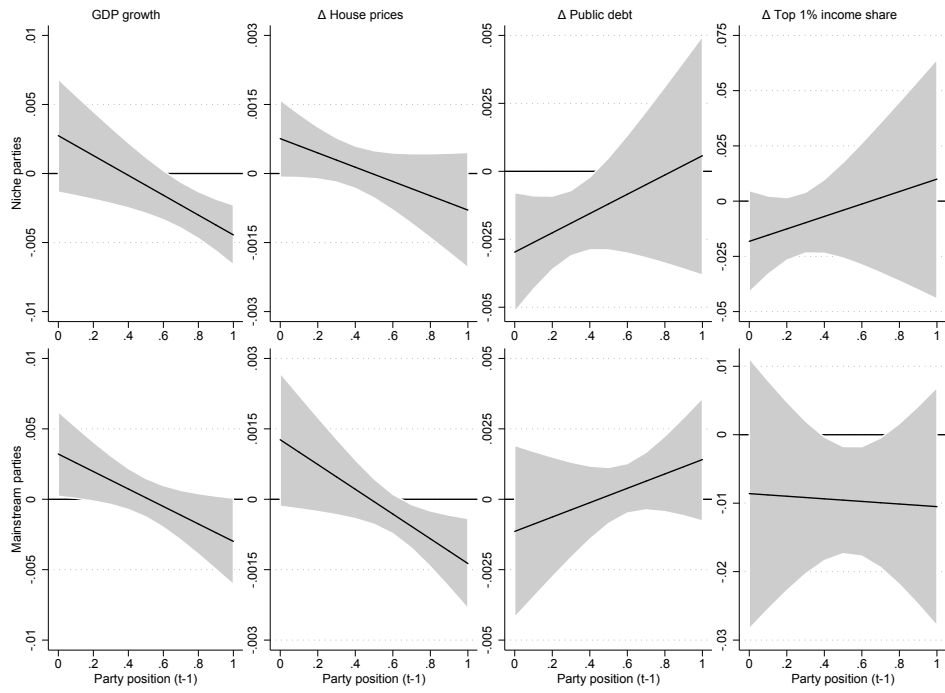
Note: Results derived from panel regression with party fixed effects and robust standard errors.



**Figure SM3.6:** Linear marginal effects: full sample

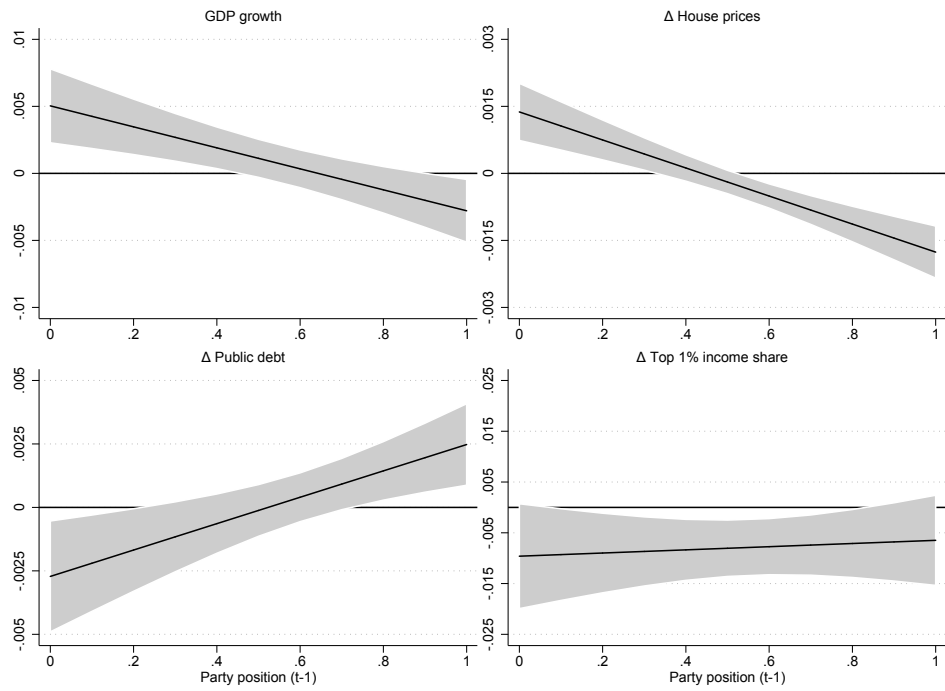
Note: Results derived from Prais-Winsten regression with panel-corrected standard errors.





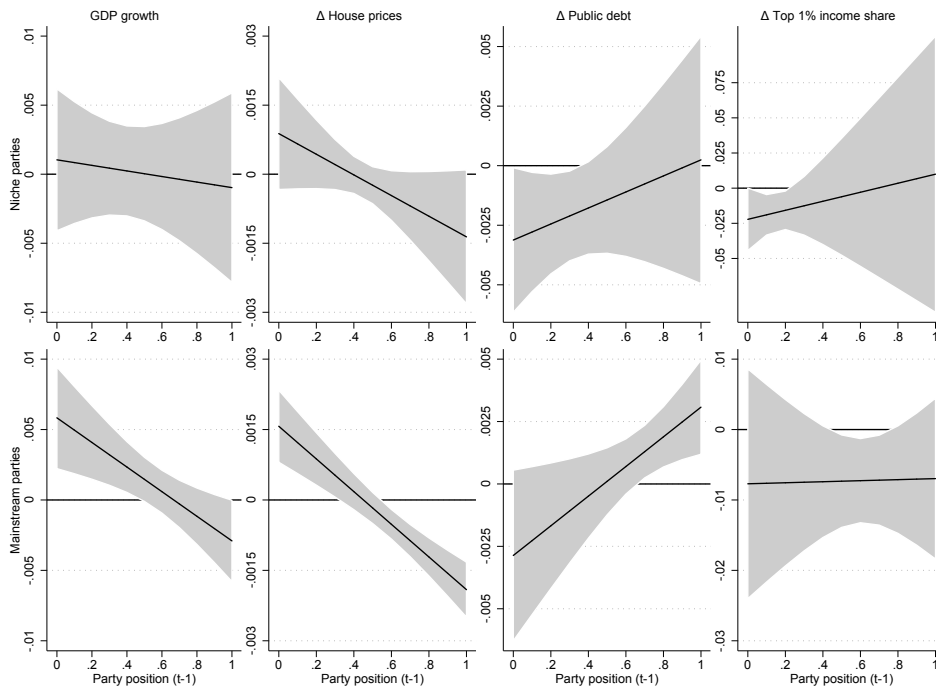
**Figure SM3.7:** Linear marginal effects: split sample

Note: Results derived from Prais-Winsten regression with panel-corrected standard errors.



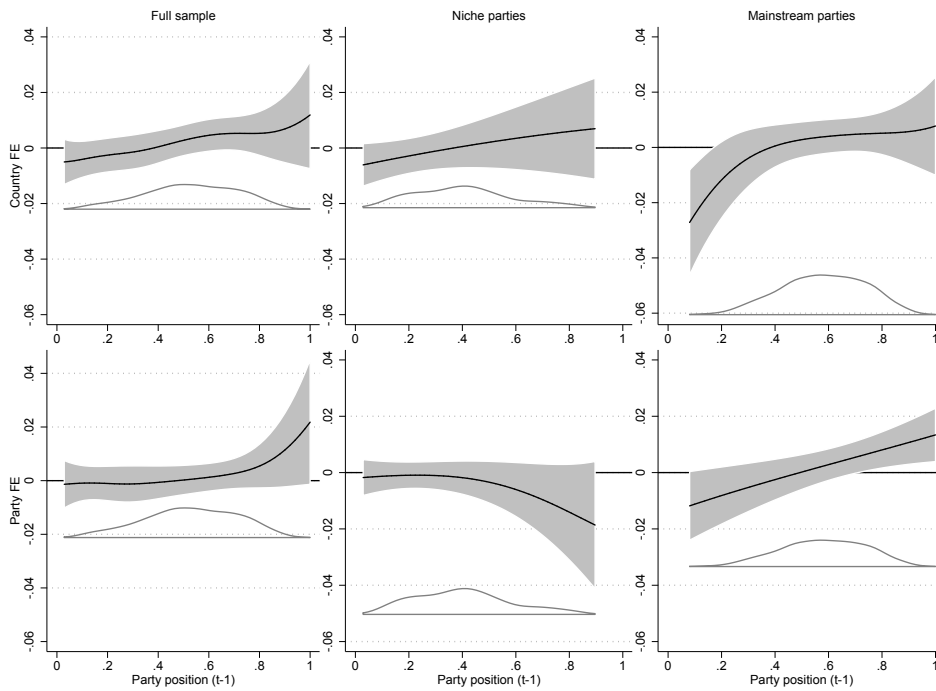
**Figure SM3.8:** Linear marginal effects with party fixed effects: full sample

Note: Results derived from panel regression with party fixed effects and robust standard errors.



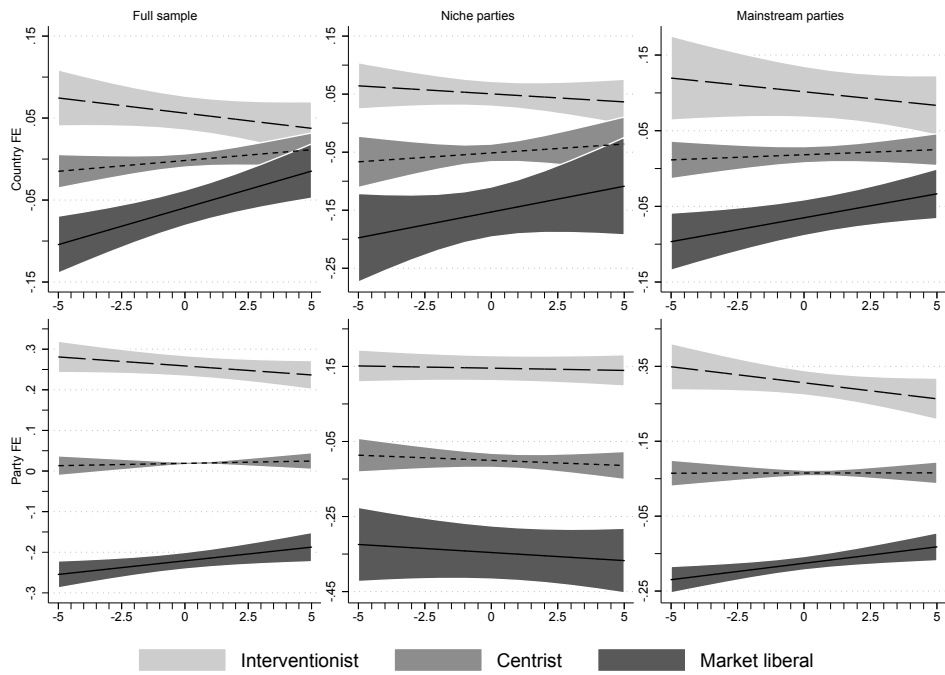
**Figure SM3.9:** Linear marginal effects with party fixed effects: split sample

Note: Results derived from panel regression with party fixed effects and robust standard errors.



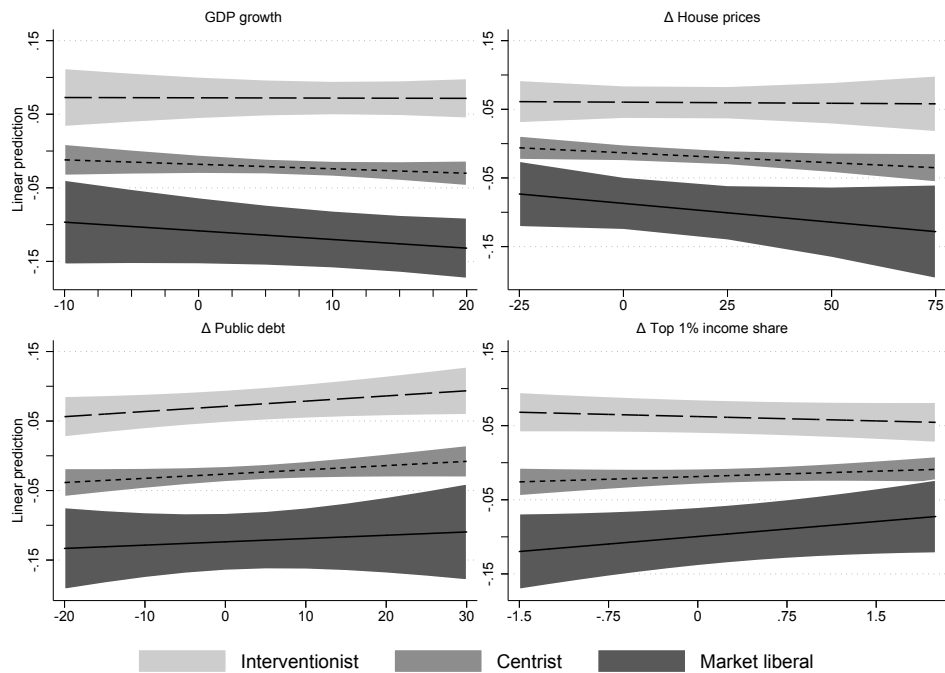
**Figure SM3.10:** Non-linear marginal effects for unemployment

Note: Top row represents OLS models with country fixed effects and robust standard errors, bottom row with party fixed effects and party clustered standard errors.



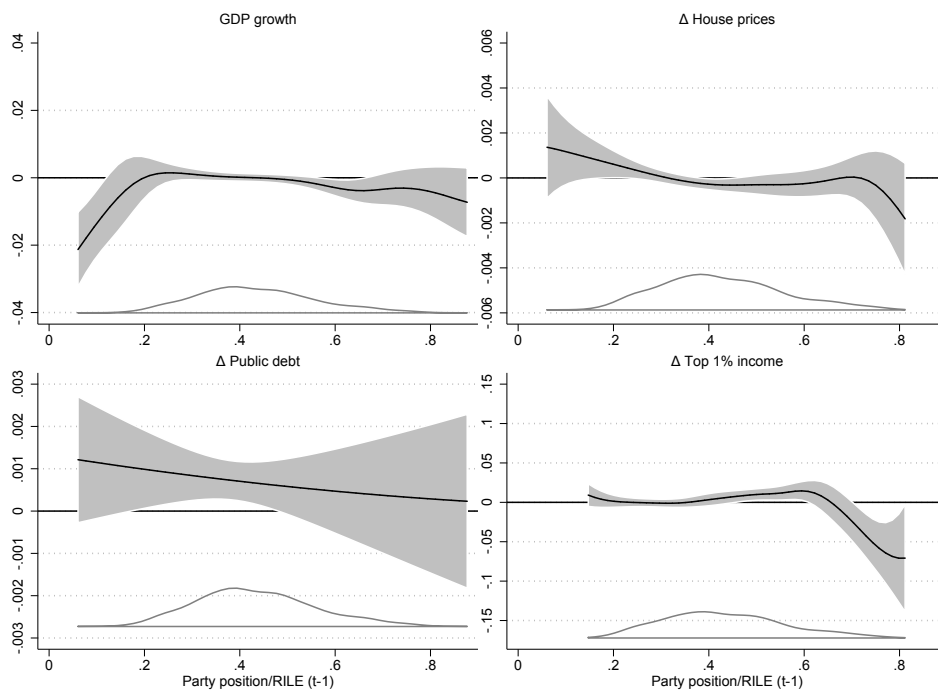
**Figure SM3.11:** Linear predictions for unemployment variable

Note: Top row represents Prais-Winsten regressions with country fixed effects and panel-corrected standard errors, bottom row with party fixed effects and robust standard errors.



**Figure SM3.12:** Linear predictions: CMP RILE score

Note: Results derived from Prais-Winsten regression with panel-corrected standard errors.



**Figure SM3.13:** Non-linear marginal effects: CMP RILE score

Note: Results derived from OLS regressions with country fixed effects and robust standard errors. Bandwidths optimised for OLS models with robust standard errors only.

**Table SM3.6:** Models with CMP RILE score as a left-right measurement of party positions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Prais-Winsten	Panel	Prais-Winsten	Panel	Prais-Winsten	Panel	Prais-Winsten	Panel	Prais-Winsten
	GDP growth	GDP growth	$\Delta$ Public debt	$\Delta$ Public debt	$\Delta$ House prices	$\Delta$ House prices	$\Delta$ Top 1 % income	$\Delta$ Top 1 % income	$\Delta$ Unemployment
Party position t -1	-0.301***	-0.897***	-0.325***	-0.925***	-0.246***	-0.907***	-0.270***	-0.944***	-0.325***
$\Delta$ GDP	0.000	0.001	-	-	-	-	-	-	-
$\Delta$ GDP $\times$ Party position t -1	-0.002	-0.003	-	-	-	-	-	-	-
Gross domestic product t -1	-0.000**	-0.000*	-	-	-	-	-	-	-
$\Delta$ Public debt	-	-	0.001	-0.001	-	-	-	-	-
$\Delta$ Debt $\times$ Party position t -1	-	-	-0.000	0.004**	-	-	-	-	-
Public debt t-1	-	-	-0.000**	-0.000**	-	-	-	-	-
$\Delta$ House price	-	-	-	-	0.000	0.001*	-	-	-
$\Delta$ House price $\times$ Party position t -1	-	-	-	-	-0.001	-0.002**	-	-	-
House price t -1	-	-	-	-	-0.000	-0.000	-	-	-
$\Delta$ Top 1% income	-	-	-	-	-	-	-0.010	-0.004	-
$\Delta$ Top 1% income $\times$ Party position t -1	-	-	-	-	-	-	0.029	0.018	-
Top 1% income t -1	-	-	-	-	-	-	-0.003	-0.001	-
$\Delta$ Unemployment	-	-	-	-	-	-	-	-	0.003
$\Delta$ Unemployment $\times$ Party position t -1	-	-	-	-	-	-	-	-	-0.002
Unemployment t -1	-	-	-	-	-	-	-	-	-0.000
Constant	-0.140	0.143	0.172***	0.418***	-0.098	0.370***	-0.069	0.413***	0.158***
Observations	1045	1045	1045	1045	762	762	598	598	1045
Number of parties	247	247	247	247	159	159	127	127	247
Country dummies	YES	NO	YES	NO	YES	NO	YES	NO	YES
Party FE	NO	YES	NO	YES	NO	YES	NO	YES	NO

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1



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## Research Interests

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POLITICAL ECONOMY, COMPARATIVE POLITICS, HOUSING POLICY, EXPERIMENTAL POLITICAL SCIENCE

## Education

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Since 10/2014 Germany	<b>University of Cologne</b> Faculty of Economics and Social Sciences Cologne Graduate School in Management, Economics and Social Sciences PhD Candidate Supervisors: Prof. Dr. André Kaiser, Prof. Sven-Oliver Proksch, Ph.D.
10/2012 – 09/2014 Germany	<b>University of Cologne</b> Faculty of Economics and Social Sciences Master of Science in Economics
09/2008 – 06/2011 The Netherlands	<b>Maastricht University</b> Faculty of Arts and Social Sciences Bachelor of Arts in European Studies with distinction ‘cum laude’
09/2010 – 12/2010 France	<b>Sciences-Po - Institut d’Études Politiques de Bordeaux</b> Exchange semester

## Publications – Peer-reviewed

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Sauermann, J. & Beckmann, P. (2017). ‘Divide the dollar’ using voting by veto. *Jahrbuch für Handlungs- und Entscheidungstheorie*. Band 10, Eric Linhart, Marc Debus und Bernhard Kittel (Hrsg.). Wiesbaden: Springer VS.

Sauermann, J., & Beckmann, P. (2018). The influence of group size on distributional fairness under voting by veto. *European Journal of Political Economy* (forthcoming).

## Conference and Seminar Presentations

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06/2018	Conference of the European Political Science Association, Vienna, Austria
04/2018	Annual Conference of the Midwest Political Science Association, Chicago, USA

07/2017 International Conference of Europeanists (CES), Glasgow, UK  
06/2017 Conference of the European Political Science Association, Milan, Italy  
04/2017 Annual Conference of the Midwest Political Science Association, Chicago, USA  
05/2016 Housing Wealth and Welfare, Amsterdam, The Netherlands  
11/2015 & 06/2016 Joint Research Seminar in Political Science, University of Cologne

## Teaching Experience

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04/2017 – 07/2017 Coordination of tutorial groups to the lecture “Introduction to European Politics: The Political System of the EU” by Prof. Sven-Oliver Proksch, Ph.D. University of Cologne, BA course: Summer term 2017  
04/2016 – 07/2016 The Political System of the Federal Republic of Germany from a Comparative Perspective (in German) University of Cologne, BA course: Summer term 2016

## Professional Experience

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04/2017 – 12/2017 Research Associate at the Chair of European and Multilevel Germany Politics, Prof. Sven-Oliver Proksch, Ph.D.  
04/2013 – 09/2014 Student Assistant in the Research Unit “Economic Design and Behavior” at Germany the Chair of Prof. Dr. Ockenfels  
09/ 2009 – 04/ 2011 Tutor at Maastricht University Netherlands

## Awards and Scholarships

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2014 Full PhD fellowship, Cologne Graduate School in Management, Economics and Social Sciences, University of Cologne  
2011 Maastricht University Faculty of Arts and Social Sciences Student Prize for the best Thesis

## Research grants

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2016 **Competence Area II Social and Economic Behavior** Grant, € 3.000 to organize the lecture series “Microfoundations of Politics”, University of Cologne  
2017 **Competence Area II Social and Economic Behavior** Grant, € 6.000 to continue organizing the lecture series “Microfoundations of Politics”, University of Cologne

2018	<b>Competence Area II Social and Economic Behavior</b> Grant, € 6.500 to continue organizing the lecture series “Microfoundations of Politics”, University of Cologne
2017	<b>German Academic Exchange Service</b> Conference travel grant to visit the Annual Midwest Political Science Conference 2017, Chicago, USA
2018	<b>German Academic Exchange Service</b> Conference travel grant to visit the Annual Midwest Political Science Conference 2018, Chicago, USA

## Qualifications and Training

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### LANGUAGES

<b>German</b>	native
<b>English</b>	fluent in speaking, listening, writing, and reading
<b>French</b>	fluent in speaking, listening, writing, and reading
<b>Dutch</b>	good knowledge in speaking, listening, writing, and reading

### COMPUTER SKILLS

<b>MS Office</b>	experienced user (Excel, Word, PowerPoint)
<b>Stata</b>	experienced user
<b>R</b>	experienced user
<b>Matlab</b>	intermediate user
<b>zTree</b>	experienced user

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**Cologne, October 17<sup>th</sup>, 2018**

**Paul Beckmann**