Group-specific responses to retrospective economic performance: A multi-level analysis of parliamentary elections

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Abstract

What is the relationship between electoral and economic performance? Previous literature posits that poor economic performance hurts the incumbent at the ballot box because overall economic performance serves as a competence signal, which voters can readily access at low costs. Building on an emerging economic voting literature exploring heterogeneity in the electorate, we argue that social groups are affected differently by various dimensions of economic performance and their sociotropic sanctioning of incumbents is contingent on the retrospective performance of these dimensions. We theorize how four social groups – low-skilled workers, pensioners, public sector employees and high-income individuals – are differently affected by each of four economic dimensions – unemployment, inflation, stock market performance and public spending - and as a result penalize the incumbent to varying extents. Results from a multilevel logistic regression analysis from four modules of Comparative Study of Electoral Systems containing around 70 electoral contexts are consistent with our argument.

Keywords: Economic voting, unemployment, inflation, public spending, stock market, political economy.

JEL classifications: p16, p24, d72.

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Introduction

Economic voting postulates a simple formula of electoral accountability: deteriorating economic performance has a negative impact on the re-election chances of incumbents because the poor competence of the government that it signals is penalized by the electorate (sociotropic channel) and/or because it affects voters negatively (egotropic channel).¹

However, this expectation is subject to conflicting results in the literature: the impact of the economy on electoral support seems to vary across time, countries, and contexts. Some authors address this puzzle by pointing to the mediating role of institutions via clarity of responsibility and the welfare state², while others instead argue that the economic vote is contingent on international economic dynamics³.

Much of this literature conceptualizes retrospective economic performance only as a competence signal⁴ regardless of group-specific preferences and risk exposures: if the economic vote is used as a “shortcut” to evaluate the government competence without paying the costs of being informed about all government policies in different domains, the economy can be considered a valence issue that roughly captures incumbent’s competence and the effect of unemployment, inflation or economic growth on electoral support is therefore largely independent of the socioeconomic status of the respondent.

An emerging economic voting literature instead explores heterogeneity within the electorate and challenges the assumption that all voters can be thought of as penalizing incompetence to

¹ For a relatively recent review, please see: Lewis-Beck, M. S., and M. Stegmaier. 2013. "The VP-function revisited: a survey of the literature on vote and popularity functions after over 40 years." *Public Choice* 157 (3-4):367-385.

² E.g. Powell, G. B., and G. D. Whitten. 1993. "A Cross-National Analysis of Economic Voting - Taking Account of the Political Context." *American Journal of Political Science* 37 (2):391-414; Pacek and Radcliff, 1995.

³ E.g. Hellwig, T. 2007. "Economic openness, policy uncertainty, and the dynamics of government support." *Electoral Studies* 26 (4):772-786.

⁴ Duch, R.M., and R. Stevenson. 2010. "The Global Economy, Competency, and the Economic Vote." *Journal of Politics* 72 (1): 105-123.

a similar extent and that they constitute a more or less homogenous group deriving similar utilities from variations in economic performance. These studies have empirically tested for the differential impact of the economy along income, class and asset ownership⁵ and others have focused on heterogeneous accountability due to information⁶, self-interest and corruption scandals⁷, or senior political activism and welfare state⁸.

In this article, we build on this emerging literature to further explore heterogeneity among the electorate in the way they are affected by – and react to – changes in different economic dimensions. We propose an overarching theoretical framework based on the idea of group-specific economic voting that allows us to model how distinct electoral groups may be affected differently by various aspects of the economy. In doing so, we broaden the scope of economic voting research by investigating how the electoral impact of the economy varies by social groups not just quantitatively (i.e. how much does the economy matter) but also qualitatively (i.e. what aspect of the economy matters most for whom).

Moreover, we wish to strengthen the micro-foundations for key insights in the comparative political economy literature by zooming in the electoral mechanism underpinning partisan politics. Previous studies have shown that different social groups have different risk profiles, and distinct economic and welfare state policy preferences, which has important implications for electoral behavior⁹. For instance, in the labor market policy domain, social democrats rely

⁵ Lewis-Beck, M. S., and R. Nadeau. 2011. "Economic voting theory: Testing new dimensions." *Electoral Studies* 30 (2):288-294; Whitten, G. D., and L. K. Williams. 2011. "Buttery Guns and Welfare Hawks: The Politics of Defense Spending in Advanced Industrial Democracies." *American Journal of Political Science*; Dettrey, B.J., and H.D. Palmer. 2013. "Reconsidering individual-level heterogeneity in economic voting". *Electoral Studies* 32: 718-728.; Stubager, Lewis-Beck, and Nadeau 2013)

⁶ Duch, R. 2001. "A Developmental Model of Heterogeneous Economic Voting in New Democracies." *The American Political Science Review*, 95(4): 895-910.

⁷ Barberá, P., Fernández-Vázquez, P. and G. Rivero. 2016. "Rooting out corruption or rooting for corruption? The heterogeneous electoral consequences of scandals." *Political Science Research and Methods*, 4 (2): 379-397.

⁸ Campbell, A. 2003. *How Policies Make Citizens: Senior Political Activism and the American Welfare State*. Princeton University Press.

⁹ Rueda, D. 2007. *Social democracy inside out. Partisanship and labour market policy in industrialised democracies*. Oxford University Press. Oxford; Rehm, P. 2009. "Risks and redistribution: An individual level

increasingly on the electoral support of labor market insiders in permanent well-protected contracts and as a result may not pursue policies that benefit outsiders¹⁰. Similarly, the expected electoral response to austerity policies is heavily contingent on individuals' socioeconomic resources to withstand the cutback in government programs¹¹. In this paper, we directly investigate the electoral mechanism that is typically assumed, but not tested, by most existing comparative political economy studies.

We develop a systematic account of how different aspects of the economy impact on the electoral behavior of different social groups. In addition to the usual suspects of unemployment and inflation as the main objects of responsibility attribution, we also integrate novel aspects of retrospective economic performance. First, with increasing financialization¹² and inequality, asset market performance marks an important demarcation line between well-off savers with financial (and non-financial) assets and lower income wage-earners who stand little to gain from financial booms¹³. Second, over the last decades, budgetary policy choices with highly politicized austerity packages have brought back economic policy to the forefront of political debates¹⁴, leading us to include fiscal policy measures as a fourth dimension in our analysis.

analysis." *Comparative political studies* 42 (7):855-881; Vlandas, T. 2018. "'Grey Power' and the Economy: Ageing and Inflation across Advanced Economies." *Comparative Political Studies* 51(5): 514-552; Boix, C. 1997. "Political parties and the supply side of the economy: The provision of physical and human capital in advanced economies, 1960-90." *American Journal of Political Science* 41 (3):814-845; Marx, P., and G. Picot. 2013. "The party preferences of atypical workers in Germany." *Journal of European Social Policy* 23 (2):164-178.

¹⁰ Rueda, 2007.

¹¹ Bojar, A. B. Bremer, H.Kriesi, and C. Wang. 2002. "The Effect of Austerity Packages on Government Popularity during the Great Recession" *British Journal of Political Science* (forthcoming)

¹² van der Zwan, 2014.

¹³ See Lewis-beck and Nadeau (2011) for the importance of asset ownership on the vote choice in the American context.

¹⁴ Talving, L. 2017. "The electoral consequences of austerity: economic policy voting in Europe in times of crisis". *West European Politics* 40 (3): 560-583; Bojar, A. B. Bremer, H.Kriesi, and C. Wang. 2002. "The Effect of Austerity Packages on Government Popularity during the Great Recession" *British Journal of Political Science* (forthcoming).

We derive several observable implications of our argument with respect to the voting behavior of several social groups along their different skill profiles, labor market status, income, and sector of employment, which all entail different exposures to unemployment, inflation, public spending and stock market returns. We then test these observable implications using multi-level mixed-effects logistic regression analysis of three modules of the Comparative Study of Electoral Systems (modules 2, 3 and 4). Consistent with our expectations, we find that the electoral impact of deteriorating economic performance is largely contingent on individuals' risk profiles with pensioners appearing particularly responsive to retrospective inflation performance, low-skilled workers to unemployment levels, public sector workers and low-skilled workers to public sector cuts and high-income individuals to developments in the stock market.

The central concept of our contribution – individual-level heterogeneity behind the electoral response to the economy – builds on well-established findings in the political behavior literature. In addition to the material self-interest logic underpinning our approach, other studies have documented further sources of differential reactions to the economy, such as political sophistication and partisanship¹⁵, and institutional trust¹⁶. It is possible that electoral contexts greatly differ in the extent to which other macro-level considerations, such as important events dominate the political agenda, thereby rendering the salience of the economy secondary¹⁷. While a full account of all potential confounders lie beyond the scope of our contribution, we control for a number of individual-level variables besides the socioeconomic groups that constitute the central focus of our study to address this limitation.

¹⁵ Dettrey and Palmer, 2013; de Vries, C.E., and N.Giger. 2014. "Holding governments accountable? Individual heterogeneity in performance voting". *European Journal of Political Research* 53: 345-362.

¹⁶ Duch, R. 2001. "A Developmental Model of Heterogenous Economic Voting in New Democracies". *American Political Science Review* 95 (4): 985-910.

¹⁷ Hetherington, M.J, and M. Nelson. "Anatomy of a Rally Effect: George W. Bush and the War on Terrorism". *Political Science and Politics* 36 (1): 37-42; Mishler, W., M. Hoskin, and R. Fitzgerald. 1989. "British Parties in the Balance: A Time-Series Analysis of Long-Term Trends in Labour and Conservative Support". *British Journal of Political Science* 19 (2): 211-236.

Moreover, we are relatively sanguine about the non-economic sources of political support at the macro-level because we have no reason to presuppose that they systematically co-vary with prior economic conditions in a way that would then bias our coefficient estimates.

The remainder of this paper proceeds as follows. In the next section, we review the existing literature and further substantiate its shortcomings. We then develop a model of economic voting that takes into account the different risk profiles of voters. The third section discusses our data and modelling strategy. In the fourth section, we provide our main empirical results. The last section concludes.

Economic voting and electoral penalty

There is a large literature on economic voting which suggests that deterioration in economic performance has a negative impact on the incumbent's chances of re-election¹⁸. In studies following this approach, individuals are seen to reward or punish governments in elections or in the polls¹⁹ depending on retrospective economic performance, most often unemployment or inflation. While initially focusing on the US, this research agenda has by now spanned an impressive number of both developed and developing countries both in single-country and in cross-national settings²⁰.

¹⁸ For a general overview, see for instance Lewis-Beck and Stegmaier, 2013.

¹⁹ Nannestad, P., and M. Paldam. 1994. "The Vp-Function - a Survey of the Literature on Vote and Popularity Functions after 25 Years." *Public Choice* 79 (3-4):213-245; Norpoth, H. 1987. "Guns and Butter and Government Popularity in Britain." *American Political Science Review* 81 (3):949-959; Bellucci, P., and M. S. Lewis-Beck. 2011. "A stable popularity function? Cross-national analysis." *European Journal of Political Research* 50 (2): 190-211.

²⁰ For a recent aggregate-level study on a European pool, please see: Dassonneville, R., and M. S. Lewis-Beck. 2014. "Macroeconomics, economic crisis and electoral outcomes: A national European pool." *Acta Politica* 49 (4):372-394.

While the overall relationship between retrospective economic performance and electoral prospects has been largely verified by these studies, the effects greatly varied over space and time. A partial answer to the instability of the aggregate-level economic vote function²¹ has been captured by the “clarity of responsibility hypothesis”: electoral contexts greatly differ in their institutional background²², global economic conditions²³ and other external influences²⁴ as well as the welfare state²⁵ that blur the extent to which incumbents can be held accountable for the economic climate under their rule. When empirically incorporating the mitigating role of these factors, the economy-vote relationship greatly improves.

In response to concerns related to the infamous ecological fallacy, the burgeoning field of electoral studies precipitated a shift from the aggregate to the individual-level where the determinants of electoral decisions can be directly studied²⁶. In addition to studies based on economic perceptions, a number of multi-level studies relying on an increasing number of electoral contexts²⁷ have allowed for real variation in economic conditions at the national level (level-2) to study voting behavior at the individual level (level-1).

A more recent development in the literature has been to go beyond the implicit assumption that voters are a homogenous group that derive the same (dis)utility from variations in economic performance, which is consistent with a sociotropic electorate penalizing poor competence of the incumbents. In some of these accounts, voters are modelled to respond to

²¹ Nannestad and Paldam, 1994.

²² Powell and Whitten, 1993.

²³ Hellwig, T., and D. Samuels. 2007. "Voting in open economies - The electoral consequences of globalization." *Comparative Political Studies* 40 (3):283-306.

²⁴ Kosmidis, S. 2014. "Government Constraints and Accountability: Economic Voting in Greece Before and During the IMF Intervention." *West European Politics* 37 (5):1136-1155.

²⁵ Pacek and Radcliff, 1995.

²⁶ For an influential example, see: Lewis-Beck, Michael S. 1988. *Economics and elections: the major western democracies*. Ann Arbor: University of Michigan Press.

²⁷ Inter alia, see: Weschle, S. 2014. "Two types of economic voting: How economic conditions jointly affect vote choice and turnout." *Electoral Studies* 34:39-53.

the same aspects of the economy²⁸. Other studies use economic evaluations rather than real economic variables to capture retrospective performance, and thereby treat the economy somewhat as a black box in the minds of voters²⁹.

Both approaches are problematic for theoretical and empirical reasons. Theoretically, the different dimensions of economic performance may have vastly different impacts on the material welfare of voters depending on their position in the economy. Thus, for instance, while for some, a “good economy” is price stability, for others it is the ease with which they can find jobs or the performance of the stock market. Allowing for self-regarding motives for certain groups of voters should therefore imply that they respond differently to various economic indicators depending on their socioeconomic position. Perhaps most fundamentally, disentangling the group-based heterogeneity characterizing the retrospective economic vote would build a much needed link to the comparative political economy (CPE) literature and strengthen the electoral micro-foundations of the latter.

Social groups and economic voting

In this paper, we bring social groups front and center of economic voting literature. Our starting point is the CPE literature exploring the policy preferences of different groups. To derive expectations on the sources of group-based heterogeneity, we do not sit on uncharted terrain: previous economic voting literature has increasingly, but only to a limited extent,

²⁸ For example, Gafstein, R. 2005. "The Impact of Employment Status on Voting Behavior". *Journal of Politics* 67 (3): 804-824; Glasgow, G. 2005. "Evidence of Group-Based Economic Voting: NAFTA and Union Households in the 1992 U.S. Presidential Election. *Political Research Quarterly* 58 (3): 427-434; Hibbs, D. A., D. Rivers, and N. Vasilatos. 1982. "The Dynamics of Political Support for American Presidents among Occupational and Partisan Groups." *American Journal of Political Science* 26 (2):312-332.

²⁹ Dettrey and Palmer, 2013; Duch, 2001.

considered how belonging to one social group matters for the economic vote. We go beyond the state of the art by broadening our analysis to several economic performance indicators and one economic policy (public spending) *and* several social groups along income, skill, labor market status and sectoral profiles.

Comparative political economy of social group preferences

A large literature in comparative political economy has shown that different groups have different risk profiles and economic policy preferences that follow from them³⁰. Perhaps the most conflictual site of preference divergence concerns the welfare state³¹. Thus, for instance, individuals undergoing spells of unemployment or in non-standard employment may have different preferences towards labor market policies³²: labor market insiders in permanent employment tend to favor more employment protection legislation and less spending on active labor market policies than outsiders in unemployment or precarious work³³.

Even among those who work in permanent employment, individuals who are exposed to greater unemployment risk, for instance because of their occupation³⁴, tend to be more supportive of redistribution. This in turn determines the possible coalition in support of welfare state expansion. As Rehm's recent book documents convincingly, when the dispersion of unemployment risk in the electorate is more widely spread, the size of the pro-

³⁰ Rueda 2007; Rehm 2009; Vlandas 2018.

³¹ Boix 1997; Marx and Picot 2013.

³² E.g. Rueda 2007; Vlandas, T. 2013. "The Politics of Temporary Work Deregulation in Europe: Solving the French Puzzle." *Politics & Society* 41 (3):425-460.

³³ Rueda, 2007.

³⁴ Rehm, 2009.

welfare state coalition is stronger and welfare state policies are more likely to be introduced³⁵.

Moreover, asset ownership may also shape individuals' preferences: individuals with greater housing assets are less favorable to welfare state redistribution. For instance, Ansell argues that "homeowners experiencing house price appreciation will become less supportive of redistribution and social insurance policies since increased house prices both increase individuals' permanent income and the value of housing as self-supplied insurance against income loss"³⁶. Overall, there is convincing evidence that different individuals are affected to various degrees by economic outcomes and policies and hence develop different welfare state policy preferences.

In addition, individual characteristics also shape preferences for macroeconomic outcomes and policies. For instance, Vlandas argues that the elderly are more inflation averse because they are less affected by labor market developments, while their assets and pensions may be adversely affected by inflation³⁷. Given the political power of elderly voters, their inflation aversion in turn influences political parties and government policy³⁸. Relying on European Social Survey data, Tepe finds that workers in public health or education are more likely to support more state responsibility to provide jobs for everyone, health care, standard of living for unemployed and child care³⁹.

Moreover, not only does the position of different social groups affect their policy preferences, but it also shapes their partisan leanings and vote choices. Indeed, the comparative political

³⁵ Rehm, Philipp. 2016. *Risk inequality and welfare states: social policy preferences, development, and dynamics*. New York, NY: Cambridge University Press.

³⁶ Ansell, B. 2014. "The Political Economy of Ownership: Housing Markets and the Welfare State." *American Political Science Review* 108 (2): 383.

³⁷ Vlandas, 2018.

³⁸ Hancke, B., and T. Vlandas. 2017. "The Politics of Disinflation." *LSE 'Europe in Question' Discussion Paper Series* 127/2017:1-60.

³⁹ Tepe, M. 2012. "The Public/Private Sector Cleavage Revisited: The Impact of Government Employment on Political Attitudes and Behaviour in 11 West European Countries." *Public Administration* 90 (1):230-261.

economy literature suggests that different political parties have different coalitional support consisting of groups with distinct policy preferences. In the labor market policy domain, social democrats rely increasingly on the electoral support of labor market insiders in permanent well-protected contracts and as a result do not support policies that benefit outsiders in unemployment⁴⁰. In a recent contribution, Bojar shows that individuals' propensities to respond to pre-electoral budget decisions in the ballot box depends on a set of socioeconomic characteristics that jointly determine their social status and financial dependence on government outlays⁴¹.

Several studies also suggest that the relevance of sectoral cleavages for voting behavior has increased over time. Thus for instance, Knutsen analyses electoral responsiveness for different sectoral groups in eight western European countries and finds that public sector employees are more likely to vote for the left and for the greens than for other parties, especially Denmark, France, Britain and Italy⁴². A more recent study of eleven countries chimes in with these findings and shows that "public health and education employees are significantly less likely to vote for conservative parties compared to private sector citizens"⁴³.

In sum, the comparative political economy (CPE) of labor market and welfare state literatures strongly suggest that preferences deriving from individuals' risk profiles and group-specific economic voting are likely to be interlinked. One shortcoming of many of these previous CPE studies is precisely that they typically assume responsiveness to the demands of constituents without empirically establishing the electoral micro-logic: do individuals

⁴⁰ Rueda, 2007.

⁴¹ Bojar, A. 2017 "Do political budget cycles work? A micro-level investigation of pre-electoral budgeting and its electoral consequences." *Electoral Studies* 45:29-43.

⁴² Knutsen, O. 2005. "The impact of sector employment on party choice: A comparative study of eight West European countries." *European Journal of Political Research* 44 (4):593-621.

⁴³ Tepe, 2012: 245.

translate their economic grievances into electoral sanctioning when their demands are not satisfied?

Economic voting and social groups

A natural place to look for an answer is the literature on economic voting. In fact, an increasing number of studies have over time disaggregated the electorate into various groups to establish group-based heterogeneity in the electoral responsiveness to retrospective economic performance. The starting point of this literature is that different voters may care about various macroeconomic indicators such as unemployment and inflation to varying extent which is not always modelled in regression analyses of popularity or electoral returns⁴⁴.

An early contribution by Hibbs and Vasilatos pointed out that the analyses of aggregate electoral support must assume homogenous responses to macroeconomic outcomes across different individual voters making political choices⁴⁵. More recently, Duch *et al* showed that “public evaluations of the national economy vary systematically with personal experiences, and demographic characteristics”⁴⁶. While sustained scholarly attention to this issue is mostly recent, the core idea of heterogeneous electoral responses to economic performance is not new. As far back as 1978, using data on US congressional votes Weatherford argued that working-class voters were more likely to react electorally to economic recessions than middle-class voters, because they are disproportionately affected in terms of income and

⁴⁴ Rivers, D. 1988. "Heterogeneity in Models of Electoral Choice." *American Journal of Political Science* 32 (3): 738.

⁴⁵ Hibbs, D. A., and N. Vasilatos. 1982. "Economic Outcomes and Political Support for British Governments among Occupational Classes - a Dynamic Analysis." *American Political Science Review* 76 (2): 259.

⁴⁶ Duch, R. M., H. D. Palmer, and C. J. Anderson. 2000. "Heterogeneity in perceptions of national economic conditions." *American Journal of Political Science* 44 (4): 635.

unemployment⁴⁷. Some years later, Hibbs *et al* argued that the electoral responsiveness to unemployment, inflation and per capita income would differ between blue collar and white collar workers in the US⁴⁸.

Following this earlier inspiration, other studies followed suit by focusing on occupational and/or class differences as revealed by country-specific or cross-national election studies.

Taken together, these studies suggest that individuals greatly differ in their exposure to economic shocks and it is thus a rather heroic assumption to expect a uniform economic vote across risk profiles. In that vein, Fossati shows that economic voting is strongest among voters who are most exposed to the risk of unemployment⁴⁹. Palmer and Whitten document a differential impact across income groups⁵⁰, while Hicks *et al* uncover class-based economic voting when income gains are unevenly distributed across the population⁵¹.

In sum, recent scholarship has increasingly attempted to disaggregate the electorate along key economic characteristics (e.g. occupations, class, and income) or cognitive and psychological factors (e.g. trust, information). We seek to build on these developments to propose a framework combining both several economic dimensions and with distinct group characteristics along several dimensions.

⁴⁷ Weatherford, S. 1978. "Economic Conditions and Electoral Outcomes: Class Differences in the Political Response to Recession." *American Journal of Political Science* 22(4): 917-938.

⁴⁸ Hibbs, Rivers, and Vasilatos, 1982: tables 1 and 4.

⁴⁹ Fossati, D. 2014. "Economic vulnerability and economic voting in 14 OECD countries." *European Journal of Political Research* 53(1): 116-135.

⁵⁰ Palmer, H. D., and G. D. Whitten. 2011. "Through thick and thin? The dynamics of government support across income groups during economic crises." *Electoral Studies* 30 (3):427-437.

⁵¹ Hicks, T., A. M. Jacobs, and J. S. Matthews. 2016. "Inequality and Electoral Accountability: Class-Biased Economic Voting in Comparative Perspective." *Journal of Politics* 78 (4):1076-1093.

Argument

As a first step towards conceptualizing how different dimensions of economic performance affect the material welfare of voters with distinct characteristics, we align with the retrospective pocketbook egotropic view of the economic voter⁵², whose propensity to support the incumbent party(ies), *ceteris paribus*, depends on the relative changes in her material well-being which may result from direct material costs or the perception of economic risks emanating from her group-specific social environment. Moreover, we assume voters are rational utility maximizers. This assumption implies that individuals care about their material welfare and, although they might not be able to accurately predict which dimensions of economic developments will affect them in what way, they are able to assess whether they are worse off than they were in the past. In turn, when they are worse off, at least some voters will *ceteris paribus* lower their propensity to vote for (one of the) incumbent party(ies). Note that the contention that individuals' voting behavior is at least rooted in sanctioning poor economic performance does not necessarily imply that other considerations, such as sociotropic or spatial voting⁵³, are irrelevant.

We define a loss in material welfare as any economic shock that either may impose a direct loss on their existing income flows and/or their stock of wealth, or may increase the perceived or real sense of economic risk, for instance in the form of job loss. The utility of individuals is negatively affected by a loss in material welfare, and given risk aversion, most individuals also suffer a decline in their utility if the risk of material loss increases as a result

⁵² The crucial point to note here is that even if one allows for forward-looking considerations driving a subset of the voters, we expect retrospective economic performance to matter on the margins, but see Lewis-Beck and Stegmaier (2013) review for alternative conceptualizations.

⁴ We explicitly address spatial voting considerations in the empirical analysis via ideological self-placement items in CSES.

of economic developments. This assumption of risk aversion is consistent with previous work in public economics⁵⁴ and political economy of social insurance⁵⁵.

Conceptually, individuals face the following material economic losses and/or risks associated with different dimensions of economic performance/policies. First, most individuals derive the majority of their income from salaried work/employment. The greatest threat to losing this income stream is the risk of unemployment. Second, individuals' incomes and/or wealth can be eroded by consumer price inflation as the same nominal value of income and wealth implies a loss in real terms. Thus, we follow the previous literature by focusing on unemployment and inflation as the two biggest threats to material welfare that individuals face. In addition, advanced economies have become increasingly financialized⁵⁶ and the importance of stock markets performance for individuals' income and wealth have increased. As a result, stock market performance is likely to affect the material welfare of individuals as they serve as a crucial store of value for individuals' savings. Finally, individuals' welfare may also be affected by government policy, not least public spending⁵⁷.

Building on these assumptions, we are now equipped to theorize the impact of four economic indicators: (1) unemployment, (2) inflation, (3) public spending, and (4) stock market performance; on four social groups: (a) low-skilled workers, (b) pensioners, (c) public sector workers, and (d) high-income individuals. While more recent literature in comparative political economy has focused on increasingly sophisticated and multiple electoral characteristics such as task type and skill specificity⁵⁸, we focus on these particular social

⁵⁴ Barr, N. 2005. *The Economics of the Welfare State*. Oxford University Press.

⁵⁵ E.g. Rehm 2016.

⁵⁶ van der Zwan, N. 2014. "Making sense of financialization." *Socio-Economic Review* 12 (1): 99-129.

⁵⁷ Various studies in CPE have shown that for example labor market policies affect the insecurity and life satisfaction of individuals. See for instance Chung, H., and W. van Oorschot. 2011. "Institutions versus market forces: Explaining the employment insecurity of European individuals during (the beginning of) the financial crisis." *Journal of European Social Policy* 21 (4): 287-301.

⁵⁸ Beramendi, P., Häusermann, S., Kitschelt, H. and Kriesi, H. (2015) *The Politics of Advanced Capitalism*. Cambridge University Press.

groups on conceptual grounds (i.e. whether we can derive clear theoretical expectations), on empirical grounds (i.e. whether we have cross-national individual-level election survey data available that allows us to identify them), but also on theoretical grounds: we wish to develop the micro-foundations for dimensions that have attracted a lot of attention in the CPE literature, in this case inflation, unemployment, finance and public spending.

Let us start with the case of unemployment. First, elderly individuals outside the labor market are not directly affected by unemployment because they do not risk becoming unemployed themselves. We therefore predict that their voting behavior is less - or not at all - altered by unemployment⁵⁹. Second, workers in low skill occupations may be disproportionately affected by unemployment, especially as a result of skill biased technological change⁶⁰, leading us to expect a high degree of responsiveness to labor market developments. Third, following previous literature⁶¹, we expect high-income individuals' exposure to unemployment is lower both in terms of the probability of losing their job and the relative cost this imposes because of the safety net that their higher savings provide them. Fourth, following the insider-outsider logic of the labor market⁶², public sector workers tend to feel more secure in their jobs⁶³ and as a result we expect them to be relatively sanguine about unemployment risk. Our first hypothesis concerning the impact of unemployment is as follows:

⁵⁹ See Vlandas, 2018.

⁶⁰ Autor, D. H., L. F. Katz, and A. B. Krueger. 1998. "Computing inequality: Have computers changed the labor market?" *Quarterly Journal of Economics* 113 (4): 1169-1213; Goos, M., A. Manning, and A. Salomons. 2014. "Explaining Job Polarization: Routine-Biased Technological Change and Offshoring." *American Economic Review* 104 (8): 2509-2526.

⁶¹ E.g. Palmer and Whitten 2011; Hicks, Jacobs, and Matthews 2016; Stubager, R., M. S. Lewis-Beck, and R. Nadeau. 2013. "Reaching for profit in the welfare state: Patrimonial economic voting in Denmark." *Electoral Studies* 32 (3): 438-444.

⁶² E.g. Rueda, 2007; Vlandas, 2013.

⁶³ Cf. Anderson, Christopher, and J. Pontusson. 2007. "Workers, worries, and welfare states: Social Protection and job insecurity in 15 OECD countries." *European Journal of Political Research* 46 (2): 211-35.

Hypothesis 1: Higher unemployment implies a large electoral penalty among low-skilled worker and a relatively small one among pensioners, public sector workers and high-income voters.

With respect to inflation, our expectations for group-specific electoral penalty in the case of the elderly are in line with previous literature⁶⁴: we posit that pensioners are very likely to be inflation-averse because of the possible negative effect on the real value of their savings and pensions. In most countries, the elderly rely on transfer income, and to a lesser extent on income from capital⁶⁵. In the last three decades, many countries have removed or reduced the inflation protection of defined benefits (DB) pensions, where contributors are guaranteed a percentage of their salaries when in retirement. There has also been a shift from DB pensions to defined contributions (DC) pensions, where the amount that pensioners receive is determined by the performance of the fund in which contributions were made. Antolin found that “the lack of indexation could reduce the purchasing power of retirement income by as much as one third in 20 years”⁶⁶. Second, concerning low-skilled workers, though inflation may imply a loss in real wages, wage indexation arrangements as well as their relatively limited saving pool mitigate the cost that higher inflation implies for their pocketbook. As a result, the electoral penalty that low-skilled workers impose on governments should be more limited than for pensioners. Third, high-income individuals should be inflation averse as they hold more assets/savings than the rest of the populations. Fourth, like low-skilled individuals, public sector workers may be adversely affected by inflation, but in many countries their wages are better protected than for the rest of the working-age population. Our second hypothesis concerning the electoral impact of inflation is as follows:

⁶⁴ E.g. Vlandas, 2018.

⁶⁵ OECD. 2013. *Pensions at a Glance*. edited by OECD report. Paris, 71.

⁶⁶ Antolin, P. 2009. Private Pensions and the Financial Crisis: How to Ensure Adequate Retirement Income from DC Pension Plans. edited by OECD report. Paris: OECD, page 12.

Hypothesis 2: Higher inflation implies a large electoral penalty among pensioners and high-income voters, and a comparatively lower level of electoral penalty among low-skilled workers and public sector workers.

Public spending is also likely to elicit different degrees of electoral responsiveness by each group under consideration. First, to the extent that a larger public sector tends to imply higher spending on pensions and related social transfers and public services (e.g. healthcare, survivor benefits, etc.), it is likely to entail a higher support propensity for the incumbents among the pensioner population. Second, while increased public spending may prove unsustainable and/or lead to higher taxes, low-skilled individuals are more likely to become net beneficiaries of welfare state spending and an expansionary fiscal policy (by simultaneously reducing the cost and the likelihood of unemployment). Third, high-income individuals should unequivocally oppose higher public spending due to the higher tax burden it entails under progressive income taxation. Finally, public sector workers are expected to be largely supportive public spending because they are directly exposed to governmental fiscal decisions via public wage policies (public wage freezes or cuts) or employment security (hiring freezes and departmental downsizings). Our third hypothesis concerning the impact of public spending is therefore as follows:

Hypothesis 3: Higher public spending implies the highest level of electoral reward among public sector workers, a moderate level of electoral reward among low-skilled workers and pensioners, and no reward (or even electoral penalties) among high-income individuals.

Finally, stock market performance should also entail differential electoral responses across different social groups. With respect to pensioners, a positive (negative) stock market performance is likely to increase (decrease) the value of any savings/private pensions that are

invested there and should therefore increase (decrease) their support propensity for incumbents. By contrast, low-skilled workers should be relatively unaffected by stock market performance because of their comparatively smaller saving pools. At the other extreme, high net-worth individuals derive a significant part of their income from financial assets, such as equity appreciation, dividend and interest payments. These individuals are both more likely to have high savings rate than the rest of the population and more likely to have invested their savings in stock markets as opposed to safer assets. Thus, our fourth hypothesis is:

Hypothesis 4: Stock market booms imply the highest level of electoral rewards among high-income voters, a moderate level of electoral rewards among pensioners, and a low-level of rewards (or no rewards at all) among low-skilled workers.

Empirical analysis

Data and variables

We test the four hypotheses discussed above by relying on data collected from three modules of the Comparative Study of Electoral Systems (modules 2, 3 and 4). The advantage of the CSES over other regular cross-national surveys is twofold. First, in addition to the most recent vote recall question, it also asks respondents about their previous vote choice, which serves as a powerful control for latent (unmeasured) influences on the vote (see discussion below). Second, the CSES modules involve a host of sociodemographic variables that allow us to provide a direct test for our hypotheses. Please see Table A2 in the online appendix for sample sizes and the list of elections. For reasons of direct comparability, we restricted our analysis to parliamentary systems in consolidated democracies (rated as Free by Freedom

House as well as scoring at least 7 on Polity IV). The inclusion of presidential systems might be problematic in this regard because responsibility attribution under divided government might present voters with formidable difficulties in assigning blame to the executive's party and the congressional majority⁶⁷.

Our dependent variable is a dummy variable coded 1 for respondents who voted for one of the incumbent parties at the most recent parliamentary election and 0 otherwise (i.e. voted for opposition, abstained, or failed to recall vote choice). As part of our robustness checks, we shall present results where the dependent variable is coded 1 only when the vote is for the senior partners in coalition governments.

Our key independent variables capture the social groups discussed in the theoretical section. Specifically, we create four dichotomous variables for each of our four social groups, in line with our theory. First, the coding of pensioners is straightforward as the CSES item on employment status directly identifies voters who have already retired. Second, individuals are coded as low-skilled workers when they satisfy two criteria: (1) they are an active part of the labor force by working either full-time or part-time; and (2) they belong to the one of the low skill categories as defined by ISCO (and corroborated by their average wage and education levels via Eurostat LFS⁶⁸); that is services and sales workers as well as elementary occupations. Third, high-income voters are identified as the respondents placing themselves in the upper income quintile on the survey item on household income, regardless of their current employment status. Finally, the coding of public sector workers follows from the items on respondents' sector of employment (with the so-called "mixed" sector subsumed under the public sector) and employment status (working part-time or full time). When

⁶⁷ Norporth, H. 2001. "Divided Government and Economic Voting" *The Journal of Politics* 63 (2): 414-435.

⁵ According to the 2014 earning structure survey in the EU, these two occupation groups' average earnings were 30% and 37%, respectively, below the national average earnings making them the two lowest-paid occupation groups.

excluding electoral contexts and individuals where the relevant socioeconomic variables are missing, the size of these groups as a percentage of the total sample is as follows: 8.7% for low-skilled workers, 19.8% for pensioners, 16% for public sector workers, and 14.4% for high-income voters.

Moreover, we include individual level controls in addition to these four group identifiers: we add a set of dummies for individuals who are male, unemployed, highly educated and members of a trade union, as some of these variables may confound the estimated impact of group-heterogeneity. In addition, as the most influential alternative account to performance voting in the literature, we control for spatial considerations behind the vote choice⁶⁹ and create a continuous variable that measures the distance between individuals' self-placement on the left-right scale and the weighted average of the left-right position of the government as coded by Chapel Hill expert surveys. Both of these variables are coded on a 0-10 scale.

Finally, we add a dummy variable to control for individuals' vote recall choices at the previous elections. This past vote choice variable is an invaluable item in the CSES series because it serves as an extremely powerful control for all the – often unobservable - group-level influences that have pushed certain voters to support incumbents in the first place. To the extent that some of these influences may correlate with the retrospective economic variables and social groups, the inclusion of past choice guards against this non-trivial risk of omitted variable bias.⁷⁰

⁶⁹ Enelow, James M., and Melvin J. Hinich. 1984. *The spatial theory of voting : an introduction*. Cambridge [Cambridgeshire]; New York: Cambridge University Press.

⁷⁰ As a hypothetical example to illustrate this point, suppose that in countries characterized by higher than average stock market performance in our sample, there is a closer alignment between high-income voters and incumbent parties due to some latent reasons other than the retrospective stock market performance itself. Should this be the case, the positive interaction term between the stock-market performance variable and the high-income dummy would thus be an archetypical case of a spurious correlation. The past vote choice variable gets around this potential problem by essentially estimating the probability of voting for incumbents given that a voter has (or has not) voted for them before. Therefore, any statistically significant impact found for the stock market variable among high-income voters cannot be attributed to those latent sources of high income voters' affinity with incumbent parties.

As for the national level (i.e. level-2) variables that capture retrospective economic conditions, we again identify four distinct dimensions of economic performance that follow from our theory: unemployment rate (percentage of working age population without a job and actively seeking one), inflation (the percentage change in the consumer price index), public spending (annual change in cyclically adjusted general government expenditure as a % of potential GDP) and stock market performance.

For each of these national level variables, we follow the bulk of the literature on the macro-level⁷¹ and specify our variables by their evolution in the pre-electoral period. The focus on the pre-electoral period is also consistent with the vast empirical evidence on political budget cycles and their electoral implications⁷². In particular, we create a weighted unemployment, inflation and public spending variable that weighs the election-year and the pre-election year measure according to which month the election occurred in a given year, according to the following formula: $W(X) = (M * X_t + (12 - M) * X_{t-1}) / 12$; where X stands for the variable of interest and M stands for the month of the election. One exception is the stock market indicator, for which we simply calculate the annual (year-on-year) return of the country-specific stock indices in the month of the election.

In addition to these direct indicators for our level-2 variables, we allow for both national and international benchmarking in the electoral calculus by presenting as robustness checks two sets of further models: one that measures the short-term economic indicator as a deviation from the national average since 1990 (domestic benchmarking), which essentially captures how well the incumbent is performing economically relative to previous governments (i.e. changes over time), and one that models international benchmarking by taking the difference

⁷¹ For instance, Pacek, A., and B. Radcliff. 1995. "The Political Economic of Competitive Elections in the Developing-World." *American Journal of Political Science* 39 (3): 745-759; Dassonneville and Lewis-Beck 2014.

⁷² For a recent review, please see: Dubois, E. 2016. "Political business cycles 40 years after Nordhaus." *Public Choice* 166 (1-2): 235-259.

between the country-specific short-term indicator and the corresponding indicator for OECD and/or EU averages for any given time period. All economic indicators are taken from OECD and Eurostat. Sources and descriptive statistics on our variables are provided in the Appendix (Table A3-A4).

Method

Our empirical strategy relies on a set of multi-level mixed-effects binary choice (logit) models. The probability of the occurrence of a response (voting for an incumbent party in our case) is predicted via a logit link function by a set of variables that vary across individuals who are nested in different electoral contexts, as well as a set of contextual variables that vary between the electoral contexts, but not across individuals clustered in the same context.

We estimate the models with random intercepts to take into account context-specific effects that are not fully captured by the level-2 covariates. Modelling clustering of individuals within level-2 units (electoral contexts) is crucial to obtain correct parameter estimates that have both unbiased coefficients and standard errors⁷³. After each model, we provide two test statistics to underscore the need for clustering: a Wald X^2 statistic that test the null hypothesis of the random intercepts being jointly 0 as well as a Likelihood Ratio test statistic against a pooled (unclustered) logit model. For all specifications, these tests unambiguously support the choice to explicitly model clustering.

Of the two popular model choices in the multi-level literature, we opt for random intercept models because fixed effects (in our framework, election dummies) would fully absorb the impact of the contextual variables, which are of substantive interest in this paper. Note in any

⁷³ Guo, G., and H. X. Zhao. 2000. "Multilevel modeling for binary data." *Annual Review of Sociology* 26: 441-462.

case that to the extent that the predominant share of the variation derives from within rather than between the clusters (e.g. large number of level 1 and relatively small number of level 2 units), the difference between random effects and fixed effects are likely to be negligible⁷⁴.

Using the conventional logit notation, our estimated models can be written as follows:

$$\text{Log} \left(\frac{p_{ij}}{(1-p_{ij})} \right) = \beta_0 + \beta_1 * X_{ij} + \beta_2 * Z_j + \beta_3 * XZ_{ij} + u_j + \varepsilon_{ij}$$

Where p is the probability of an individual voting for one of the incumbent parties at the most recent parliamentary election, X is a vector of individual-level variables, Z is a vector of level-2 variables, XZ are cross-level interactions, u_j is an election-specific random intercept and ε_{ij} is an individual-specific error term. Among the individual level variables, social groups are identified by a set of dummy variables that measure the impact of social group membership in relation to the omitted category of the pool of respondents who do not belong to any of the four categories. (e.g. students, high-skill private sector workers, non-retired labor market outsiders etc).

Empirical results

We begin the analysis by fitting an individual-level model only with all level 2 variation captured by the election-specific random intercept. Table 1 shows estimates from three distinct individual-level models. Model 1 includes only individual-level demographic variables, model 2 adds the ideological distance variable as well as the past vote choice to control for all unobserved individual-level influences, and model 3 allows for this influence to vary among different social groups.

⁷⁴ Bryan, M. L., and S. P. Jenkins. 2016. "Multilevel Modelling of Country Effects: A Cautionary Tale." *European Sociological Review* 32 (1): 3-22.

Table 1: Results with individual level variables

Model	1	2	3
INDIVIDUAL LEVEL CONTROLS			
Male	-0.049 (3.65)***	0.023 (33)	0.024 (41)
Union member	-0.039 (9.57)***	-0.013 (2.29)**	-0.012 (2.14)**
High education	0.032 (92)*	-0.034 (60)	-0.032 (50)
Unemployed	-0.252 (7.51)***	-0.162 (3.73)***	-0.159 (3.73)***
Left-right distance		-0.203 (35.08)***	-0.204 (35.24)***
INDIVIDUAL LEVEL SOCIAL GROUP			
Low-skilled	-0.055 (2.26)**	-0.105 (3.35)***	-0.026 (0.60)
Pensioner	0.261 (14.41)***	0.119 (5.06)***	-0.152 (4.42)***
Public sector worker	0.109 (5.69)***	0.016 (0.67)	-0.152 (4.42)***
High-income	0.247 (12.96)***	0.150 (6.12)***	0.146 (4.18)***
INDIVIDUAL PAST VOTE			
Past vote		2.601 (143.91)***	2.487 (98.97)***
Past vote*low-skilled			-0.158 (2.66)***
Past vote*pensioner			0.511 (113)***
Past vote*public sector			0.121 (2.61)***
Past vote*high-income			0.009 (0.18)
Constant	-0.846 (142)***	-551 (18.93)***	-494 (18.14)***
<i>SD (Random Intercept)</i>	0.6	0.64	0.64
<i>n</i>	113,926	94,462	94,462
<i>N</i>	68	67	67
Aic	134150.4	85659.34	85519.32
Bic	134246.8	85772.82	85670.61
Wald Chi ²	604.53***	22630.94***	22646.71***
LR	7498.55***	5010.73***	4983.99***
Pseudo R ²	0.053	0.055	0.055
Percent Correct	67.35	80.15	80.15

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Regarding the average propensity to vote for incumbent parties (irrespective of previous party choice), Models 1 and 2 reveal that union members, the unemployed and low-skilled workers are significantly less likely to vote for incumbents compared to the rest of the population,

whereas pensioners, public sector workers and high-income voters have higher support propensities for them. The large substantive estimate and statistical significance for the log-odds for the left-right distance variable from Model 2 provides strong support for spatial voting theories: the further a voter locates herself (in absolute terms) from the weighted left-right expert score of the government, the lower her likelihood of voting for incumbent parties. In particular, an additional 1 unit distance from the incumbents on the 0-10 scale when holding the other covariates constant lowers the probability of an incumbent vote by 3 percentage points.

When zooming in model 3, the interactive specification between the past vote choice dummy and social group identifiers can be thought of as an estimate for electoral loyalty: given that a voter voted for an incumbent party at the previous election, what is the estimated probability that (s)he remains loyal at the most recent election? The results show that indeed significant group-heterogeneity appears to characterize such loyalty dynamics⁷⁵.

Table 2 introduces the level-2 variables in the models. The average election-specific vote propensities for incumbents are now explained by four economic variables (fixed part) and an election-specific random intercept (random part). As laid out in the previous section, we first use a baseline operationalization of the macro-variables by measuring their pre-electoral level (Model 4)⁷⁶. We then proceed to specify interactive models (Models 5-8) that allow for the impact of each economic variable to vary by social group.

When comparing the unconditional average estimates from Model 4 (i.e. independent of social groups), one can see that only public spending increases have a positive, albeit only

⁷⁵ While low-skilled voters are considerably more likely to defect from the ruling party (or coalition) compared to the rest of the population, pensioners display a higher propensity to stick to their previous vote choice. The estimated probabilities of remaining loyal to incumbent parties among different social groups are shown in Figure A9 in the Online Appendix.

⁷⁶ Equivalent models for the benchmarked economic variables are provided in table A5 in the online appendix.

weakly significant effect on voting probability for incumbent parties. This is in line with studies documenting an electoral penalty following austerity policies⁷⁷ and goes against the political side of the expansionary austerity thesis⁷⁸. The results for unemployment, inflation and stock market performance are insignificant, though for the latter variable both the nationally and the internationally benchmarked model indicates a significant positive effect (see Table A5 in the online appendix for details).

The non-significant (unconditional) impact of unemployment is particularly surprising given the prevalence of this variable in the economic literature on the macro-level with largely confirmatory results⁷⁹. In fact, when we refit the model without the individual level controls, the coefficient for the unemployment variable turns statistically significant, highlighting that the strength of the (unconditional) relationship between national level unemployment and propensities to vote for incumbents is highly contingent on model specification and the appropriate control variables in the model. More generally, the relative absence of a significant impact of the economic variables across the whole electorate underscores the rationale for our study: instead of fitting economic vote functions on the electorate as a whole, one needs to be attentive to the particular economic dimension relevant for a specific social group.

Therefore, models 5-8 present fully specified models with cross-level interactions, or in other words, we investigate how social group membership conditions the impact of short-run retrospective economic performance. The logic of the empirical inquiry proceeds as follows. We provide different models for each economic dimension, allowing the effect to vary among

⁷⁷ Bojar et al, 2020; Hübscher E, T. Sattler, and M. Wagner. 2018. Voter responses to fiscal austerity. Paper presented at the *Annual Meeting of the European Political Science Association*, Vienna, June 21-23, 2018.

⁷⁸ Alesina A, R. Perotti, J. Tavares, M. Obstfeld and B. Eichengreen. 1998. "The political economy of fiscal adjustments". *Brookings Papers of Economic Activity* 1998, 197-248.

⁷⁹ E.g. Roberts, A. 2008. "Hyperaccountability: Economic voting in Central and Eastern Europe". *Electoral Studies* 27: 533-546; Lindgren, K.-O., and K. Vernby. 2016. "The electoral impact of the financial crisis: Evidence using district-level data" *Electoral Studies* 44: 214-224.

all four social groups in our study⁸⁰. This modelling strategy strikes a balance between parsimony (a complete 4x4 cross-level set-up would imply no less than 20 interaction terms, increasing the risk of multicollinearity) and direct comparability between the mediating impact of social group membership for any given economic dimension.

Table 2 includes all the coefficient estimates for the four cross-level interaction models; however, to fully grasp the mediating impact of social group membership, we calculate marginal effects and predicted probabilities because the significance of interaction effects cannot be judged from the coefficient of the interacted term alone⁸¹. Moreover, we report both the significance of group-specific estimates relative to the 0 benchmark (or in other words, whether there is evidence for electoral punishment/reward for particular groups) and also whether we have evidence for differences between the group estimates.

All the key cross-level interactions are in the expected direction. The point estimates of the unemployment variable is the lowest among low-skilled workers, the point estimate of inflation is the lowest among pensioners, the point estimate for spending increases is the highest among public sector workers, and the point estimate of stock market booms is the highest among high-income individuals.

⁸⁰ Note that we introduce the interaction terms between social groups and past vote choice on the one hand and social groups and the economic variables on the other hand additively. This modelling choice essentially assumes that the conditioning impact of the economy on the group-specific probability of voting for incumbents is the same for voters who had voted for incumbent parties previously and those who did not. To relax this assumption, we provide marginal effects estimates when introducing social groups, past vote choice and the economic variables in three-way interactions in section 5 in the online appendix.

⁸¹ Kam, C., and R. Franzese. 2007. *Modeling and Interpreting Interactive Hypotheses in Regression Analysis*. University of Michigan Press.

Table 2: Results with individual level, context level and cross-level variables

<i>Model</i>	<i>4: Baseline model</i>	<i>5: Unemployment model</i>	<i>6 : Inflation model</i>
ELECTORAL CONTEXT LEVEL			
Unemployment	-0.028 (1.42)	-0.029 (1.47)	-0.027 (1.41)
Inflation	-0.010 (0.28)	-0.010 (0.28)	0.001 (0.04)
Public spending	0.159 (1.87)*	0.159 (1.87)*	0.159 (1.89)*
Stock market	0.004 (1.49)	0.004 (1.50)	0.004 (1.56)
INDIVIDUAL LEVEL SOCIAL GROUP			
Low-skilled	-0.031 (0.72)	0.061 (0.85)	-0.077 (1.38)
Pensioner	-0.160 (4.58)***	-0.178 (3.11)***	0.028 (0.61)
Public sector worker	-0.045 (1.31)	-0.081 (1.46)	-0.040 (0.90)
High-income	0.155 (4.38)***	0.096 (1.63)	0.151 (3.33)***
CROSS-LEVEL INTERACTIONS			
Unemployment*low-skilled		-0.014 (1.59)	
Unemployment*pensioner		0.003 (0.39)	
Unemployment*public sector worker		0.005 (0.82)	
Unemployment*high-income		0.009 (1.24)	
Inflation*low-skilled			0.016 (1.17)
Inflation*pensioner			-0.086 (6.19)***
Inflation*public sector worker			-0.003 (0.30)
Inflation*high-income			0.002 (0.14)
<i>Individual Level Controls</i>	<i>Male, Union member, High education, Unemployed, and Left-right distance included but not shown for reason of space</i>		
<i>Individual past Vote Controls</i>	<i>Control for individual past vote and its interaction with low skilled, pensioner, public sector worker, and high income, included but not shown for reasons for space</i>		
Constant		-1.250 (6.07)***	-1.284 (6.31)***
<i>SD (Intercept)</i>		0.56	0.556
<i>n</i>		91,880	91,880
<i>N</i>		65	65
Aic		83403.76	83363.68
Bic		83630.04	83589.95
Wald		22361.40***	22343.31***
LR		3688.76***	3623.83***
Pseudo R ²		0.042	0.042
Percent Correct		80.08	79.39

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table 2 (continued): Results with individual level, context level and cross-level variables

<i>Model</i>	<i>7: Spending model</i>	<i>8: Stock market model</i>
ELECTORAL CONTEXT LEVEL		
Unemployment	-0.027 (1.41)	-0.027 (1.39)
Inflation	-0.011 (0.29)	-0.012 (0.32)
Public spending	0.161 (1.89)*	0.160 (1.90)*
Stock market	0.004 (1.47)	0.004 (1.41)
INDIVIDUAL LEVEL SOCIAL GROUP		
Low-skilled	-0.042 (0.97)	-0.022 (0.52)
Pensioner	-0.159 (4.54)***	-0.163 (4.66)***
Public sector worker	-0.053 (1.51)	-0.046 (1.34)
High-income	0.170 (4.79)***	0.148 (4.15)***
CROSS-LEVEL INTERACTIONS		
Public spending*low-skilled	0.060 (1.68)*	
Public spending*pensioner	-0.004 (0.15)	
Public spending*public sector worker	0.060 (2.10)**	
Public spending*high-income	-0.103 (3.80)***	
Stock market *low-skilled		-0.002 (2.10)**
Stock market *pensioner		0.002 (1.69)*
Stock market *public sector worker		-0.001 (1.24)
Stock market *high-income		0.002 (2.15)**
<i>Individual Level Controls</i>	<i>Male, Union member, High education, Unemployed, and Left-right distance included but not shown for reason of space</i>	
<i>Individual past vote</i>	<i>Control for individual past vote and its interaction with low skilled, pensioner, public sector worker, and high income, included but not shown for reasons for space</i>	
Constant	-1.261 (6.16)***	-1.257 (6.15)***
<i>SD (Intercept)</i>	0.559	0.558
<i>n</i>	91,880	91,880
<i>N</i>	65	65
Aic	83386.15	83393.32
Bic	83612.42	83619.6
Wald	22363.36***	22360.23***
LR	3687.83***	3690.94***
Pseudo R ²	0.042	0.042
Percent Correct	79.43	79.42

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Some of the other cross-level interactions provide further evidence for the importance of group-heterogeneity in the electoral response. For instance, the overall quite large and positive association between public spending increases and support propensity for incumbent parties drops very close to 0 among high-income voters (Model 7). Likewise, the generally positive impact of stock market booms is considerably moderated among low-skilled workers as suggested by the negative and significant cross-level interaction in Model 8.

We now turn our attention to marginal effects. We calculate the impact of a 1 unit change in an economic variable on the probability of voting for incumbent parties for different social groups for pre-specified values of individual-level variables, namely: the individual is male, not a union member, not unemployed, does not have a university degree and scores average in his left-right self-placement distance from the government. We choose particular values of the binary covariates rather than the mean to provide easily interpretable estimates for particular types of individuals.

However, given the fact that these individual controls do not enter any of the cross-level interactions in the models, the value they take can only have negligible effects on the marginal effects of the economic variables. All calculations are based on the coefficient estimates shown in Table 2 above and are shown in Figure 1 below. We refer the reader to section 7 of the online appendix for how these calculated effects translate into predicted probabilities of voting for incumbent parties at different levels of the economic variables (whilst holding the others constant).

Figure 1: Marginal effects on the probability of voting for incumbent parties

Panel 1.A: Unemployment (% of labor force)

Panel 1.B: Inflation (% change in year-on-year CPI)

Panel 1.C: Public Spending (% of GDP)

Panel 1.D: Stock-market returns (year-on-year, %)

Starting with the impact of the pre-electoral unemployment rates from Model 5, the marginal effects are generally insignificant except among low-skilled workers where a 1% rise in pre-electoral unemployment is associated with around a 1 percentage point drop in the likelihood of voting for incumbent parties, significant at the 5% level. The corresponding negative impacts on support propensities for incumbents in the case of pensioners, public workers and high-income individuals are -0.5%, - 0.5% and - 0.4%, respectively, but all these estimates are statistically insignificant. Therefore, though the group-specific point estimates are not significantly different from each other, we only have evidence of higher unemployment translating into electoral penalty among low-skilled workers while the estimates for the other groups is not statistically significant from 0.

Turning to Model 6 from Table 2 to calculate the group-specific marginal effects of pre-electoral inflation rates, we find even stronger evidence for group-based heterogeneity. While for public sector workers and high-income individuals the estimated effect is very close to 0 and non-significant (-0.04% and 0.06%, respectively), for low-skilled workers it is a more sizeable but still quite small non-significant 0.4% increase. Most importantly, however, the estimated impact among the pensioner population is a large and highly significant drop of 1.6% and the estimate is significantly different from all other groups. Therefore, uniquely among the social groups, pensioners impose electoral punishment on incumbents in relatively high inflationary periods before elections.

Proceeding to the marginal impact of a one unit change in public spending (in other words, a mild fiscal stimulus corresponding to a 1% expansion of the public sector, corresponding to Model 7), the effects, again, differ by social groups. Specifically, the impact is large and significant for public sector workers (4.8%) and low-skilled workers (5.1%), moderate for pensioners (3.1% and borderline significant) and small and non-significant (1.2%) for high-income individuals. The estimate for this latter group is significantly lower than for all the

other three groups. Therefore, largely in line with our theoretical expectations, low-skilled and public sector workers are the two most electorally responsive groups to increases in public spending while high-income voters stand out as relatively averse to expansionary fiscal policies in the pre-electoral period.

Last but not least, we calculate the marginal impact of retrospective stock market performance (Model 8). Since the range of this variable (from – 92 % to 63% on a year-on-year basis) is of a very different nature compared to the other three dimensions, the calculation we provide is for a 10% increase in the country-specific stock market index – just below 0.5 standard deviations in our sample – corresponding to a year of moderate stock-market boom. With this 10% benchmark in mind, the group-specific marginal effects again largely confirm our expectations. The impact is small (0.3%) and insignificant among low-skilled workers, somewhat larger but still insignificant among public sector workers (0.7%), sizeable and borderline significant among pensioners (1.1%) and the largest and significant at the 5% level among high-income earners (1.3%). Importantly, for both of these latter two groups (high income voters and pensioners) the point estimates are significantly larger compared to low-skilled workers and public sector-workers.

How do these group-specific marginal effects compare to the unconditional results that a more standard homogenous economic voting function would produce? To answer this question, we return to the baseline model (Model 4) and compare the most important group-specific results to the unconditional average effects across the population. Starting with the unemployment variable, the estimated impact for low-skilled workers is more than double of the unconditional point estimate of -0.4 percentage points for the whole population. The difference between the pensioner-specific impact of inflation (-1.6 percentage point) marks an even more dramatic difference compared to the sample average which is just below 0 (-0.15 percentage point). A 1 percentage point increase in public spending results in more than

double the increase in voting propensities among public sector workers and low-skilled workers compared to the unconditional impact (2.3 percentage point increase) calculated from Model 4. Finally, the beneficial impact of stock market booms among the high-income group is also around twice the size of the unconditional average impact (0.6 percentage point) across the population. Overall, therefore, we can conclude that social groups that are particularly exposed to certain aspects of the economy change their voting propensities at more than twice the extent to which the overall population does when the relevant economic condition changes.

To further substantiate the impact of the economic variables, we note that the marginal effects we presented above say little about the empirical distribution of the economic conditions across the electoral contexts that we analyze. In other words, while a 1 percentage point change in a given economic variable may appear to have a modest impact, when comparing economic conditions on a wider spectrum, the differences in predicted probabilities of voting for incumbent parties are much more substantial. To illustrate this, Table 3 shows the calculated probabilities at three different levels of economic conditions: sample minimum, sample mean, and sample maximum, calculated separately for the four social groups. Shaded areas indicate the cases where the differences in the predicted probabilities are also statistically significant at the 0.05 level.

As these differences reveal, the group-specific voting propensities for incumbents – calculated for individuals who had voted for incumbent parties at the previous election – differ greatly as a function of the economic context. Particularly noteworthy is the difference of around 35 percentage points among low-skilled workers and public-sector workers between the sample minimum and sample maximum in the pre-electoral change in public spending. Similarly, the pensioner population's propensity to support incumbents differs by

25 percentage points between the lowest and highest inflationary environment in the empirical sample.

Table 3: Predicted probabilities of voting for incumbent parties across the empirical range of the economic variables

	Unemployment			Inflation		
	Min	Mean	Max	Min	Mean	Max
Low-skilled	62.9	58.2	44.6	56.8	58.4	62.4
Pensioner	73.2	70.7	63.3	76.6	70.4	51.6
Public-sector	67	64.5	57.3	64.7	64.5	64.1
High-income	68.2	66.2	60.3	65.9	66.1	66.8
	Public Spending			Stock market		
	Min	Mean	Max	Min	Mean	Max
Low-skilled	40.4	58.9	75.7	54.9	58.5	61
Pensioner	59.1	71	81	59.1	70.7	77.4
Public-sector	46.7	65	80.1	58.1	64.4	68.5
High-income	61.8	66.3	70.7	53	65.9	73.7

*Note: *Point estimates (in %) in cells, shaded areas indicate statistically significant differences.*

Robustness checks

We now turn to a number of robustness checks concerning the operationalization of retrospective economic performance and the definition of a pro-government vote.

First, we examine how sensitive these results are to operationalization of retrospective economic performance. Specifically, we rerun our empirical analysis for the two alternative, benchmarked variables in all four economic dimensions. The results are shown in tables A6 and A7 and the marginal effects presented in Figures A1 to A8 in section 3 of the online appendix. As for national benchmarking, the main interactive patterns hold up, though the heavy electoral punishment among pensioners in the wake of inflationary episodes is considerably weaker under this operationalization. With international benchmarking, it is the electoral responsiveness of public sector workers to changes in public expenditure that diminishes compared to the baseline results. By contrast, the group-specific response to stock

market variations shows a larger divide, compared to the baseline results: the higher responsiveness of the high-income group to stock market booms compared to the rest of the population is even stronger under this internationally benchmarked specification.

Second, we rerun our empirical analysis in the case of our original operationalization of the economic variables but use a more restrictive definition of a pro-government vote. Assuming that coalition governments disperse responsibility in an uneven manner among coalition partners, we expect the prime minister's party to be the chief target of electoral accountability for retrospective economic outcomes. We rerun our analysis using a different dependent variable that is coded as 1 only for a vote cast for the prime minister's party. The results are presented in Figures A11-A to A11-D in section 6 of the Online Appendix.

Interestingly, though the qualitative rank ordering of the strength of the responses are about the same, the differences between group-specific estimates are considerably smaller compared to the benchmark results and fewer of them show up as significant. Partly, this may be due to the relatively low share of voters coded as pro-government voters under the new specification, rendering estimation less precise. However, these weaker patterns also suggest that the prime minister's party in coalition governments is not the main target of group-specific electoral accountability; rather, all parties participating in governments share the rewards/blame for retrospective economic performance.

Wider implications for economic voting and comparative political economy

Our findings have wider implications for the economic voting and comparative political economy literatures. First, they suggest that economic policies and outcomes, as has been

shown for the politics of welfare state policies, are never just a pure valence issue. There is instead a form of ‘distributional’ valence at play, whereby different parts of the electorate respond to different aspects of the economy. This helps us make sense of historical events which seemed *prima facie* inconsistent with a pure economic voting logic, but can now be better understood with a heterogeneous model of voting. Thus, for instance, the relatively poor economic performance of Margaret Thatcher in terms of unemployment did not prevent her from getting reelected⁸² multiple times. Our findings suggested that social groups that are particularly exposed to certain aspects of the economy change their voting propensities at more than twice the extent to which the overall population does when the relevant economic condition changes. In this context, Thatcher’s re-elections could have been the result of economic policies that primarily hurt the low skilled and the poor, while potentially benefiting some high income voters and the elderly. By contrast, Gerhard Schröder’s economic and welfare state policies in Germany might have contributed to his demise because it affected especially strongly those voting blocs that are traditionally key to the left’s success⁸³.

Second, we provide a potentially novel interpretation of the relative electoral success of austerity policies since the great financial crisis (and some politically popular austerity periods before). Some accounts portray this success as the result of their economic superiority or effective blame avoidance strategies⁸⁴. However, the unconditional average effect (i.e. independent of social groups) of public spending increases on voting probability for

⁸² For a detailed account for Thatcher’s economic policies and economic development in the UK around that time, please see Hall, P. 1993. "Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain" *Comparative Politics* 25(3): 275-296; Hall, P. 1986. *Governing the Economy: The Politics of State Intervention in Britain and France*. Oxford University Press.

⁸³ See for example Fervers, L. 2018. "Economic miracle, political disaster? Political consequences of Hartz IV", *Journal of European Social Policy* 29(3): 411-427.

⁸⁴ For a positive reading of austerity’s economic effects, see for example Alesina et al, 1998. For a good discussion of the debates around blame avoidance and credit claiming, see for instance Giger, N. and Nelson, M. 2010. "The electoral consequences of welfare state retrenchment: Blame avoidance or credit claiming in the era of permanent austerity?" *European Journal of Political Research* 50(1): 1-23.

incumbent parties was positive (albeit only weakly significant - see results in Model 4). This is in line with studies documenting an electoral penalty following austerity policies⁸⁵ and goes against the political side of the expansionary austerity thesis⁸⁶. These results therefore point to a third interpretation grounded in the limited costs of cuts in spending for certain politically important groups. In addition, if lower public spending and higher unemployment are imposed on less important political groups (for a given party) while lower inflation and higher stock market performance are achieved, the net effect on electoral support might be positive. The net effect thus also crucially depends on the composition of social groups in a given electorate. In our overall sample, for instance, only 8.7% were characterized as low-skilled workers, 16% were public sector workers, whereas 19.8% were pensioners, and almost 15% high-income voters.

Third, the evidence in favor of strong heterogeneity makes a convergence of the median voter on a uni-dimensional space less plausible, and in turns raises questions about the conditions under which governments can be held accountable for poor economic performance. This echoes much earlier findings by Hibbs that the left and the right are never held accountable for the same aspects of economic performance. However, our results imply that these earlier findings might have underestimated the number of relevant economic dimensions and political parties, given the recent successes of new left and populist radical right parties in the electoral arena. The mechanisms for making governments electorally accountable for poor economic performance goes at the heart of the nature of the relationship between capitalism and democracy. A recent landmark contribution on one side of the debate by Iversen and Soskice⁸⁷ posits a mostly symbiotic relationship whereby highly educated median voters in

⁸⁵ Bojar et al, 2020; Hubscher et al, 2018.

⁸⁶ Alesina et al, 1998.

⁸⁷ Soskice, D. and Iversen, T. 2019. *Democracy and Prosperity: Reinventing Capitalism Through a Turbulent Century*. Princeton University Press.

advanced knowledge economies hold the government accountable for the investments in education, research and development and the selective liberalization of markets, which in their account is often opposed by capitalists favoring limited liberalization of the economy.

In contrast to this optimistic view, our findings show why this might not always be the case since many voters might not effectively punish the government for some types of poor economic performance. This low accountability is easier to reconcile with the often sub-standard economic growth and high unemployment characteristic of many western European countries where incumbents are often re-elected.. It also provides stronger micro-foundations for the less optimistic accounts of the relationship between capitalism and democracy preceding Iversen and Soskice's argument. Thus, for instance, Page and Giddens had underscored the greater influence of high income voters in the US, while political economy accounts by Streeck and others, as well as recent economic studies by Picketty, have all documented the disproportionate capital accumulation and its destabilizing influence on advanced democracies⁸⁸.

Conclusion

This paper has set out to explore the heterogeneity of the electorate in terms of their responses to economic shocks. We have done so with a specific focus on the assumption of group-specific self-interest that prevails in the comparative political economy literature:

⁸⁸ Streeck, W. 2009. *Re-Forming Capitalism: Institutional Change in the German Political Economy*. Oxford, Oxford University Press; Streeck, W. 2011. The Crisis in Context: Democratic Capitalism and Its Contradictions. MPIfG Discussion Paper 11/15. Max Planck Institute for the Study of Societies, Cologne. Picketty, T. 2014. *Capital in the Twenty-First Century*. Harvard University Press; Gilens, M. and Page, B. 2014. "Testing Theories of American Politics: Elites, Interest Groups, and Average Citizens". *Perspective on Politics* 12(3): 564-581.

voters are more likely to turn their back on incumbents when certain aspects of the economy that are of particular importance for the social groups they belong to, deteriorate. This group-specific self-interest assumption is more consistent with the pocketbook economic voter than the sociotropic assumption that most economic voting studies rely upon. Pocketbook considerations are crucial for our account because we expect that changes in the most relevant economic indicator for a given voter's social group serves as an important signal for her expected income stream and risk profile even if the voter has not faced any direct costs herself. Granted, sociotropic considerations are also relevant to the extent that voters are more likely to interact with other voters with similar sociodemographic characteristics and hence draw cues and heuristics to assess the state of the economy from these interactions. Thus, we think of our findings primarily as a result of egotropic mechanisms, but they are also consistent with a sociotropic understanding of the electoral calculus.

Using a battery of mixed effect multilevel logistic regressions on three modules of the Comparative Study of Electoral System survey series, we find broad empirical support for our argument. Specifically, our results indicate that different dimensions of retrospective performance affect the electoral behavior of different social groups to varying degrees.

For pre-electoral unemployment rates, we have shown that the propensity to vote for incumbents declines somewhat more rapidly among the ranks of low-skilled workers, in line with our expectations. The group-specific response to inflation marks a clear divide between pensioners and the rest of the population with the former systematically penalizing incumbents during inflationary electoral contexts. Public spending primarily affects the probability of voting for incumbents both among public sector and low-skilled workers while it influences the electoral calculus of pensioners and high-income earners considerably less so or not at all. As a speculative interpretation of pensioners' somewhat surprising indifference to public spending cuts, this may be related to where the weight of adjustment costs tend to

fall: to the extent that current pensions tend to be sheltered from the brunt of austerity measures, pensioners are less likely to penalize incumbents for cuts in overall public spending. Finally, the opposite pattern emerges with variation in stock market performance: high-income earners and pensioners are highly responsive to stock market returns whereas public sector and low-income workers are largely unaffected by them.

These findings entail several broader contributions and shed light on a number of unresolved issues, which we have discussed in more detail in the previous section. First, by empirically demonstrating the heterogeneity of social groups in their economic voting patterns, we strengthen the electoral link between group-specific policy preferences and government policies that a lot of comparative political economy literature assumes without providing direct empirical evidence for them. Second, we provide a novel explanation for why there is so little evidence on systematic electoral punishment against governments that undertake policies, such as fiscal adjustment and austerity, that are detrimental for growth at least in the short run: it is only a subset of the population that is actually responsive to economic outcomes that are conventionally presumed to capture the economic vote; other variables, such as inflation and asset market performance are equally important, though relatively understudied, pieces of the full economic voting picture.

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Online Appendix

GROUP-SPECIFIC RESPONSES TO RETROSPECTIVE ECONOMIC PERFORMANCE:

A MULTI-LEVEL ANALYSIS OF PARLIAMENTARY ELECTIONS

Table of Contents

1. Examples of previous literature relying on group-heterogeneity.....	46
Table A1: Economic voting and social groups in previous literature	46
2. Sample and variable summary	51
Table A2: Summary of electoral contexts.....	51
Table A3: Summary of micro-level variables	53
Table A4: Summary of macro-level variables	53
3. National and international benchmarking	54
Table A5: Baseline model with national and international benchmarking*	54
Table A6: Models with cross-level interactions and national benchmarking	56
Table A7: Models with cross-level interactions and international benchmarking.....	58
Figure A1: Marginal effects of nationally benchmarked unemployment	60
Figure A2: Marginal effects of nationally benchmarked inflation.....	60
Figure A3: Marginal effects of nationally benchmarked public spending	61
Figure A4: Marginal effects of nationally benchmarked stock market performance.....	61
Figure A5: Marginal effects of internationally benchmarked unemployment	62
Figure A6: Marginal effects of internationally benchmarked inflation	62
Figure A7: Marginal effects of internationally benchmarked public spending	63
Figure A8: Marginal effects of internationally benchmarked stock market performance	63
4. Past vote choice and social groups.....	64
Figure A9: Estimated probabilities of the probability of remaining loyal to incumbent parties among different social groups.....	64
5. Three-way interactions between current vote choice, past vote choice and social groups	64
Figure A10-A: The marginal effect of unemployment on the probability of voting for incumbent parties among different social groups	64
Figure A10-B: The marginal effect of inflation on the probability of voting for incumbent parties among different social groups.....	65
Figure A10-C: The marginal effect of public spending on the probability of voting for incumbent parties among different social groups	66

Figure A10-D: The marginal effect of stock-market returns on the probability of voting for incumbent parties among different social groups	66
6. Robustness check with voting for Prime Minister's party as dependent variable	67
Figure A11-A: The marginal effect of unemployment on the probability of voting for PM's party among different social groups.....	67
Figure A11-B: The marginal effect of inflation on the probability of voting for PM's party among different social groups.....	67
Figure A11-C: The marginal effect of public spending on the probability of voting for PM's party among different social groups.....	68
Figure A11-D: The marginal effect of stock-market returns on the probability of voting for PM's party among different social groups.....	68
7. Predicted probabilities of voting for incumbent parties under different economic conditions.	69
Figure A12-A: Predicted probabilities of voting for incumbent parties as a function of unemployment.....	69
Figure A12-B: Predicted probabilities of voting for incumbent parties as a function of inflation	69
Figure A12-C: Predicted probabilities of voting for incumbent parties as a function of public spending	70
Figure A12-D: Predicted probabilities of voting for incumbent parties as a function of stock-market performance	71

1. Examples of previous economic voting literature relying on group-heterogeneity

Table A1: Economic voting and social groups in previous literature

Study	Data	Economic performance indicator	Groups considered	Findings
Weatherford (1978)	Data from 1956-60 American panel study	“Subjective evaluation of current condition with his evaluation of his financial status” (p. 929)	Middle class vs. working class individuals	“In the face of worsening national economic conditions, working class citizens are more likely to deviate from their expected vote than are middle class ones” (p. 933)
Hibbs, et al. (1982)	US Gallup poll approval ratings 1961-79	Unemployment, inflation and real income growth	Occupations: blue collar, white collar, non-labour force	“Blue collar workers exhibit relatively greater sensitivity to sustained movements in unemployment and real income growth and relatively less sensitivity to inflation than white collar workers and retirees” (p. 327)
Hibbs and Vasilatos (1982)	UK	Inflation, exchange rate movements, unemployment, real income fluctuations	Occupational class (non-manual, skilled manual, semi-skilled and unskilled)	“political support of non-manual, white-collar employees exhibits substantially less sensitivity to the unemployment level than the political support of manual blue-collar workers” (p. 269) “non-manual white-collar employees exhibit less sensitivity to the per-capita real income growth rate than either of the manual groups” (p. 270)
Duch (2001)	Public opinion surveys in Hungary and Poland	Prospective and retrospective assessment of economy and personal finance	Variations in political information and trust	The impact of economic assessment on change in vote for incumbent is mediated by information and trust of respondents
Grafstein, Robert (2005)	NES 1972–2000 U.S. presidential elections data	Unemployment rate	Education income of unemployed	“Higher unemployment rates seem to reduce the relative likelihood that the unemployed vote Democratic” (p. 817)
Glasgow, Garrett (2005)	Survey data 1992 US presidential election	Concern with job losses	Union membership	“Concern with job losses due to NAFTA influenced the voting behaviour of members of union households in the 1992 US presidential election, with those who were most concerned

Study	Data	Economic performance indicator	Groups considered	Findings
				with job losses due to NAFTA more likely to vote for Perot over Clinton. These concerns did not influence the behaviour of non-group members” (p 427)
Kwon, Hyeok Yong (2010)	2002 Korean presidential election survey data	Worries about the employment situation	Income group: middle versus rest	“It is the <i>middle income group</i> that shifts their political preferences from right to left votes when faced with issue salience of the employment situation” (p. 512)
Lewis-Beck and Nadeau (2011)	Special battery of economic items, from a 2008 US presidential election survey	Not interacted with social group identifier	wealth, we call it patrimony, e.g., stocks, bonds, houses, other forms of property	“The more property the voters own, the less likely they are to vote for Obama” and “those who own more attaching themselves more closely to the Republican party” (p 291)
Nadeau, et al. (2011)	French presidential election data, from three national surveys – 1988, 1995 and 2002	Not relevant (CHECK)	Assets (especially High risk)	People with high risks assets re more likely to vote right
Palmer and Whitten (2011)	“Monthly time series data of aggregate survey measures and national economic indicators for the UK. These data run from April 2004 to November 2009”	Change in real GDP, unemployment, inflation, retrospective evaluations of economy	Income categories	“Labour support among low income citizens was more responsive to unemployment while that among high income citizens was more responsive to inflation” (p. 432) AND “significant relationships between retrospective evaluations and Labour support for the high and middle income groups but no relationship for the low income group.” (p. 435)
Singer (2011)	Second wave of the CSES	Interaction between per capita GDP growth, decreasing with inflation, and decreasing with the unemployment rate AND whether respondent says economy is important	Whether individuals identify ‘Economic performance and management’ as the “most important issue facing the country over the last [number of years	“We find evidence that the relative security of voters shapes the salience of the economy “ (p. 303) “Differences in the economy’s salience also systematically explain the varying importance of economic performance” (p. 302)

Study	Data	Economic performance indicator	Groups considered	Findings
			that the last government was in office] years”	
Dettrey and Palmer (2013)		Economic evaluation	Strength of partisanship as well as political sophistication	“No significant evidence that sophistication conditions the economic voting relationship once the conditioning effect of partisanship is included in the model.””individual-level heterogeneity in the strength of the economic voting relationship is largely due to stronger partisans voting more consistently with their national economic evaluation than to more sophisticated voters being more policy-oriented by holding the incumbent party more electorally accountable for macroeconomic performance” (p. 718)
Lindvall, et al. (2013)	1994 and 2010 waves of the Swedish National Election Studies	Not formally tested	Income, labor market status, education, home ownership, and class	“Individual economic circumstances played a larger role in the 2010 general election in Sweden than they played in the 1994 general election” (p. 534) “Voters with low economic status appear to have been less likely support the parties in the incumbent government in 2010 than they were in 1994, voters with high economic status were much more likely to do so, especially if they had previously supported other parties” (p. 532) ⁸⁹

⁸⁹ Note that “voters with high economic status are thus defined as high income-earners with jobs and university degrees who own their homes whereas voters with low economic status are defined as unemployed low-income-earners without university degrees who do not own their homes).” (p. 532)

Study	Data	Economic performance indicator	Groups considered	Findings
Palmer, et al. (2013)	monthly measures of public opinion in UK from May 2004 to April 2010 using the Continuous Monitoring Survey of British Election Study	Unemployment, inflation and real GDP growth	High, medium and low income groups	“Low-income voters are more responsive in their assessments of the incumbent Labour government based on unemployment, as are high-income voters in terms of inflation. In addition, high-income voters tend to behave in a manner consistent with partisan rationalization, while low-income voters do not” (p. 425)
Singer (2013)	2002 Latinobarometer covering 17 Latin American countries. Post-Communist Publics (PCP) study covering 14 East European countries between 1997 and 2001.	Respondent’s evaluation of the current state of the national economy; respondent’s view of his/her personal finances	Workers worried about losing their job in next 12 months; workers that think it will be easier/harder to find another job if they were to lose it	“Workers who feel anxious about being fired or who believe it would be difficult to find a new job place significantly greater weight on sociotropic evaluations than do those with more secure employment situations” (p. 143)
Stubager, et al. (2013)	Danish DNES, a post-electoral survey carried out in the three months following the September 15, 2011 election	Ego- and socio-tropic retrospective evaluations of the economic development.	Owners of high (e.g. house, savings) and low (e.g. stocks) risks assets, respectively	“Two new findings: 1. patrimonial economic voting exists [impact of property ownership on the vote] in Denmark and, 2. Its effect is stronger than that for other countries studied thus far.” (p. 438).

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2. Sample and variable summary

Table A2: Summary of electoral contexts

Country	Election-year	Sample size
Australia	2004	1769
	2007	1873
	2013	3953
Austria	2008	
	2013	1000
Belgium	2003	2225
Bulgaria	2001	1482
	2014	999
Canada	2004	1674
	2008	4495
	2011	3458
Czech Republic	2002	948
	2006	2002
	2010	1857
	2013	1653
Denmark	2001	2026
	2007	1442
Estonia	2011	1000
Finland	2003	1196
	2007	1283
	2011	1298
Germany	2002	2000
	2005	2018
	2009	2095
	2013	1889
Greece	2009	1022
	2012	2019
Hungary	2002	1200
Iceland	2003	1446
	2007	1595
	2009	1385
	2013	1479

Country	Election-year	Sample size
Ireland	2002	2367
	2007	1435
	2011	1853
Israel	2003	1212
	2006	1200
Italy	2006	1439
Latvia	2010	1005
Netherlands	2002	1574
	2006	2359
	2010	2153
New Zealand	2002	1741
	2008	1149
	2011	1374
Norway	2005	2012
	2009	1782
	2013	1727
Poland	2001	1794
	2005	2402
	2007	1817
	2011	1919
Portugal	2002	1303
	2005	2801
	2009	1316
	2015	1499
Romania	2004	1913
Slovakia	2010	1203
Slovenia	2004	1002
	2008	1055
	2011	1031
Spain	2004	1212
	2008	1204
Sweden	2002	1060
	2006	1547
	2014	832
Switzerland	2003	1418

Country	Election-year	Sample size
	2007	3164
	2011	4391
UK	2005	860

Table A3: Summary of micro-level variables

N (number of elections): 72*		
n (total number of respondents): 118465*		
% current government voters	31.8	
% past government voters	35.9	
% low-skilled workers	8.7	
% pensioners	20	
% public-sector workers	16	
% high-income voters	14.4	
% union members	25.7	
% of high-educated voters	23.4	
Mean (left-right distance)	2.28	

*The differences in the sample size between this summary table and the models is due to some of the variables missing for some of the electoral contexts.

Table A4: Summary of macro-level variables

Variable	Variable Operationalization	Minimum	Maximum	Mean	
Unemployment (%)	Pre-electoral (weighted)	2.65	20.61	7.74	
	Nationally benchmarked	-6.9	6.9	-0.16	
	Internationally benchmarked	-5.17	12.65	0.74	
Inflation (%)	Pre-electoral (weighted)	-1.27	12.45	2.72	
	Nationally benchmarked	-9.65	7.79	-0.76	
	Internationally benchmarked	-3.75	11.78	0.44	
Public Spending (% of GDP)	Pre-electoral (weighted)	-3.32	3.83	0.19	
	Nationally benchmarked	-3.77	3.34	0.18	
	Internationally benchmarked	-3.22	3.96	0.14	
Stock market (Y-o-Y, %)	Pre-electoral	-91.8	63.42	0.08	
	Nationally benchmarked	-107.19	51.03	-11.31	
	Internationally benchmarked	-55.88	44.27	1.91	

3. National and international benchmarking

Table A5: Baseline model with national and international benchmarking*

Model	5: Benchmarked (national)	6: Benchmarked (international)
ELECTORAL CONTEXT LEVEL		
Unemployment	0.007 (0.23)	-0.019 (0.98)
Inflation	0.062 (2.26)**	-0.012 (0.35)
Public spending	0.174 (2.11)**	0.158 (1.81)*
Stock market	0.006 (2.25)**	0.011 (2.98)***
INDIVIDUAL LEVEL CONTROLS		
Male	0.027 (1.54)	0.027 (1.53)
Union member	-0.012 (2.16)**	-0.012 (2.15)**
High education	-0.038 (1.77)*	-0.038 (1.76)*
Unemployed	-0.173 (3.96)***	-0.174 (3.97)***
Left-right distance	-0.204 (34.65)***	-0.204 (34.68)***
INDIVIDUAL LEVEL SOCIAL GROUP		
Low-skilled	-0.031 (0.72)	-0.031 (0.73)
Pensioner	-0.159 (4.57)***	-0.160 (4.59)***
Public sector worker	-0.045 (1.31)	-0.045 (1.31)
High-income	0.155 (4.39)***	0.155 (4.39)***
INDIVIDUAL PAST VOTE		
Past vote	2.503 (98.60)***	2.503 (98.61)***
Past vote*low-skilled	-0.158 (2.65)***	-0.158 (2.64)***
Past vote*pensioner	0.528 (11.26)***	0.528 (11.27)***
Past vote*public sector	0.118 (2.52)**	0.118 (2.53)**
Past vote*high-income	-0.010 (0.21)	-0.010 (0.22)
Constant	-1.384 (16.99)***	-1.488 (19.75)***
<i>SD (Intercept)</i>	0.545	0.540

Model	5: Benchmarked (national)	6: Benchmarked (international)
<i>n</i>	91,880	91,880
<i>N</i>	65	65
Aic	83397.86	83396.65
Bic	83586.43	83585.21
Wald	22361.75***	22363.59***
LR	3889.38***	3591.84***
Pseudo-R ²	0.045	0.041
Percent Correct	80.08	80.08

Table A6: Models with cross-level interactions and national benchmarking

	Unemployment Model	Inflation Model	Spending Model	Stock market model
Unemployment	0.003 (0.09)	0.007 (0.23)	0.007 (0.23)	0.007 (0.23)
Inflation	0.062 (2.25)**	0.069 (2.47)**	0.062 (2.25)**	0.061 (2.21)**
Public spending	0.176 (2.13)**	0.173 (2.10)**	0.172 (2.07)**	0.174 (2.11)**
Stock market	0.006 (2.26)**	0.006 (2.28)**	0.006 (2.24)**	0.006 (2.25)**
Gender	0.026 (1.50)	0.026 (1.48)	0.027 (1.52)	0.027 (1.55)
Union member	-0.012 (2.20)**	-0.012 (2.12)**	-0.012 (2.20)**	-0.013 (2.25)**
Highly educated	-0.039 (1.80)*	-0.039 (1.81)*	-0.039 (1.80)*	-0.038 (1.77)*
Unemployed	-0.171 (3.91)***	-0.171 (3.89)***	-0.173 (3.94)***	-0.173 (3.95)***
Left-right distance	-0.204 (34.65)***	-0.204 (34.69)***	-0.203 (34.53)***	-0.203 (34.58)***
Low-skilled worker	-0.040 (0.93)	-0.028 (0.65)	-0.041 (0.95)	-0.049 (1.11)
Past vote	2.504 (98.60)***	2.504 (98.57)***	2.503 (98.60)***	2.503 (98.58)***
Low-skilled*past vote	-0.156 (2.60)***	-0.160 (2.68)***	-0.161 (2.69)***	-0.166 (2.77)***
Pensioner	-0.156 (4.41)***	-0.180 (5.07)***	-0.159 (4.55)***	-0.150 (4.19)***
Pensioner*past vote	0.527 (11.24)***	0.522 (11.16)***	0.527 (11.25)***	0.531 (11.32)***
Public worker	-0.039 (1.12)	-0.047 (1.36)	-0.052 (1.49)	-0.058 (1.62)
Public worker*past vote	0.114 (2.44)**	0.118 (2.52)**	0.116 (2.49)**	0.116 (2.48)**
High income	0.171 (4.77)***	0.153 (4.29)***	0.171 (4.80)***	0.164 (4.57)***
High income*past vote	-0.015 (0.31)	-0.011 (0.23)	-0.011 (0.23)	-0.007 (0.15)
Low-skilled*unemployment	-0.016 (1.25)			
Pensioner*unemployment	0.006 (0.59)			
Public worker*unemployment	0.010 (1.00)			
High income*unemployment	0.027 (2.48)**			
Low-skilled*inflation		0.009 (0.75)		
Pensioner*inflation		-0.029 (3.09)***		
Public worker*inflation		-0.004		

	Unemployment Model	Inflation Model (0.42)	Spending Model	Stock market model
High income*inflation		-0.003 (0.32)		
Low-skilled*public spending			0.059 (1.72)*	
Pensioner*public spending			0.005 (0.19)	
Public worker*public spending			0.066 (2.36)**	
High income*public spending			-0.092 (3.50)***	
Low-skilled*stock market				-0.002 (2.04)**
pensioner*stock market				0.001 (1.20)
Public worker*stock market				-0.001 (1.30)
High income*stock market				0.001 (1.32)
Constant	-1.385 (16.95)***	-1.378 (16.93)***	-1.385 (17.00)***	-1.384 (16.97)***
<i>SD (Intercept)</i>	0.547	0.545	0.545	0.545
<i>N</i>	91,880	91,880	91,880	91,880
<i>N</i>	65	65	65	65
Aic	83396.45	83394.64	83384.27	83394.86
Bic	83622.73	83620.91	83610.55	83621.14
Wald	22367.75***	22368.75***	22364.26***	22360.26***
Lr	3894.85***	3868.44***	3892.11***	3895.42***
Pseudo R ²	0.045	0.044	0.045	0.045
Percent Correct	80.10	79.42	79.42	79.42

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Table A7: Models with cross-level interactions and international benchmarking

	Unemployment Model	Inflation Model	Spending Model	Stock market model
Unemployment	-0.020 (1.01)	-0.018 (0.94)	-0.019 (0.96)	-0.019 (0.98)
Inflation	-0.012 (0.35)	-0.003 (0.09)	-0.012 (0.36)	-0.011 (0.34)
Public spending	0.158 (1.80)*	0.162 (1.86)*	0.154 (1.75)*	0.162 (1.86)*
Stock market	0.011 (3.00)***	0.011 (3.11)***	0.011 (2.95)***	0.012 (3.30)***
Gender	0.026 (1.49)	0.026 (1.49)	0.027 (1.54)	0.027 (1.53)
Union member	-0.012 (2.14)**	-0.012 (2.16)**	-0.012 (2.12)**	-0.012 (2.17)**
Highly educated	-0.038 (1.75)*	-0.039 (1.81)*	-0.038 (1.75)*	-0.039 (1.79)*
Unemployed	-0.173 (3.93)***	-0.175 (4.01)***	-0.174 (3.97)***	-0.172 (3.94)***
Left right distance	-0.204 (34.67)***	-0.204 (34.67)***	-0.204 (34.64)***	-0.203 (34.60)***
Low-skilled	-0.038 (0.88)	-0.039 (0.90)	-0.040 (0.92)	-0.036 (0.81)
Past government	2.504 (98.60)***	2.501 (98.42)***	2.502 (98.56)***	2.505 (98.53)***
Low-skilled* Low-skilled	-0.158 (2.64)***	-0.166 (2.76)***	-0.154 (2.57)**	-0.155 (2.59)***
Pensioner	-0.160 (4.60)***	-0.173 (4.92)***	-0.164 (4.68)***	-0.141 (4.00)***
Pensioner* Low-skilled	0.527 (11.24)***	0.552 (11.68)***	0.532 (11.34)***	0.521 (11.11)***
Public worker	-0.045 (1.30)	-0.047 (1.37)	-0.048 (1.40)	-0.026 (0.75)
Public worker*past vote	0.117 (2.50)**	0.115 (2.46)**	0.120 (2.57)**	0.109 (2.32)**
High income	0.162 (4.55)***	0.155 (4.39)***	0.168 (4.73)***	0.140 (3.90)***
High income*past vote	-0.013 (0.26)	-0.009 (0.18)	-0.015 (0.32)	-0.004 (0.08)
Low-skilled*unemployment	-0.016 (1.74)*			
Pensioner*unemployment	0.002 (0.32)			
Public worker*unemployment	0.003 (0.50)			
High income*unemployment	0.012 (1.56)			
Low skilled*inflation		0.013 (1.01)		
Pensioner*inflation		-0.082 (5.94)***		
Public worker* inflation		0.005 (0.50)		
High income* inflation		-0.007 (0.58)		

Low skilled*public spending	0.059			
	(1.50)			
Pensioner*public spending	0.050			
	(1.61)			
Public worker*public spending	0.036			
	(1.17)			
High income*public spending	-0.087			
	(3.08)***			
Low skilled *stock market				0.001
				(0.48)
pensioner* stock market				-0.004
				(3.16)***
Public worker* stock market				-0.005
				(3.72)***
High income* stock market				0.004
				(2.62)***
Constant	-1.488	-1.486	-1.488	-1.493
	(19.71)***	(19.86)***	(19.76)***	(19.86)***
<i>SD (Intercept)</i>	0.541	0.536	0.54	0.539
<i>N</i>	91,880	91,880	91,880	91,880
<i>N</i>	65	65	65	65
Aic	83398.46	83362.34	83387.93	83377.28
Bic	83624.73	83588.62	83614.21	83603.56
Wald	22364.81***	22346.28***	22362.13***	22371.44***
Lr	3596.21***	3495.18***	3587.09***	3558.11***
Pseudo R2	0.041	0.040.	0.041	0.041
Percent Correct	80.07	79.39	79.41	79.39

Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$.

Figure A1: Marginal effects of nationally benchmarked unemployment

Figure A2: Marginal effects of nationally benchmarked inflation

Figure A3: Marginal effects of nationally benchmarked public spending

Figure A4: Marginal effects of nationally benchmarked stock market performance

Figure A5: Marginal effects of internationally benchmarked unemployment

Figure A6: Marginal effects of internationally benchmarked inflation

Figure A7: Marginal effects of internationally benchmarked public spending

Figure A8: Marginal effects of internationally benchmarked stock market performance

4. Past vote choice and social groups

Figure A9: Estimated probabilities of the probability of remaining loyal to incumbent parties among different social groups

5. Three-way interactions between current vote choice, past vote choice and social groups

Figure A10-A: The marginal effect of unemployment on the probability of voting for incumbent parties among different social groups

Figure A10-B: The marginal effect of inflation on the probability of voting for incumbent parties among different social groups

Figure A10-C: The marginal effect of public spending on the probability of voting for incumbent parties among different social groups

Figure A10-D: The marginal effect of stock-market returns on the probability of voting for incumbent parties among different social groups

6. Robustness check with voting for Prime Minister's party as dependent variable

Figure A11-A: The marginal effect of unemployment on the probability of voting for PM's party among different social groups

Figure A11-B: The marginal effect of inflation on the probability of voting for PM's party among different social groups

Figure A11-C: The marginal effect of public spending on the probability of voting for PM's party among different social groups

Figure A11-D: The marginal effect of stock-market returns on the probability of voting for PM's party among different social groups

7. Predicted probabilities of voting for incumbent parties under different economic conditions.

Figure A12-A: Predicted probabilities of voting for incumbent parties as a function of unemployment

Figure A12-B: Predicted probabilities of voting for incumbent parties as a function of inflation

Figure A12-C: Predicted probabilities of voting for incumbent parties as a function of public spending

Figure A12-D: Predicted probabilities of voting for incumbent parties as a function of stock-market performance