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Incumbent Tenure Crowds Out Economic Voting

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Abstract: We know that economic circumstances often shape the electoral fortunes of political leaders, but we do not know whether the importance of these circumstances changes during their time in office. If one asserts that politicians become more responsible for the economic situation over the course of their time in office, then the literature on clarity of responsibility would suggest that there might be a positive relationship between incumbent tenure and economic voting. If voters continually accumulate information about politicians over the course of their time in office, however, then models of Bayesian learning would suggest that this growing stock of information might crowd out the importance of recent economic conditions. This might be true even if economic outcomes come to reflect the incumbent's abilities more strongly over time. Using three independent datasets, we empirically adjudicate between these different predictions. We find that as an executive party's tenure increases, its electoral support becomes more independent of the economic situation.

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Introduction

Economic circumstances often shape the electoral fortunes of political leaders (Healy and Malhotra, 2013; Lewis-Beck and Stegmaier, 2013). A recession, a spike in unemployment or inflation will, all other things being equal, lead voters to unseat incumbent politicians and elect political opponents; however, other things are often not equal. Studies on the economic antecedents of electoral behaviour have identified extensive variation in the relationship between the economic situation and electoral support for incumbents (Lewis-Beck, 1990; Paldam, 1991; Van der Brug, Van der Eijk and Franklin, 2007; Duch and Stevenson, 2008). Why, then, is economic voting more prevalent in some elections than in others? Previous studies of why the economic vote varies have typically explained this in terms of variations in the political and economic institutional context (e.g. Powell and Whitten, 1993; Duch and Stevenson, 2008). In particular, these studies have found that institutions regulating the extent of incumbents' control over economic policy condition the extent to which incumbents are held electorally accountable for the economic situation. For instance, works in this 'clarity of responsibility' literature have found that economic openness (Hellwig, 2001; Hellwig and Samuels, 2007) and government composition (Hobolt, Tilley and Banducci, 2013; Anderson, 2006) moderate the economic vote. Yet despite this comprehensive literature on the sources of variation in economic voting, whether the duration of a government's time in office conditions the economic vote remains a surprisingly understudied question.

Numerous studies have examined the role of time in office as a part of the cost-of-ruling literature (Nannestad and Paldam, 1994; Paldam and Skott, 1995; Stevenson, 2002; Abramowitz, 1988; Stegmaier and Williams, 2016), exploring the extent to which tenure directly affects election results (i.e., as an independent variable). Similarly, other studies have focused on the *voters'* time horizon: namely, do they only focus on recent economic conditions or do they also look further back (e.g., Hellwig and Marinova, 2014)? However, few studies have dealt with whether and how time in office changes the importance of economic conditions for shaping election results (i.e., as a moderator).

Previous studies have generally conceptualized tenure as a component of clarity of responsibility (Nadeau, Niemi and Yoshinaka, 2002), asserting that the influence of incumbents on

economic outcomes increases over the election cycle. One might therefore expect economic voting to be more prevalent in elections featuring more experienced incumbents and less prevalent in elections with less experienced incumbents. Empirically, these studies have primarily, although not exclusively, been interested in the short-term relationship between economic voting and tenure, studying how the economic vote develops during an incumbent's first term (Lebo and Box-Steffensmeier, 2008; Singer and Carlin, 2013; see also Carey and Lebo, 2006). Generally, they find that retrospective economic voting tends to increase during the incumbent's first two years in office.

This article adds to this small but growing literature by adding nuance to the theoretical framework used in existing studies and by examining the long-term relationship between economic voting and time in office using multiple data sources. More specifically, we argue that it is by no means clear that economic conditions should become more important for incumbent support as time in office increases. For one, theories about motivated reasoning would suggest that as voters develop a solid early impression of their incumbent confirmation bias kicks in, and voters begin to disregard evidence that is inconsistent with their initial impression (cf. Lodge and Taber, 2013; Jonas et al., 2001). Even if we stay within a rational paradigm, it is not clear that more experienced incumbents should be held more accountable for economic conditions. Previous research thus assumes that incumbent tenure amplifies economic voting, as the signal relayed by the economy about the incumbent's competence becomes less 'noisy' with time in office (Nadeau and Lewis-Beck, 2001; Duch and Stevenson, 2008). This is consistent with Bayesian learning in that voters let stronger evidence (i.e., economic conditions that more strongly reflect the incumbent's competence) weigh more heavily on their evaluations of the incumbent. However, models of Bayesian learning also tell us that beliefs based on more information are generally less likely to be moved by a single new piece of evidence (Gerber and Green, 1999; Breen, 1999). In the context of economic voting, one might conceptualize this 'information' as all of the relevant cues about the quality of the incumbent obtained before considering recent economic conditions (i.e., the new piece of evidence). Information naturally accumulates with time in office; that is, voters will always have more information about their incumbent at $t = x + 1$ than at $t = x$, because all of the information accumulated by $t = x$ is

also available at $t = x + 1$. Accordingly, as an incumbent's time in office increases, the stock of relevant information increases, strengthening voters' beliefs about the incumbent, leaving these beliefs less malleable, and thus potentially attenuating the impact recent economic conditions have on these beliefs.¹

If one considers this learning argument in conjunction with the the clarity of responsibility argument, which has been advanced in previous research, then it is easy to see that there could be countervailing forces at work when it comes to the relationship between economic voting and time in office. As such, the clarity of responsibility argument suggests that the current economic situation offers up more convincing evidence of incumbent competence when incumbents are experienced as opposed to inexperienced, amplifying the importance of economic conditions as time in office increases, whereas Bayesian learning suggests that voters' beliefs about inexperienced incumbents are more malleable than their beliefs about experienced incumbents, attenuating the importance of economic conditions as time in office increases.

In order to determine which of these forces dominate, this article sets out to conduct a thorough, empirical re-examination of the long-term relationship between economic voting and time in office. We begin this re-examination by studying country-level election returns from 409 elections in forty-one different countries. Measuring economic voting as the correlation between economic conditions (i.e., economic growth) and support for the executive party, we find that as incumbent tenure increases, economic voting decreases. Next, we conduct a conceptual replication in which we again identify a negative relationship between time in office and economic voting. The conceptual replication utilizes a pooled cross-section of sixty representative national surveys from ten Western European countries, measuring the economic vote by correlating voters' retrospective perceptions of the national economy and their intention to vote for the executive party. Our third and final study uses subnational data to zero in on one possible mechanism, which could be driving the negative relationship between time in office and economic voting: learning. More specifically, we examine a dataset of local elections in Denmark held in the wake of an extensive municipal redistricting reform. We take advantage

¹This argument is not necessarily predicated on voters remembering what the economy was like during the incumbent's time in office; they must simply let their assessment of the incumbent be continually updated based on recent economic conditions (in the mode of a so-called online tally; cf. Redlawsk, 2006).

of the fact that, as a consequence of the reform, many municipalities were merged (reducing the number of municipalities in Denmark from 271 to 98), which created within-municipality differences in the amount of experience the electorate had with the same incumbent mayoral party. We find that voters with less experience with an incumbent mayor are more likely to hold the mayor electorally accountable for local levels of unemployment. Across the three studies, incumbent tenure thus crowds out economic voting.

These results are surprising for a couple of reasons. First, because some previous studies have found that economic voting increases with tenure. A divergence that might be explained by the fact that previous researchers have primarily examined how economic voting changes in the first or second year of the incumbent's term, whereas our study examines the more long-term effects of tenure. Second, our results imply that incumbents who are more responsible for economic outcomes (i.e., experienced incumbents) are held less accountable for recent economic conditions. This challenges the clarity of responsibility hypothesis, at least in its most simple form, and our findings thus highlight the importance of being theoretically and empirically careful when applying this hypothesis.

This article extends the literature on how and why the economic vote varies – a literature that has, broadly speaking, focused on either political institutions (e.g., Powell and Whitten, 1993; Whitten and Palmer, 1999; Duch and Stevenson, 2008; Hobolt, Tilley and Banducci, 2013) or voter characteristics (e.g., Malhotra and Kuo, 2008; Kayser and Wlezien, 2011; Vries and Giger, 2014). More specifically, the article helps analysts and researchers interested in understanding why economic voting is more prevalent in some elections than in others by giving them an additional factor to consider when making predictions about how important the economy will be in a particular election: the tenure of the executive up for re-election. Further, by highlighting Bayesian learning as a potential key to understanding why incumbent tenure crowds out economic voting, this article also demonstrates that despite voter myopia (Healy and Malhotra, 2009; Healy and Lenz, 2014), the incumbent's history plays an important role when trying to understand the temporal dynamics of electoral accountability (for a similar point, see Krause and Melusky, 2014).

Time in Office and the Economic Vote

Research on how the economy shapes electoral support for incumbents has generally been sensitive to the role of the timing of economic outcomes for both voters and politicians. For instance, several studies have investigated the extent to which voters are myopic, caring exclusively about present (and recent) economic conditions (Healy and Malhotra, 2009; Achen, 2012; Healy and Lenz, 2014; Hellwig and Marinova, 2014), and the degree to which incumbent politicians can strategically exploit this myopia by creating political business cycles and timing elections (Nordhaus, 1975; Smith, 2003; Kayser, 2005; Samuels and Hellwig, 2010). Other studies have tried to discern whether voters focus on past or (their expectations of) the future economy (Lanoue, 1994; Soroka, Stecula and Wlezien, 2015). Yet the existing research on economic voting has rarely examined the potential role that politicians' time in office might play in moderating the economic vote. Instead, those interested in tenure have examined whether and why there is a general cost of ruling (Nannestad and Paldam, 1994; Paldam and Skott, 1995; Stevenson, 2002), and other kinds of generalizable temporal trends in the incumbent's popularity (Mueller, 1970).

At present, there are only a few studies that examine time in office in conjunction with the economic vote. One of these is by Nadeau, Niemi and Yoshinaka (2002), who include time in office in a larger index of 'dynamic clarity of responsibility' (i.e., ideological cohesion of the government, the number of parties in parliament), and then look at whether this index correlates with the economic vote in eight different European countries. They find a positive relationship between economic voting and their index, but they do not examine time in office separately from the other factors. Studies by Carey and Lebo (2006) and Lebo and Box-Steffensmeier (2008) examine how the nature of economic voting changes across the election cycle. Focusing on the US and UK, respectively, they tend to find more prospective economic voting at the beginning of an election cycle and more retrospective economic voting at the end of a cycle, although their analyses are not primarily about the overall levels of economic voting but rather which types of economic voting dominate at different points in the election cycle.

The most thorough examination of the relationship between time in office and the economic vote can be found in a recent study by Singer and Carlin (2013), who link time in office with

different types of economic voting in a wide cross-section of Latin American countries. They find that “voters’ reliance on prospective expectations indeed diminishes over the election cycle as the honeymoon ends and they retrospectively evaluate the incumbent’s mounting record” (Singer and Carlin, 2013, 731). Even though this study is well executed and convincing, the inferences that can be made about the long-term relationship between tenure and economic voting based on this study are limited by two factors. First, the study measures economic voting by looking at economic perceptions, not objective economic conditions. Second, and more importantly, their focus is on the short-term relationship between time in office and the economic vote. This is partly because the study focuses on a relatively politically volatile world region: most of the incumbents examined have only been in office a short time. Roughly ninety per cent of the incumbents they examine have held office for less than five years, and the median time in office is 2.5 years.² Aware of this limitation, the authors’ theoretical predictions and key findings tend to be concerned with the first few years of the incumbent’s time in office (Singer and Carlin, 2013, fig. 1, 738).

Together, this small set of studies has made important headway in exploring the relationship between time in office and the economic vote, but important empirical questions are left unanswered. First, what is the long-term relationship between tenure and the economic vote? In many countries, the same incumbent has been in power for many years – sometimes more than a decade. While existing studies tell us something about how economic voting evolves through the first election cycle, we know little about what happens beyond that. Is there, for instance, a difference between an incumbent who has been in office for four years and another who has been in office for 10? At present we do not know. Second, is there a relationship between the extent to which objective economic conditions affect support for the incumbent and time in office? Existing studies have exclusively focused on how the effects of prospective versus retrospective economic perceptions change as time in office increases; however, we do not know whether the effect of objective economic conditions changes with time in office.

²See section S2 of the supplementary materials for the distribution of time in office in the Singer and Carlin (2013) study.

Theoretical expectations

On a theoretical level, existing studies have explained why tenure moderates the economic vote in terms of the clarity of responsibility hypothesis. First developed by Powell and Whitten (1993), this hypothesis suggests that the extent of economic voting depends on the extent to which governments are, or seem to be, responsible for economic outcomes (see also Hellwig, 2001; Duch and Stevenson, 2008; Fisher and Hobolt, 2010; Lobo and Lewis-Beck, 2012). The clarity of responsibility hypothesis is therefore primarily about why levels of economic voting might be different across countries, however, in relation to time in office, the hypothesis has also been used to predict that as an incumbent's time in office increases, so does the economic vote. The premise underlying this prediction is that more tenured incumbents will have had more time to enact policies that affect economic conditions (Nadeau, Niemi and Yoshinaka, 2002); and because voters are rational, they will be more inclined to hold the incumbent accountable for economic conditions when they reflect the incumbent's policies more strongly (Duch and Stevenson, 2008).

As mentioned in the introduction, however, rational voters do not necessarily hold their incumbent more accountable for economic conditions as time in office increases. To see this, we need to consult theories of Bayesian learning. These theories assert that the inferences people make are based on their *prior* beliefs, which are subsequently updated upon encountering new evidence (Gerber and Green, 1999; Granato et al., 2015). In the context of economic voting, this means that when voters evaluate an incumbent, they base their evaluation on their prior beliefs about the incumbent's quality, which they then update when observing the economic situation (the new evidence). A key prediction from theories of Bayesian learning is that the extent to which people rely on new evidence when forming their beliefs depends on how strong their prior beliefs are; if weak (i.e., based on little relevant information), then new evidence has a greater impact than if strong (i.e., based on extensive relevant information).

What implications does this have for the relationship between economic voting and time in office? Imagine that a new incumbent has just come into office and is running for re-election after four years. Because the incumbent is relatively new, voters' prior beliefs about their competence are not based on a lot of solid information. The economic situation around election

time is good, and since voters have no information to the contrary, they infer that the incumbent is probably a competent economic manager. The incumbent is re-elected for a second term and runs for re-election once again despite the economic situation having worsened. If voters were to put the same weight on the economic situation as before the previous election, they would likely conclude that the incumbent is probably an incompetent economic manager. Going into the second term, however, they believe that the incumbent is probably competent, because of the incumbent's economic record in the first term (their prior beliefs have strengthened). This ultimately moderates the voters' judgement, as they conclude that given the incumbent's history of producing both good and bad economic outcomes, they are probably a mediocre economic manager. Put differently, because voters take prior information about the incumbent into account, the economic situation has less impact on voters' beliefs about the incumbent when the incumbent runs for re-election a second time (this argument is formalized in section S1 of the supplementary materials, showing that this belief formation process is rational).

It is important to note that this type of learning will not necessarily reduce voters' reliance on economic conditions *in toto*. It is merely voters' reliance on *recent* economic conditions that decreases with time in office (because of the incumbent's mounting economic and non-economic record). In this way, it is only when measuring economic voting as the effect of recent economic conditions that we expect to see a sharp decrease due to learning. At the same time, however, the learning explanation does not necessarily entail that voters are able to recall economic conditions four or eight years ago. As long as voters continually update their assessment of the incumbent and can recall how certain they are of this assessment, they do not need to recall the exact economic conditions that led to this assessment (cf. Lodge, McGraw and Stroh, 1989).

If we combine the learning argument with the argument put forth in the existing literature relating to clarity of responsibility, we can say that as an incumbent's time in office increases, their increased responsibility for economic outcomes might give voters an extra incentive to rely on recent economic conditions when evaluating this incumbent, but, at the same time, increased certainty about the incumbent's quality might give voters a disincentive to rely on recent economic conditions. In section S1 of the supplementary materials, we present a formal model

in which voters learn about the incumbent while the incumbents' responsibility for economic conditions increases. The key take-away from this model is that it is impossible to arrive at a uniform theoretical prediction about whether economic voting will increase or decrease as time in office increases. Instead, the model shows that this will depend on exactly how much voters believe clarity of responsibility increases with time in office and how much voters believe they can generally infer about the incumbent's competence from recent economic conditions.

This theoretical discussion reveals that even when using the same baseline assumptions as the previous literature, namely that voters are rationally trying to re-elect the most competent incumbents, it is unclear that more experienced incumbents will be held more accountable for recent economic conditions. It is also possible to challenge the argument that economic voting increases with time in office using other types of explanations. Voters might home in on a first impression, for instance, and be unwilling to update this impression in light of contradictory evidence (i.e., a form of motivated reasoning). Alternatively, incumbents might grow more skilled at manipulating how voters perceive the economy as their time in office increases, dislodging the relationship between economic performance and incumbent support. In the following, we privilege the learning explanation, as it is relatively close to what is proposed in the previous literature, returning to a broader discussion of alternative explanations near the end of the article.

In conclusion, the theoretical argument for a positive relationship between economic voting and time in office is much more tenuous than hitherto assumed. This fact, coupled with the empirical limitations of the existing literature sketched out above, motivates the following empirical examination of the relationship between time in office and the economic vote.

Country-level evidence

We begin our exploration of the relationship between tenure and the economic vote by examining a country-level dataset of national elections. This type of data has been used to study variation in the economic vote in numerous other studies (cf. Powell and Whitten, 1993; Whitten and Palmer, 1999; Hellwig and Samuels, 2007; Kayser and Peress, 2012). The underlying assumption in these studies is that one can measure the level of economic voting by looking at

the correlation between economic indicators and electoral support for incumbents, and, in turn, use variations in this correlation to infer whether specific factors, such as tenure, change the degree to which voters hold politicians accountable for economic outcomes.

The chief advantage of this approach is that it sidesteps problems of endogeneity related to using voters' *perception* of the economy, by using objective economic indicators instead (Kramer 1983, Van der Brug, Van der Eijk and Franklin 2007, 26). The chief disadvantage is that the economic indicators used are country-level aggregates. These aggregates are noisy estimates of the economy as experienced by the individual voter (Duch and Stevenson, 2008, 26), and they are restricted to $n = 1$ per election, limiting the statistical power of the analysis. To overcome these problems, we use a relatively large sample of elections and, later in the article, we replicate our findings using an individual-level subjective measure of economic conditions.

Data and model

We use a dataset of 409 elections across 41 different countries (see section S2 of the supplementary materials for a list of the countries and elections). To get such a wide cross section of elections, we use and amend datasets already developed by Kayser and Peress (2012) and Hellwig and Samuels (2007). The key dependent variable is the percentage point change in electoral support for the *executive party* at legislative and executive elections (Δy).³ The executive party is the party which had primary control of the executive branch at the time of the election (i.e., the party of the prime minister or the president). Using the executive party rather than the parties in government is common in the literature (see, for instance, Duch and Stevenson 2008). Further, several studies have shown that the executive party is much more prone to electoral judgement than other governing parties (Van der Brug, Van der Eijk and Franklin, 2007; Fisher and Hobolt, 2010; Debus, Stegmaier and Tosun, 2014).

The key independent variables are economic growth (gr) and tenure (ten). Economic growth is a proxy for the economic conditions in the country and is measured as election-year

³In presidential systems, where the president is directly elected by the voters, we use both support for the president at presidential elections, as well as support for the president's party in the legislature. Since our data is primarily from parliamentary systems, we end up with 57 executive elections and 352 legislative elections. The legislative election results used are from the lower house if the legislature is bicameral.

GDP per capita growth (as a percentage, pct.). This indicator is used because it is available for a large cross section of elections and because it has been widely used in the previous literature. For elections occurring in the first six months of the year, we use economic growth in the year prior to the election year, for elections occurring in the final six months of the year we use economic growth in the election year. Data on economic growth was taken from the World Bank's database. Time in office is measured as the number of years since the current executive party came into power. We focus on the tenure of parties, since the main dependent variable is support for the executive party. Data on tenure is taken from the database of political institutions (Beck et al., 2001), and has been extended by the author to create better coverage for the electoral variables. The average level of tenure for the incumbent parties is six years, and the median is five years. See section S3 of the supplementary materials for descriptive statistics on all of the variables.

Turning to modelling, we set changes in electoral support as a linear function of tenure, economic growth and an interaction between the two. We also include a dummy variable indicating whether the election is executive or legislative (*exec*) to take into account that economic voting works differently in executive and legislative elections (Samuels, 2004; Hellwig and Samuels, 2008). As such, the baseline model we estimate can be described as:

$$\Delta y_{it} = \beta_0 + \beta_1 gr_{it} + \beta_2 ten_{it} + \gamma gr_{it} \times ten_{it} + \beta_3 exec_{it} + \epsilon_{it} \quad (1)$$

The coefficient of interest is γ , which signifies the change in the effect of economic growth as tenure increases. If the coefficient is negative, it means economic voting decreases with time in office. If the coefficient is positive, it means that economic voting increases with time in office. In the analysis below, we add various statistical controls to this baseline model, in order to try and sieve out any potential confounding.

Results

Table 1 presents key estimates from the model described in equation 1 in column one, using a maximum likelihood estimator to obtain country-clustered standard errors. The baseline growth and tenure effects should be interpreted as the effect of the variable when the other variable is

held at zero. The baseline effect of economic growth is thus estimated to be 0.68, and can be understood as the (theoretical) effect of economic growth on the change in electoral support if an incumbent runs for re-election without any tenure.

The variable of interest is the interaction between economic growth and tenure. The interaction is statistically significant and negative, suggesting that the positive effect of economic growth at the beginning of an executive party's tenure diminishes over time. Specifically, the estimate suggests that each year, the effect of economic growth on electoral support drops by 0.06 from the starting point of 0.68. Accordingly, this model suggests that after 12 years in office, the effect of economic growth is essentially zero.

How sensitive is this finding to different model specifications? To investigate this, the baseline model is extended in three ways. In column two, we show estimates from a model including year fixed effects. These take any global trends in growth, tenure and incumbent support into account. This leaves the interaction practically unchanged.

Table 1: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)
Economic growth	0.68*	0.78*	0.61*	0.90*
	(0.25)	(0.28)	(0.29)	(0.30)
Tenure	-0.05	-0.03	-0.28 ⁺	-0.25
	(0.15)	(0.13)	(0.15)	(0.17)
Economic growth × Tenure	-0.06*	-0.07*	-0.05	-0.06*
	(0.03)	(0.03)	(0.03)	(0.03)
Executive election	-2.80 ⁺	-1.81	-0.90	-4.12*
	(1.52)	(1.51)	(1.97)	(1.17)
Year FE		✓	✓	
Country FE			✓	✓
Leader FE				✓
Observations	409	409	409	409

Standard errors in parentheses

Standard errors clustered by country.

⁺ $p < 0.10$, * $p < 0.05$

The second extension is the addition of country fixed effects. These control for potentially confounding differences in tenure and economic growth across different countries. In column three we show estimates from a model including the country fixed effects, and while these do not change the interaction effect markedly, however, it does drop 0.01 from the baseline specification, leaving the estimate statistically insignificant.

The third extension is the inclusion of leader fixed effects: that is, a dummy for each of

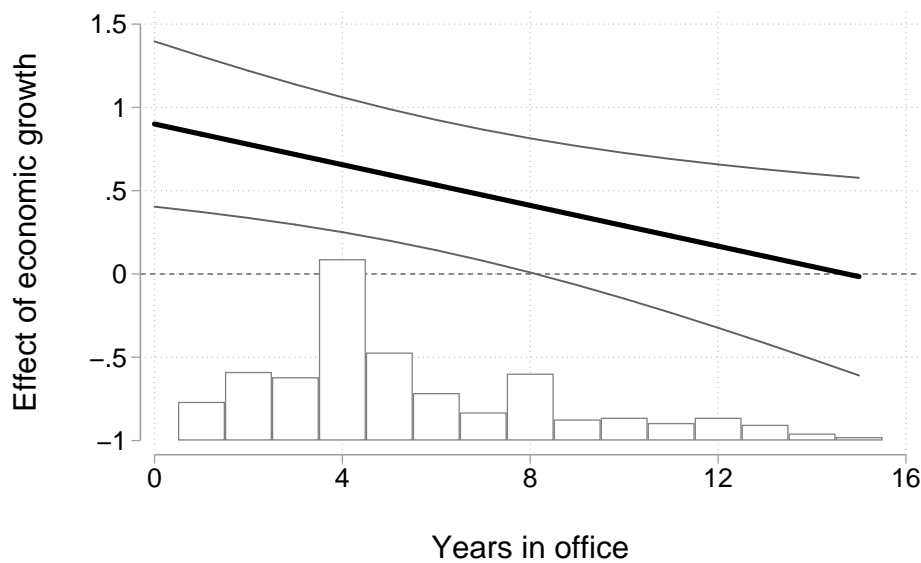


Figure 1: Marginal effects of economic growth on the change in electoral support for the executive party across levels of tenure with 90 pct. confidence intervals. We only plot tenure from the 5th to the 95th percentile. Derived from the model presented in column four of table 1. The bar plot shows the density of the variable years in office.

the 158 different incumbents in the dataset.⁴ Including the leader fixed effects means that any factors which are constant within the same incumbent are omitted when estimating the interaction. As such, the model estimates the interaction by comparing the degree to which the same executive party is punished (or rewarded) for the economic situation across elections, rather than comparing how harshly different executive parties with different levels of tenure are punished. The leader fixed effects make the year fixed effects less relevant, as we are now comparing levels of economic voting across a relatively short span of time (i.e., from the beginning to the end of an incumbent's tenure). Further, if they are included along with the leader fixed effects the degrees of freedom drop dramatically, and they are therefore omitted from the model with the leader fixed effects. The leader fixed effects are included in the model estimated in the fourth column of table 1. In this specification, the interaction estimate is virtually unchanged and statistically significant at the five percent level. Figure 1 plots the interaction using this specification.

In the supplementary materials, four additional robustness checks are laid out. First, we

⁴The leader fixed effects count an executive party which returns to power after being defeated as a new incumbent. For instance, the United Kingdom has five different incumbents in the dataset across 11 elections, in spite of the fact that only two different parties were in power across these elections.

look at whether the results are sensitive to using the average growth rate across the previous two years rather than simply the election-year. This does not substantially affect the results (see section S4 of the supplementary materials). Second, we look at whether adding additional controls for parliamentary and government composition affects the results. This means omitting a large number of elections for which this information is not available, increasing the standard errors attached to the estimates. However, the interaction estimates are not affected by adding the controls (see section S5 in the supplementary materials for details). Third, we look at whether a single country is driving the results. We find that the interaction estimates in columns one and two are not sensitive to excluding a single country. For the models in columns three and four, the exclusion of Luxembourg draws the interaction closer to zero, however, the interaction remains negative even when excluding this country (see section S6 of the supplementary materials for details). Fourth, we examine the interaction between economic growth and tenure in light of the different diagnostics suggested by Hainmueller, Mummolo and Xu (2016). This is done in section S7 of the supplementary materials. Overall, we find monotonicity in the average marginal effects and approximate linearity. However, we also find that the interaction variable is kurtotic, which hurts the reliability of the interaction estimate.

In conclusion, our analyses of the country-level data suggests that economic growth becomes a less important determinant of an executive party's vote share as the party's time in office increases. The long term relationship between economic voting and tenure is negative. Even so, the estimated interaction effect was not consistently statistically significant. This can, in part, be explained in terms of the low statistical power of country-level analyses. As mentioned above, the chief disadvantage of using country-level data is that it is quite noisy. To address this, we conduct a conceptual replication with individual-level data in the next section.

Before moving on to the replication, however, a few alternative explanations for the findings deserve to be discussed. For one, the negative correlation between tenure and economic voting might be due to strategic election-timing (Kayser, 2005; Samuels and Hellwig, 2010). That is, what we see above might simply be a reflection of the fact that certain types of leaders call early elections, and are therefore more likely to have less tenure when they run. In the supplementary material, we examine this alternative explanation by trying to control away election-timing

in two different ways: (1) by including a control for how often incumbents call elections and (2) by restricting the sample of elections to countries with fixed terms, where strategic election timing is not possible. We show that in the most demanding specification, which includes leader fixed effects, the interaction remains negative, is of the same approximate size, and is statistically significant (see section S8 of the supplementary materials for details). Another possible alternative explanation for our findings might be that the negative interaction can be explained by the fact that voters start out by holding the executive party electorally accountable, but then, as time goes by, voters start to hold government coalition partners accountable as well. To test whether this is the case, we estimate the models from table 1 separately for coalition governments and single party governments in section S9 of the supplementary materials. We identify no systematic differences across the two groups, suggesting that the negative interaction term cannot be explained by voters holding coalition partners more accountable as time in office increases. Finally, we look at whether our results can be ascribed to the fact that we study incumbent parties (e.g. Labour), rather than executive officers (e.g. Tony Blair). To do this, we add a control to the model for whether the incumbent party and the executive officer have different levels of tenure. The results, reported in section S10 of the supplementary materials, show that this does not shift the interaction estimates substantially, although the level of statistical significance drops from 0.05 to 0.1.

Individual-level evidence

Having established a relationship between economic voting and the tenure of the executive party at the country-level, we now explore the same relationship at the individual-level. In essence, we try to replicate our results, investigating whether voters rely less (more) on their perceptions of how the national economy has developed when deciding whether to vote for a more (less) experienced incumbent.

To do this, we closely follow a recent study by Nadeau, Lewis-Beck and Bélanger (2013), who investigated the relationship between national economic perceptions and the vote for executive parties in 10 Western European countries over the past 20 years. This gives us a well-established model of the economic vote, and allows us to simply extend this model to include

an interaction between tenure and economic perceptions.

It is important to explain, what we hope to gain from this replication. Because results in the comparative economic voting literature are known to be quite unstable (Paldam, 1991), it makes sense to replicate our findings using a new dataset. As such, if we get similar results using a new dataset, it makes it more likely that what we found above is a generalisable pattern. A replication of our country-level results using individual-level economic perceptions is particularly important in light of the studies described above (i.e., Singer and Carlin, 2013; Carey and Lebo, 2006), which have found a positive relationship between the effect of economic perceptions and tenure (at least in the short term). Finally, by using a set of surveys which run outside national election cycles for the replication, it is possible to sidestep any additional concerns one might have about the extent to which the negative relationship between tenure and economic voting is driven by election-timing.

Data and model

We use the European Election Studies (ESS). The EES is a survey of all EU countries which has been conducted every fifth year since 1979. They are fielded in the year of European Parliamentary elections, and their timing is therefore somewhat independent of national elections. We use the six Europe-wide studies which have been conducted since 1989 (i.e. '89, '94, '99, '04, '09 and '14), as these are the only surveys which include questions about national economic perceptions as well as vote intention in national elections. Moreover, we focus on the ten countries which have participated in all six survey-rounds: Denmark, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain and the United Kingdom (see section S2 of the supplementary materials for details about the sample used). This gives us 60 cross-sectional national surveys, which can be pooled to test whether the effect of economic perceptions on voter intentions depend on the tenure of the executive party.

Turning to indicators, the key dependent variable is whether respondents report that they would vote for the executive party if a national legislative election was held tomorrow (*reelect*).

The key independent variables are national economic perceptions and tenure. National economic perceptions (*NEP*) are measured using a question that asked respondents whether

the economic situation in their own country had gotten better or worse in the past 12 months. Responses were recorded on a five-point scale (except for the 1994 election study, which used a four-point scale). Tenure (*ten*) is measured as the number of years the executive party had been in power at the time of the survey. Once again, this variable is taken from Beck et al. (2001), and extended to provide complete coverage for the 60 surveys. The mean time in office of the incumbent parties is five years and the median is four years.

We use the same control variables as Nadeau, Lewis-Beck and Bélanger (2013) use for their standard economic voting models: respondents' ideology, self-perceived class, church attendance and a dummy indicating whether the respondent voted for the executive party at the last election.⁵ All variables were rescaled to go from zero to one, and recoded so that higher values were likely to mean a higher probability of voting for the executive party.⁶ See section S3 of the supplementary materials for the exact question wording and descriptive statistics.

We model the probability that voters will report an intention to vote for the executive party as a logistic function of national economic perceptions, tenure, an interaction between the two and the individual level controls. As such, the model we estimate can be described as:

$$Pr(reelect) = \text{logit}(\alpha_0 + \alpha_1 NEP_{ijt} + \alpha_2 ten_{it} + \gamma ten_{it} \times NEP_{ijt} + \mathbf{X}_{ijt}\beta + \epsilon_{ijt}) \quad (2)$$

where i indicates country, t year and j the respondent. \mathbf{X} is a row vector of the control variables *ideology*, *class*, *religion* and *reelect_{lag}* and β is a column vector of coefficients attached to these controls. The coefficient of interest is once again γ , which signifies the change in the effect of national economic perceptions as tenure increases. Based on the results for the country-level data, which showed that the effect of economic conditions decrease with time in office, we expect γ to be negative.

⁵We exclude a control used by Nadeau, Lewis-Beck and Bélanger (2013) measuring the time since the last election, since this variable is very closely related to tenure.

⁶In particular, religion, class, and ideology were coded differently across the different surveys to take differences in the ideological position of the executive into account.

Results

In the first column of table 2, we estimate the parameters of the model presented in equation 2 using a multi-level logistic regression. We cluster the standard errors at the country-level and estimate random effects at the survey-level.

Ideology, class, religiosity and lagged executive party vote all have the expected signs, and, apart from religiosity, are statistically significant. The baseline economy and tenure effects should (once again) be interpreted as the effect of the variable when the other variable is held at zero. The baseline effect of national economic perceptions is estimated to be 1.85, and can thus be understood as the (theoretical) effect of going from one end of the national economic perceptions scale to the other on the logit probability of voting for an executive party without any tenure.

The key estimate of interest is the one attached to the interaction between national economic perceptions and tenure, which signifies how the effects of national economic percepts change as tenure increases. The interaction-coefficient is statistically significant and negative, suggesting that the positive effect of the respondents' perception of the national economy at the beginning of an executive party's tenure diminishes as their time in office increases – an interaction effect which is qualitatively similar to the one found in the country-level data.

We also investigate whether these individual-level findings are sensitive to different model specifications. In column 2, we include leader fixed effects (cf. the country-level data). Estimating this more demanding model does not substantially change the results. The interaction remains negative and statistically significant. In column 3, we introduce survey fixed effects; a dummy for each of the sixty surveys. The interaction between national economic perceptions and tenure remains negative and statistically significant in this model as well.

In order to investigate the consequences this negative logistic interaction has for the effect of economic perceptions on the probability of people voting for the executive party, we derive average marginal effects of these perceptions across different levels of tenure based on the model with survey fixed effects. These average marginal effects are plotted in figure 2. This figure reveals that the average marginal effect of national economic perceptions is reduced as tenure increases. For an executive party with one year of tenure, the effect of a voter going

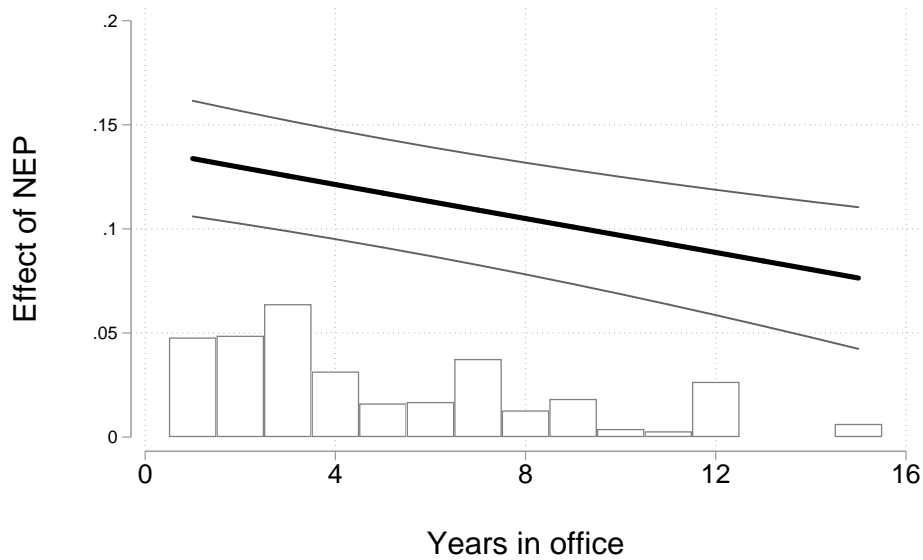
Table 2: Multi-level logit model of voting for executive party

	(1)	(2)	(3)
National Economic Perceptions	1.85*	1.89*	1.88*
	(0.22)	(0.22)	(0.22)
Tenure	0.05 ⁺	-0.02	
	(0.03)	(0.04)	
National Economic Perceptions × Tenure	-0.05*	-0.06*	-0.06*
	(0.02)	(0.02)	(0.02)
Lagged executive party vote	4.36*	4.37*	4.37*
	(0.16)	(0.16)	(0.16)
Ideology	2.31*	2.30*	2.32*
	(0.24)	(0.24)	(0.24)
Religiosity	0.13	0.14	0.14
	(0.16)	(0.16)	(0.16)
Class	0.30*	0.30 ⁺	0.30 ⁺
	(0.15)	(0.16)	(0.16)
Survey RE	✓	✓	✓
Leader FE		✓	✓
Survey FE			✓
Observations	39,556	39,556	39,556

Standard errors in parentheses

Standard errors clustered by country.

Tenure omitted in model (3) due to collinearity with Survey FE.

⁺ $p < 0.10$, * $p < 0.05$ **Figure 2:** Average marginal effects of national economic perceptions on the probability of voting for the executive party across levels of tenure with 90 pct. confidence intervals. We only plot tenure from the 5th to the 95th percentile. Derived from the model presented in column 3 of table 2. The bar plot shows the density of the years in office variable.

from one end of the economic perception scale to the other is an increase in the probability of voting for the executive party of about 14 percentage points. For an executive party with 15 years of tenure the same change leads to an increase of eight percentage points. A comparison of the average marginal effect at one years of tenure and fifteen year of tenure reveals that this decline is statistically significant ($p < 0.01$).

In the supplementary materials, we conduct a number of additional robustness tests for the interaction. We show that the results are robust to a two-step estimation procedure, cf. section S11. We show that the results are not sensitive to outliers, cf. section S6. We also examine the robustness of the interaction in light of Hainmueller, Mummolo and Xu (2016), cf. section S7.

In the model above, we use a standard retrospective question, which asks voters how their country's economy has developed in the past year. However, some studies of American politics have suggested that when an executive party has been in office for a while, retrospective concerns give way to prospective concerns (Nadeau and Lewis-Beck, 2001). That is, voters beliefs about how the economy is going to develop becomes more important than their beliefs about how the economy has developed in the past (although see Carey and Lebo, 2006; Singer and Carlin, 2013, for the opposite argument). Based on this, one might suspect that the reason we see a drop in the effect of retrospective economic perceptions is that the *type* of perceptions which matter at the beginning of the term are different from those that matter at the end of term. To test whether this is the case, we examine the relationship between prospective national economic perceptions and time in office in section S12 of the supplementary materials. We find that the effect of prospective economic perceptions are not moderated by time in office. As such, there are no signs that some other type of economic percepts become more important as the effect of retrospective national economic percepts subside.

Overall, the results seem to line up nicely with what we found in the country-level data, however, there is one important inconsistency. While both datasets show the importance of the economic vote decreasing with time in office, the decline seems to be less dramatic in the individual-level data. In the country-level data, the estimated effect of the economy is essentially zero after 15 years (cf. figure 1). In the individual-level data, there is still a substantial amount of economic voting left after 15 years (cf. figure 2). One explanation for this inconsis-

tency is that the individual-level data overestimates the amount of economic voting across all levels of tenure.

There are studies suggesting that we generally overestimate economic voting when using voters' perceptions of the economy rather than objective economic conditions (Evans and Andersen, 2006; Evans and Pickup, 2010; although see Lewis-Beck, Nadeau and Elias, 2008). These studies argue that partisan voters adjust their perceptions of the economy based on their underlying party preferences, leading to inflated estimates of the economic vote (Tilley and Hobolt, 2011; Gerber and Huber, 2010). Similarly, Parker-Stephen (2013) finds that partisan disagreement about economic conditions is prevalent, especially when responsibility for economic conditions stands clear for voters. That is, economic perceptions might be "partisanship, thinly disguised" (Kramer, 1983; as quoted in Lebo and Cassino, 2007). This might explain the discrepancy between the individual-level and country-level results.

In section S13 of the supplementary materials, we try to correct for this type of partisan-induced endogeneity in two ways. First, we examine what happens when we exclude potential pro-executive partisans. Second, we use objective economic conditions as instruments of national economic perceptions. In both cases, we find that correcting for endogeneity tends to align the individual-level results with the country-level data, suggesting that the immediate divergence between the country-level and individual-level results can be explained by the methodological idiosyncrasies of how the economic vote is measured in the two different datasets.

Taken together, the individual-level findings reaffirm the country-level findings: as an incumbent party's time in office increases, the economy becomes less predictive of their electoral fortune.

Subnational Evidence

Thus far, our empirical analysis suggests that for a large cross-section of countries and elections, there is a negative long-term relationship between economic voting and time in office. Why is this the case? In our discussion of theoretical expectations, we advanced one reason why incumbent tenure might be driving down economic voting: voters' stock of information

about the incumbent naturally increases with time in office. Following models of Bayesian learning, we surmised that this accumulation of information would strengthen voters' beliefs about the incumbent, making them less malleable to the economic situation. In other words, the economic situation plays a lesser role in shaping voters' beliefs about an incumbent as time in office increases because the economic situation becomes a smaller part of the total stock of relevant information available to voters about the incumbent. In this third and final study, we examine this potential explanation for our country-level and individual-level findings in greater detail.

To do this, we focus on a set of municipal elections following a 2005 jurisdictional reform of local government in Denmark, in which a large number of municipalities merged (for details on the reform, see Lassen and Serritzlew, 2011; Bhatti and Hansen, 2011; Blom-Hansen, Houlberg and Serritzlew, 2014). This reform allows us to isolate variation in voters stock of information about the incumbent – the key factor we believe is driving down economic voting as time in office increases, while holding attributes of the political system, the election, and the incumbent constant. In particular, this reform allows us to separate the amount of experience voters have with an incumbent from the amount of experience an incumbent has with being in office.

To see how we can use the reform in this way, consider the following stylised example. Municipality 1 and municipality 2 merge as a result of the jurisdictional reform. Before the merger, party A was the mayoral party in municipality 1, whereas party B was the mayoral party in municipality 2. In 2005, these municipalities merge and have to elect one, common mayoral party. They elect party A. In the following election (i.e., 2009), the voters in the newly merged municipality have to decide whether to re-elect the incumbent party A. The voters who originally lived in municipality 1 have accumulated information about this mayoral party both before and after the merger. The voters who originally lived in municipality 2 have only accumulated information about this mayoral party after the merger. Figure 3 visualizes this example.

What are our expectations if voters' stock of information drives down the economic vote? In terms of the stylized example, we should expect economic voting to be less prevalent among voters who originally lived in municipality 1, and more prevalent among those who originally

lived in municipality 2. Conversely, if voters' stock of information is not important, we should expect no difference across those who originally lived in municipality 1 and those who originally lived in municipality 2. Importantly, if we find a difference between the voters who originally lived in municipalities 1 and 2, we know that this difference cannot be attributable to the incumbent (who is the same) or the type of political system (which is also the same). As such, by analysing the electoral consequences of the jurisdictional reform process, we will be able to conduct a more clean test of whether voters growing stock of information does matter for economic voting, and, in turn, find out whether it is plausible that this is the mechanism underlying the country-level and individual-level results.

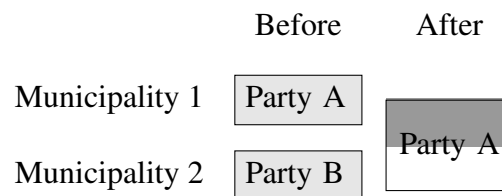


Figure 3: A stylised example of the consequences of the jurisdictional reform process. The shading denotes the electorate's stock of information about the incumbent mayoral party before the 2009 election.

Data and model

To study the consequences of the jurisdictional reform, we examine election returns from the 2009 Danish municipal elections. In particular, we construct a dataset based on returns from 1,465 different precincts (i.e., polling places). Each precinct lies within one of 239 original municipalities (pre-reform) and 66 merged municipalities (post-reform). We collected this data from the Danish Election database.⁷ We do not use data from precincts which lie in municipalities that did not merge as a result of the reform, because these do not exhibit the type of within-municipality variation we are interested in, cf. figure 3.

In Danish municipalities mayors are not directly elected, but are instead appointed by a majority of the members in the city council. Often, this means a coalition of two or three ideologically similar parties decide to appoint a mayor from the largest party (O'Leary, Grofman and Elklit, 2005). Accordingly, the key dependent variable is change in electoral support for

⁷For details see <http://valgdata.ps.au.dk/en/>

the incumbent mayoral party at city council elections between 2009 and 2005 (Δy).

The key independent variables are changes in the municipal unemployment rate from 2007 to 2009⁸ ($\Delta unem$), and a dummy indicating whether the voters in the precinct had a different incumbent before and after the reform (*newinc*). Note that because all of the municipalities studied here merged with other municipalities in 2005, the variable *newinc* varies within the merged municipalities. Section S3 of the supplementary materials includes descriptive statistics on all variables.

Turning to modelling, we set the change in support for the mayoral party in each precinct as a linear function of whether voters had a new incumbent, changes in municipal unemployment levels, and an interaction between the two. We also include post-reform municipality fixed effects (θ), as well as a control for the level of support for the mayor at the last election (*lagy*). This leaves us with the following baseline model:

$$\Delta y_{ij} = \beta_0 + \beta_1 newinc_{ij} + \beta_2 unem_j + \gamma newinc_{ij} \times unem_j + \beta_4 lagy_{ij} + \theta_j + \epsilon_{ij} \quad (3)$$

where i indicates precinct and j indicates the post-reform municipality. The key estimate of interest is once again γ , which denotes the difference in the effect of the unemployment rate between those voters who have gotten a new incumbent and those who have not. We expect γ to be negative, so that increases in the unemployment rate have a larger negative effect if the voters in the precinct have gotten a new incumbent, and thus have less (prior) information about the incumbent. We include the municipality fixed effects, θ , to make sure that we are only comparing electorates which have the same incumbent (i.e., live in the same post-reform municipality). We also include support for the mayoral party in the last election ('05), because we want to take the mayoral party's baseline level of support in the precinct into account.

⁸Because of the large redistricting reform, there is no comparable data on the level of unemployment in '05 or '06 at the municipal level, which is why we look at changes from '07 to '09.

Results

In the first column of table 3, we estimate the model presented in equation 3, using a maximum likelihood estimator to obtain municipality-clustered standard errors. Note that the baseline effect of increases in the municipal unemployment rate is not estimated, because the baseline is perfectly collinear with the post-reform municipality fixed effect.

The key estimate of interest is the one attached to the interaction between increases in the unemployment rate and whether the incumbent is new to the electorate. Consistent with our expectations, the interaction estimate is negative and statistically significant. This suggests that increases in the unemployment rate have a larger impact on support for the incumbent mayoral party among voters who have less experience with the incumbent mayor.

Table 3: Linear regression of change in support for the incumbent mayoral party

	(1)	(2)	(3)
New incumbent	1.92 (2.69)	1.91 (2.70)	1.44 (2.65)
Increase in unemployment rate × New incumbent	-2.13* (1.07)	-2.14* (1.08)	-2.08* (1.02)
Support for mayoral party 05	-0.63* (0.08)	-0.63* (0.07)	-0.63* (0.07)
Right wing mayor			-10.63* (0.95)
Proportion of votes for right wing parties			19.45* (7.69)
Turnout		5.83 (7.10)	-1.96 (5.89)
Log of eligible voters		-0.31 (0.36)	0.12 (0.30)
Municipality FE	✓	✓	✓
Observations	1,465	1,465	1,465

Standard errors in parentheses

Standard errors clustered by municipality.

⁺ $p < 0.10$, * $p < 0.05$

In figure 4, we illustrate this interaction effect by plotting the difference in support for the mayoral party between precincts where the voters have a lot of experience with the mayor (both pre- and post-reform) and precincts where the voters have little experience with the mayor (only post-reform), across increases in the unemployment rate.⁹ The figure shows that in municipalities where the unemployment rate did not increase, the mayoral party was just as popular in

⁹The 2009 elections were held just as the effects of the financial crisis were starting to kick in. Therefore, the unemployment rate increased for all municipalities in this period.

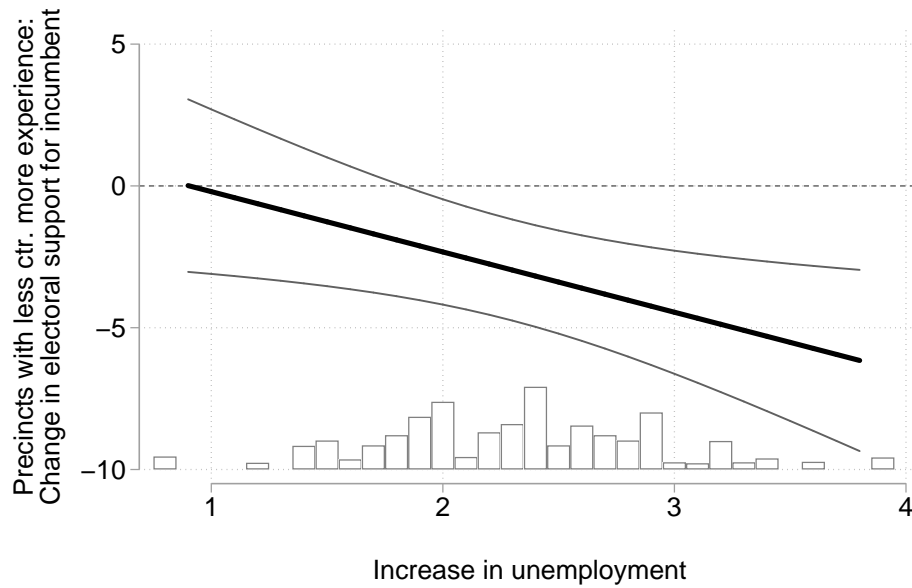


Figure 4: Differences in electoral support for the mayoral party between the precincts that had the same incumbent before and after the reform, and the precincts which did not, across changes in the municipal unemployment rate with 90 pct. confidence intervals. Derived from the model presented in column one of table 3. The bar plot shows the density of the variable increases in the unemployment rate.

precincts where voters had little experience with the incumbent as in precincts where the voters had a lot of experience with the incumbent. However, in municipalities which saw the unemployment rate increase a lot, the mayor was way less popular among those who did not know the mayoral party well. Put differently, those *without* a lot of prior information about the mayoral party seemed to be much more affected by recent increases in local levels of unemployment than those *with* a lot of prior information.

As for the country-level and the individual-level results, we examine whether these subnational results are sensitive to alternative specifications. In particular, we are interested in seeing whether characteristics of the precincts might explain the differences in economic voting between those who have experience with the incumbent mayor and those who do not. To control for the demographic characteristics of the precincts, we add controls for turnout and the size of the electorate in the second column of table 3. To control for the ideological make-up of the precincts, we add controls for whether the mayoral party is right-wing and for the proportion of voters who voted for a right-wing party in the third column. The inclusion of these controls does not affect the interaction estimate. It remains statistically significant, negative and of the

same approximate size. In the supplementary materials we also investigate the robustness of the results. In particular, we examine whether the interaction estimate is sensitivity to outliers in section S6, and whether the interaction is robust to the checks suggested by Hainmueller, Mummolo and Xu (2016) in section S7.

These results tell us that voters' stock of information about the incumbent affect whether they 'vote economically'. That is, voters who have more time to get to know an incumbent, like those voters who had the same mayoral party both before and after the reform, are less likely to shift their support to or away from the incumbent based on how the economy is doing around election time. While this does not definitively show that voters growing stock of information is the only force driving down the economic vote as time in office increases, these findings does make it more plausible that it is one such force.

Some alternative explanations

The three studies laid out above all suggest that as time in office increases, the effect of recent economic conditions on support for the incumbent decreases. We have argued thus far that the principal reason for this decline is that as time in office increases, so does the stock of relevant information voters can use to assess the incumbent's quality, which renders recent economic conditions relatively less important. That is, voter learning is what crowds out economic voting. However, one could also think of other reasons that incumbent tenure crowds out economic voting. In this section, we briefly discuss the merits of two such explanations, which we derive from the existing literature on economic voting.

How voters perceive the economy is filtered through political elites such as the media (Soroka, 2006) and parties (Bisgaard and Slothuus, 2017). Following this general idea, one might imagine that as an incumbent becomes more experienced and well-known, they can more easily shape how voters perceive the economy. If experienced incumbents are able to dislodge voters' perception of the economy from the actual economic situation in this way, the result would be a negative relationship between time in office and the economic vote. However, this persuasion explanation does not fit well with parts of the evidence presented above. For one, this explanation offers no account of why voters, who are not persuaded by experienced

incumbents to perceive the economy as doing well, should neglect to hold the incumbent accountable for adverse economic conditions. In the individual-level study, however, we found that the difference in incumbent support between those who perceive the economy to be doing well as opposed to poorly decreases with time in office. Further, in the subnational study, we identified differences in terms of how accountable the same incumbent was held by voters across how much experience these voters had with the incumbent. If we think the incumbent's persuasive abilities is what is crowding out economic voting, then we should not expect to find these differences.

Numerous studies have shown that once voters have developed a set of beliefs about a political entity, they are likely to ignore evidence casting doubt on this belief (e.g., Lodge and Taber, 2013; Evans and Andersen, 2006); this is conventionally referred to as confirmation bias or motivated reasoning. If one assumes that when an incumbent is first elected, voters have very few preconceptions about said incumbent, then voters' beliefs are likely to be malleable in this period. Specifically, one of the things these initial beliefs might be shaped by is the state of the economy. Once an early impression is formed, however, voters' beliefs should no longer be responsive to economic performance due to confirmation bias. This might be why we find that the economy matters less as time in office increases.

This alternative explanation is harder to dismiss, partly due to its similarity to the learning explanation. To truly disentangle the two, a more controlled setting is required than offered by the observational studies in this article (for an example of how this might be done, see Hill, 2017). However, one piece of evidence from the individual-level study challenges the idea that confirmation bias is driving down the economic vote. In particular, we found that the reduction in economic voting was about the same for pro-government partisans as for non-partisans (cf. section S13 of the supplementary materials). If the reduction in economic voting was the result of confirmation bias, we would, *ceteris paribus*, expect a greater reduction among those who already had an allegiance to the incumbent party.

In sum, we think that both the persuasion explanation and the confirmation bias explanation fall short of learning in terms of explaining why incumbent tenure crowds out economic voting. Even so, we want to note that the primary goal of this article has been to examine whether

incumbent tenure amplifies or attenuates economic voting, not to find out the exact causal mechanism which underlies this relationship. We are therefore the first to recognize that the inferences made in this section remain tenuous.

Conclusion

The British parliamentary elections of 1997 and 2001 featured two very different incumbents. One was the Conservative Party, in power for eighteen years and headed by John Major, who had been a cabinet member for the previous ten years, seven as the Prime Minister. The other was the Labour Party, in power for four years with Prime Minister Tony Blair and a new cabinet. As British voters searched for clues in 1997 and 2001 about the quality of the incumbent, some probably considered the economic situation. When these voters decided the extent to which the economic situation should be leveraged in their eventual electoral decision, did the fact that these incumbents were so different matter? Did the fact that the incumbent up for election in 1997 had been in power for almost two decades make voters consider the economy differently than in 2001, when the incumbent had only been in power for four years? The answers to these questions are not easy to find in the existing literature on economic voting, which has generally paid little attention to how differences in incumbent tenure might moderate the economic vote.

This article has tried to amend this by providing a thorough empirical investigation of the long-term relationship between economic voting and time in office. Specifically, we have shown that the electoral support for executive parties becomes more independent of the economic situation the longer they have been in office. This finding was arrived at using two markedly different datasets; one at the country level the other at the individual level, one using objective measures of economic conditions and the other using a subjective measure.

To explain why the relationship between economic voting decreases as incumbents' time in office increases, we advanced a theoretical argument predicated on Bayesian learning. It follows from Bayesian learning that if voters have abundant information about an incumbent, then their evaluation of said incumbent is less likely to be swayed by the economic situation around election time. Conversely, if voters have less information, they are willing to let the economic situation around election time count for more. Since voters naturally accumulate

more information about the incumbent as time in office increases, the economic situation should matter less to how voters evaluate the incumbent, effectively driving down economic voting. Returning to the British case, our study thus suggests that voters relied more on recent economic conditions when evaluating the relatively new Labour administration than when evaluating the relatively old Conservative administration, as they had come to know the Conservative Party quite well, whereas they had less to go on, apart from the economic situation, when evaluating the Labour incumbent.

In order to examine the empirical implications of this argument in greater detail, we conducted an additional study of Danish municipal elections. More specifically, we studied the level of economic voting following a large redistricting reform, which created within-municipality differences in the amount of experience the electorate had with the same incumbent mayoral party. In line with our theoretical argument, we found that voters who had less experience with an incumbent were more likely to hold the incumbent accountable for local levels of unemployment.

Our findings are noteworthy for at least two reasons. First, incumbents are likely to be more responsible for the state of economic conditions as their time in office increases. Accordingly, following the large literature on clarity of responsibility, we would expect incumbents to be held more accountable for their economic performance as their time in office increases – not less. However, our results suggest that other factors, like Bayesian learning, are more important than any potential changes in the clarity of responsibility that occur as time in office increases. Second, previous studies have found that incumbent support becomes more dependent on recent economic conditions in the first few years of an incumbent's time in office. Our study does not find any signs of this – instead, we consistently find that the importance of recent economic conditions decreases with time in office.

This article has examined a large subset of countries and elections, increasing the generalizability of the results. Even so, the results have mainly focused on advanced democracies, delimiting the scope of inference to this type of countries. A consequence of primarily studying advanced democracies is that one tends to examine more stable political systems. In the present context, this translates into studying incumbents who have, relatively speaking, served for a

long time. This might partly explain why our findings diverge from the findings in previous research (e.g., Singer and Carlin 2013). Another important limitation relates to *why* economic voting decreases with time in office – i.e., the mechanism. As mentioned in our discussion of alternative explanations, the evidence for the learning explanation is far from definitive, and other factors, most prominently confirmation bias on the part of the voters, might also have a role to play. Future research might be able to uncover the causal mechanisms underlying the relationship between time in office and economic voting by exploring the relationship in more controlled experimental settings (for work along these lines, see Mitchell, 2012).

References

- Abramowitz, Alan I. 1988. "An improved model for predicting presidential election outcomes." *PS: Political Science & Politics* 21(4):843–847.
- Achen, Christopher H. 2012. When Is Myopic Retrospection Rational? In *APSA 2012 Annual Meeting Paper*.
- Anderson, Cameron D. 2006. "Economic voting and multilevel governance: a comparative individual-level analysis." *American Journal of Political Science* 50(2):449–463.
- Beck, Thorsten, George Clarke, Alberto Groff, Philip Keefer and Patrick Walsh. 2001. "New tools in comparative political economy: The Database of Political Institutions." *the world bank economic review* 15(1):165–176.
- Bhatti, Yosef and Kasper M Hansen. 2011. "Who 'marries' whom? The influence of societal connectedness, economic and political homogeneity, and population size on jurisdictional consolidations." *European Journal of Political Research* 50(2):212–238.
- Bisgaard, Martin and Rune Slothuus. 2017. "Partisan Elites as Culprits? How Party Cues Shape Partisan Perceptual Gaps." *American Journal of Political Science*.
- Blom-Hansen, Jens, Kurt Houlberg and Søren Serritzlew. 2014. "Size, democracy, and the economic costs of running the political system." *American Journal of Political Science* 58(4):790–803.
- Breen, Richard. 1999. "Beliefs, rational choice and Bayesian learning." *Rationality and Society* 11(4):463–479.
- Carey, Sean and Matthew J Lebo. 2006. "Election cycles and the economic voter." *Political Research Quarterly* 59(4):543–556.
- Debus, Marc, Mary Stegmaier and Jale Tosun. 2014. "Economic voting under coalition governments: Evidence from Germany." *Political Science Research and Methods* 2(01):49–67.
- Duch, R.M. and R.T. Stevenson. 2008. *The Economic Vote: How Political and Economic Institutions Condition Election Results*. Cambridge University Press.
- Evans, Geoffrey and Mark Pickup. 2010. "Reversing the causal arrow: The political conditioning of economic perceptions in the 2000–2004 US presidential election cycle." *The Journal of Politics* 72(04):1236–1251.
- Evans, Geoffrey and Robert Andersen. 2006. "The political conditioning of economic perceptions." *Journal of Politics* 68(1):194–207.
- Fisher, Stephen D and Sara B Hobolt. 2010. "Coalition government and electoral accountability." *Electoral studies* 29(3):358–369.

- Gerber, Alan and Donald Green. 1999. "Misperceptions about perceptual bias." *Annual review of political science* 2(1):189–210.
- Gerber, Alan S and Gregory A Huber. 2010. "Partisanship, political control, and economic assessments." *American Journal of Political Science* 54(1):153–173.
- Granato, Jim, Cong Huang, Kwok Wai Wan, Ching-Hsing Wang and Man Chiu Sunny Wong. 2015. "EITM: An assessment with an application to economic voting." *Electoral Studies* 40:372–393.
- Hainmueller, Jens, Jonathan Mummolo and Yiqing Xu. 2016. "How Much Should We Trust Estimates from Multiplicative Interaction Models? Simple Tools to Improve Empirical Practice." <http://web.stanford.edu/~jhain/research.htm>. Accessed: 2016-05-23.
- Healy, Andrew and Gabriel S Lenz. 2014. "Substituting the End for the Whole: Why Voters Respond Primarily to the Election-Year Economy." *American Journal of Political Science* 58(1):31–47.
- Healy, Andrew and Neil Malhotra. 2009. "Myopic voters and natural disaster policy." *American Political Science Review* 103(03):387–406.
- Healy, Andrew and Neil Malhotra. 2013. "Retrospective Voting Reconsidered." *Annual Review of Political Science* 16:285–306.
- Hellwig, Timothy and Dani M Marinova. 2014. "More Misinformed than Myopic: Economic Retrospections and the Voter's Time Horizon." *Political Behavior* pp. 1–23.
- Hellwig, Timothy and David Samuels. 2007. "Voting in Open Economies The Electoral Consequences of Globalization." *Comparative Political Studies* 40(3):283–306.
- Hellwig, Timothy and David Samuels. 2008. "Electoral accountability and the variety of democratic regimes." *British Journal of Political Science* 38(01):65–90.
- Hellwig, Timothy T. 2001. "Interdependence, government constraints, and economic voting." *The Journal of Politics* 63(04):1141–1162.
- Hill, Seth J. 2017. "Learning together slowly: Bayesian learning about political facts." *The Journal of Politics* 79(4):1403–1418.
- Hobolt, Sara, James Tilley and Susan Banducci. 2013. "Clarity of responsibility: How government cohesion conditions performance voting." *European journal of political research* 52(2):164–187.
- Jonas, Eva, Stefan Schulz-Hardt, Dieter Frey and Norman Thelen. 2001. "Confirmation bias in sequential information search after preliminary decisions: an expansion of dissonance theoretical research on selective exposure to information." *Journal of personality and social psychology* 80(4):557.
- Kayser, Mark Andreas. 2005. "Who surfs, who manipulates? The determinants of opportunistic election timing and electorally motivated economic intervention." *American Political Science Review* 99(01):17–27.
- Kayser, Mark Andreas and Christopher Wlezien. 2011. "Performance pressure: Patterns of partisanship and the economic vote." *European Journal of Political Research* 50(3):365–394.
- Kayser, Mark Andreas and Michael Peress. 2012. "Benchmarking across borders: Electoral accountability and the necessity of comparison." *American Political Science Review* 106(03):661–684.
- Kramer, Gerald H. 1983. "The ecological fallacy revisited: Aggregate-versus individual-level findings on economics and elections, and sociotropic voting." *American Political Science Review* 77(01):92–111.
- Krause, George A and Benjamin F Melusky. 2014. "Retrospective Economic Voting and the Intertemporal Dynamics of Electoral Accountability in the American States." *The Journal of Politics* 76(04):1102–1115.
- Lanoue, David J. 1994. "Retrospective and prospective voting in presidential-year elections." *Political Research Quarterly* 47(1):193–205.

- Lassen, David Dreyer and Søren Serritzlew. 2011. "Jurisdiction size and local democracy: Evidence on internal political efficacy from large-scale municipal reform." *American Political Science Review* 105(02):238–258.
- Lebo, Matthew J and Daniel Cassino. 2007. "The aggregated consequences of motivated reasoning and the dynamics of partisan presidential approval." *Political Psychology* 28(6):719–746.
- Lebo, Matthew J and Janet M Box-Steffensmeier. 2008. "Dynamic conditional correlations in political science." *American Journal of Political Science* 52(3):688–704.
- Lewis-Beck, Michael S. 1990. *Economics and elections: The major Western democracies*. University of Michigan Press.
- Lewis-Beck, Michael S and Mary 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.
- Lewis-Beck, Michael S, Richard Nadeau and Angelo Elias. 2008. "Economics, party, and the vote: Causality issues and panel data." *American Journal of Political Science* 52(1):84–95.
- Lobo, Marina Costa and Michael S Lewis-Beck. 2012. "The integration hypothesis: How the European Union shapes economic voting." *Electoral Studies* 31(3):522–528.
- Lodge, Milton and Charles S Taber. 2013. *The rationalizing voter*. Cambridge University Press.
- Lodge, Milton, Kathleen M McGraw and Patrick Stroh. 1989. "An impression-driven model of candidate evaluation." *American Political Science Review* 83(2):399–419.
- Malhotra, Neil and Alexander G Kuo. 2008. "Attributing blame: The public's response to Hurricane Katrina." *The Journal of Politics* 70(01):120–135.
- Mitchell, Dona-Gene. 2012. "It's about time: The lifespan of information effects in a multiweek campaign." *American Journal of Political Science* 56(2):298–311.
- Mueller, John E. 1970. "Presidential popularity from Truman to Johnson." *American Political Science Review* 64(01):18–34.
- Nadeau, Richard and Michael S Lewis-Beck. 2001. "National economic voting in US presidential elections." *Journal of Politics* 63(1):159–181.
- Nadeau, Richard, Michael S Lewis-Beck and Éric Bélanger. 2013. "Economics and elections revisited." *Comparative Political Studies* 46(5):551–573.
- Nadeau, Richard, Richard G Niemi and Antoine Yoshinaka. 2002. "A cross-national analysis of economic voting: taking account of the political context across time and nations." *Electoral Studies* 21(3):403–423.
- Nannestad, Peter and Martin 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.
- Nordhaus, William D. 1975. "The political business cycle." *The Review of Economic Studies* pp. 169–190.
- O'Leary, Brendan, Bernard Grofman and Jørgen Elklit. 2005. "Divisor Methods for Sequential Portfolio Allocation in Multi-Party Executive Bodies: Evidence from Northern Ireland and Denmark." *American Journal of Political Science* 49(1):198–211.
- Paldam, Martin. 1991. How robust is the vote function? A study of seventeen nations over four decades. In *Economics and politics: the calculus of support*. University of Michigan Press Ann Arbor pp. 9–31.
- Paldam, Martin and Peter Skott. 1995. "A rational-voter explanation of the cost of ruling." *Public Choice* 83(1-2):159–172.
- Parker-Stephen, Evan. 2013. "Clarity of responsibility and economic evaluations." *Electoral Studies* 32(3):506–511.

- Powell, G Bingham and Guy D Whitten. 1993. "A cross-national analysis of economic voting: taking account of the political context." *American Journal of Political Science* 37(02):391–414.
- Redlawsk, David P. 2006. Motivated reasoning, affect, and the role of memory in voter decision making. In *Feeling Politics*. Springer pp. 87–107.
- Samuels, David. 2004. "Presidentialism and accountability for the economy in comparative perspective." *American Political Science Review* 98(03):425–436.
- Samuels, David and Timothy Hellwig. 2010. "Elections and accountability for the economy: a conceptual and empirical reassessment." *Journal of Elections, Public Opinion and Parties* 20(4):393–419.
- Singer, Matthew M and Ryan E Carlin. 2013. "Context counts: The election cycle, development, and the nature of economic voting." *The Journal of Politics* 75(03):730–742.
- Smith, Alastair. 2003. "Election timing in majoritarian parliaments." *British Journal of Political Science* 33(03):397–418.
- Soroka, Stuart N. 2006. "Good news and bad news: Asymmetric responses to economic information." *Journal of Politics* 68(2):372–385.
- Soroka, Stuart N, Dominik A Stecula and Christopher Wlezien. 2015. "It's (Change in) the (Future) Economy, Stupid: Economic Indicators, the Media, and Public Opinion." *American Journal of Political Science* 59(2):457–474.
- Stegmaier, Mary and Laron K Williams. 2016. "Forecasting the 2015 British election through party popularity functions." *Electoral Studies* 41:260–263.
- Stevenson, Randolph T. 2002. "The cost of ruling, cabinet duration, and the "median-gap" model." *Public Choice* 113(1-2):157–178.
- Tilley, James and Sara B Hobolt. 2011. "Is the government to blame? An experimental test of how partisanship shapes perceptions of performance and responsibility." *The Journal of Politics* 73(02):316–330.
- Van der Brug, Wouter, Cees Van der Eijk and Mark N Franklin. 2007. *The economy and the vote: Economic conditions and elections in fifteen countries*. Cambridge University Press Cambridge.
- Vries, Catherine E and Nathalie Giger. 2014. "Holding governments accountable? Individual heterogeneity in performance voting." *European Journal of Political Research* 53(2):345–362.
- Whitten, Guy D and Harvey D Palmer. 1999. "Cross-national analyses of economic voting." *Electoral Studies* 18(1):49–67.

Supplementary materials for:

Incumbent Tenure Crowds Out Economic Voting

S1: A formalisation of the Bayesian learning model

In this model we examine a set of voters who have to decide whether to re-elect an incumbent. We assume that the voters are more likely to re-elect the incumbent if voters believe the incumbent is more competent. Given this assumption, the voters' goal is to construct a set of rational beliefs about the incumbent's competence given the available evidence. Specifically, imagine an incumbent I which was elected at $t = 0$, and who is now up for re-election at $t = 1$. We denote the incumbent's competence as C_I . Based on the voters' prior experiences with other incumbents, they start off with a normally distributed prior belief about C_I , which we standardise to have a mean of zero with a variance of 1.

Since voters are interested in the incumbent's competence, C_I , the voters try to infer how competent the politician is based on the economic situation, y , which is affected by C_I . However, the economy is also affected by a non-competence related shock ϵ , which is independently and identically drawn in each period from a normal distribution with mean zero and variance σ_ϵ^2 . Accordingly, the economic situation at $t = 1$ can be defined as:

$$y_1 = C_I + \epsilon_1 \quad (4)$$

In this equation, voters only observe y_1 ; however, voters know the distribution the non-competence related shock is drawn from. As such, voters face a signal extraction problem, which can be solved by using the Bayes rule to update their prior beliefs about C_I using y_1 . This leaves voters with the following posterior beliefs about C_I :

$$C_I|y \sim N\left(\frac{1}{\sigma_\epsilon^2 + 1}y_1; \frac{\sigma_\epsilon^2}{\sigma_\epsilon^2 + 1}\right) \quad (5)$$

Equation 5 tells us that voters' beliefs about the incumbent's expected competence are improving in y_1 . That is, a better economic situation leads the voter to infer that the incumbent

is likely to be more competent. Specifically, the effect of a one unit increase in y_1 on expected competence is $\frac{1}{1+\sigma_\epsilon^2}$.

From this, we can also see that effect of the economic situation on beliefs about competence becomes smaller as σ_ϵ^2 becomes larger. That is, as the variation in non-competence related shocks to the economy increases, it becomes more likely that any variation in the economic situation is due to non-competence related shocks, and accordingly the economy becomes a less efficient estimator of the incumbent's competence. In effect, σ_ϵ^2 can be thought of as being an inverse measure of clarity of responsibility. If σ_ϵ^2 is large, the incumbent is probably not responsible for changes in economic conditions, if σ_ϵ^2 is small the incumbent is probably responsible for changes in economic conditions.¹⁰

Imagine the incumbent is re-elected in $t = 1$. In period $t = 2$, the voters have to decide once again whether to vote for the incumbent. However, now the voters' prior beliefs about the incumbent incorporate the information obtained about C_I at $t = 1$. That is, voters' prior beliefs now have a mean of $\frac{1}{1+\sigma_\epsilon^2}y_1$ and a variance of $\frac{\sigma_\epsilon^2}{\sigma_\epsilon^2+1}$. Note that the variance of the new prior is smaller than the original prior, since $1 > \frac{\sigma_\epsilon^2}{\sigma_\epsilon^2+1}$ for all possible values of σ_ϵ^2 (i.e., voters know more about the incumbent than they did before).

Voters update their prior beliefs using Bayes rule, based on the economic situation in $t = 2$, y_2 , which is equal to:

$$y_2 = C_I + \epsilon_2 \quad (6)$$

This leaves the voter with the following posterior beliefs about the incumbent's competence.

$$C_I|y_2, y_1 \sim N\left(\frac{1}{(\sigma_\epsilon^2 + 2)}y_1 + \frac{1}{(\sigma_\epsilon^2 + 2)}y_2; \frac{\sigma_\epsilon^2}{\sigma_\epsilon^2 + 2}\right) \quad (7)$$

Just as in period 1, a better economic situation in period 2, y_2 , is used to infer that incumbent competence is higher, and just like in period 1, σ_ϵ^2 attenuates the degree to which voters can use the economic situation to make inferences about C_I . However, there is one key difference from period 1: the effect of the economic situation on voters' expectations about the incumbent's

¹⁰This conclusion closely mirrors the one found by Duch and Stevenson (2008). Using a slightly more complicated set-up, they show that as control of economic conditions becomes more independent of elected officials (i.e. the size of non-competence related shocks increase), voters beliefs about the incumbent's competence depend less on economic conditions.

competence have decreased.

In period 1 the effect of a one unit increase in y_1 was $\frac{1}{1+\sigma_\epsilon^2}$. In period 2 the effect of a one unit increase in y_2 is $\frac{1}{2+\sigma_\epsilon^2}$. Since $\frac{1}{1+\sigma_\epsilon^2}$ is larger than $\frac{1}{2+\sigma_\epsilon^2}$, variation in the economic situation has less bearing on how competent voters expect the incumbent to be when the incumbent is up for re-election the second time. Economic voting decreases with time in office. This is a key result from the model, which underlines the assertion made in the theoretical discussion of the main article: as voters' information about the incumbent accumulate, the recent economic situation comes to play a smaller role in shaping voters' beliefs about the incumbent.

Increasing clarity of responsibility versus Bayesian learning

In the model presented above, we assumed that the economic situation in period 1 and the economic situation in period 2 was a result of the same mix of competence and non-competence related shocks. Some previous literature on the relationship between economic voting and time in office makes a different assumption (e.g., Nadeau, Niemi and Yoshinaka, 2002). In particular, these researchers assume that the incumbent becomes more responsible for the economic conditions as their time in office increases. In the terminology of our model, they think incumbent competence becomes more important relative to non-competence related shocks at $t = 2$. What happens if we incorporate this alternative assumption into our model?

We introduce the assumption by letting our inverse measure of clarity of responsibility, σ_ϵ^2 , decrease with time in office. In particular, we assume that the variance decreases from σ_ϵ^2 at $t = 1$ to $\tilde{\sigma}_\epsilon^2$ at $t = 2$, where $\tilde{\sigma}_\epsilon^2 < \sigma_\epsilon^2$. We denote the rate at which the variance decreases as α , where $\alpha = \tilde{\sigma}_\epsilon^2 / \sigma_\epsilon^2$. If α is close to 1, there is only a small decrease in the variation of the error term, signifying that incumbents become only slightly more responsible as their time in office increase; if α is close to 0 there is a marked decrease in the variation of the error term, signifying that incumbents become a lot more responsible as their time in office increases. Effectively, α is therefore negatively related to the increase in the clarity of responsibility over time.

How does introducing this assumption affect voters' beliefs about incumbent competence? In the first period, nothing changes, because the assumption only alters the variance of the non-

competence related shocks in period 2. However, in period 2, voters take into account that the variance in ϵ has decreased to $\tilde{\sigma}_\epsilon^2$, and consequently rely more on the competence signal relayed by the economic situation y_2 . In particular, after updating their priors using Bayes rule, voters' posterior beliefs about incumbent competence can be described as follows:

$$C_I|y_2, y_1 \sim N\left(\frac{1}{\frac{1}{\alpha} + \sigma_\epsilon^2 + 1}y_1 + \frac{1}{1 + (\sigma_\epsilon^2 + 1)\alpha}y_2; \frac{\tilde{\sigma}_\epsilon^2\sigma_\epsilon^2}{\tilde{\sigma}_\epsilon^2\sigma_\epsilon^2 + \tilde{\sigma}_\epsilon^2 + \sigma_\epsilon^2}\right) \quad (8)$$

Note that in equation 8, the extent to which voters rely on y_2 depends negatively on α , which we defined as the rate at which the variance in the non-competence related shocks decreases from $t = 1$ to $t = 2$. This makes intuitive sense, because a large decrease in variance corresponds to a large *increase* in the clarity of political responsibility over time. As such, if clarity of responsibility increases a lot with time in office, α is low, and voters tend to rely more on y_2 .

Just as we did above, we can compare the extent of economic voting across time in office by comparing the effect of a one unit increase in y_2 on C_I at $t = 2$ (cf. equation 8) with the effect of a comparable increase in y_1 on C_I at $t = 1$ (cf. equation 5) (i.e., we compare $\frac{dC_I}{dy_1}$ and $\frac{dC_I}{dy_2}$). If the effect of y_1 is larger than the effect of y_2 , then economic voting decreases over time; if the effect of y_2 is larger than the effect of y_1 , then economic voting increases over time. This inequality can be written as:

$$\frac{dC_I}{dy_2} < \frac{dC_I}{dy_1} \iff \frac{1}{1 + (\sigma_\epsilon^2 + 1)\alpha} < \frac{1}{1 + \sigma_\epsilon^2} \quad (9)$$

which can be simplified to

$$\sigma_\epsilon^2\left(\frac{1}{\alpha} - 1\right) < 1 \quad (10)$$

If the inequality in equation 10 is satisfied, economic voting decreases with time in office. When will this inequality be satisfied? All other things being equal, it is more likely to be satisfied if the increase in the clarity of responsibility is low (i.e. α close to 1), and, other things being equal, is also more likely to be satisfied if the overall role placed by non-competence related shocks is low (σ_ϵ^2 is small). Note that if α is 1, signifying no increase in the clarity of

responsibility over time, the condition in equation 10 will always be satisfied, and incumbent tenure will always crowd out economic voting.

In sum, it is not possible to form unambiguous theoretical expectations for how incumbent tenure and economic voting are related based on this augmented model. As such, whether or not incumbent tenure does in fact crowd out economic voting, will depend on the exact beliefs voters hold about α and σ_ϵ^2 . What it does tell us, however, is that there are countervailing forces at work as incumbent tenure increases.

S2: Description of the samples

The samples used in the country-level and individual-level data are described in tables S.1 and S.2. In table S.3, we show the full distribution of the tenure variables in both the country-level and individual-level data. For comparison, we also include the tenure variable from the Latinobarómetro data, which is what Singer and Carlin (2013) use for their study.

Table S.1: Elections included in the country-level analysis

	Minimum	Maximum	Number of Elections
Argentina	1985	2001	12
Australia	1961	2007	19
Austria	1971	2008	12
Belgium	1961	2007	15
Bolivia	1989	2002	8
Brazil	1990	2002	7
Bulgaria	1991	2001	6
Canada	1962	2008	16
Chile	1993	2001	5
Colombia	1982	2002	12
Costa Rica	1982	2002	12
Denmark	1964	2007	18
Dominican Republic	1990	2002	6
Ecuador	1984	1998	11
El Salvador	1985	2000	9
Finland	1962	2007	17
France	1968	2007	14
Germany	1972	2009	11
Greece	1981	2009	9
Honduras	1989	2001	8
Iceland	1963	2007	13
India	1980	1998	6
Ireland	1973	2007	10
Israel	1969	2006	12
Italy	1972	2008	10
Luxembourg	1979	2009	7
Madagascar	1996	2001	2
Netherlands	1963	2006	14
New Zealand	1978	2008	11
Norway	1969	2009	11
Papua New Guinea	1987	2002	4
Peru	1990	2001	6
Poland	1993	2001	3
Portugal	1980	2009	10
Spain	1979	2008	9
Sweden	1976	2006	10
Switzerland	1983	1999	5
Trinidad and Tobago	1991	2000	3
Turkey	1987	2002	5
United Kingdom	1964	2010	12
United States	1978	2002	19
Total	1961	2010	409

Table S.2: Observations included in the individual-level analysis

	1989	1994	1999	2004	2009	2014	Total
Denmark	832	1642	759	999	867	1063	6162
France	749	1321	363	1034	513	1055	5035
Germany	875	1333	777	381	691	1610	5667
Greece	525	1236	320	373	689	1080	4223
Ireland	752	1351	370	892	762	1074	5201
Italy	673	960	2446	1151	561	1068	6859
Netherlands	871	1610	804	1260	802	1087	6434
Portugal	521	1154	259	605	623	1020	4182
Spain	618	1216	581	887	680	1097	5079
United Kingdom	856	1603	711	1104	690	1378	6342
Total	7272	13426	7390	8686	6878	11532	55184

Table S.3: Distribution of Time in Office (years)

	Country-level	Individual-level	Singer & Carlin (2013)
Less than six months			11.8 (25)
1	5.4 (22)	13.3 (8)	18.9 (40)
2	9.5 (39)	16.7 (10)	18.9 (40)
3	8.8 (36)	15.0 (9)	17.0 (36)
4	25.2 (103)	10.0 (6)	16.5 (35)
5	12.2 (50)	5.0 (3)	7.5 (16)
6	6.6 (27)	6.7 (4)	3.3 (7)
7	3.9 (16)	11.7 (7)	2.8 (6)
8	9.3 (38)	3.3 (2)	1.4 (3)
9	2.9 (12)	3.3 (2)	0.5 (1)
10	3.2 (13)	1.7 (1)	0.9 (2)
11	2.4 (10)	1.7 (1)	0.5 (1)
12	3.2 (13)	8.3 (5)	
13	2.2 (9)		
14	1.0 (4)		
15	0.5 (2)	1.7 (1)	
16	0.5 (2)		
17	0.7 (3)	1.7 (1)	
18	0.5 (2)		
20	0.5 (2)		
21	0.5 (2)		
25	0.7 (3)		
30	0.2 (1)		
Total	100.0 (409)	100.0 (60)	100.0 (212)

Number of country-level observations in parentheses.

S3: Variable descriptions and descriptive statistics

Descriptive statistics for the country-level data are presented in table S.4.

Table S.4: Descriptive statistics

	Mean	SD	Min	Max	n
Electoral support for incumbent party	33.63	12.26	0.00	59.20	433
Effective number of parties	3.87	1.63	1.18	10.49	415
Election year	1988.82	11.82	1961.00	2010.00	433
Electoral support for incumbent party (initial election)	37.99	12.61	0.00	67.30	433
Executive election	0.14	0.35	0.00	1.00	433
Economic growth - 2 years	3.08	2.65	-8.78	14.90	428
Coalition partners	1.53	1.28	0.00	3.00	433
Government has majority in legislature	0.71	0.46	0.00	1.00	348
Number of elections	12.60	4.01	5.00	19.00	431
Years pr. term	2.34	1.03	0.00	4.67	433
Fixed term	0.15	0.36	0.00	1.00	433
Election year economic growth	2.91	3.14	-11.70	13.85	433
Change in electoral support	-4.36	8.03	-42.80	20.70	433
Tenure	6.02	4.25	1.00	30.00	409
Trichotomised tenure	0.70	0.77	0.00	2.00	409
Mismatch tenure (person v. party)	0.35	0.48	0.00	1.00	433

The question wording for the different questions used in this individual-level analysis are as follows.

- Executive party vote: “If there were a general election tomorrow, which party would you vote for?” Executive parties are coded 1, others are coded 0.
- Executive party vote (last election): “Which party did you vote for at the General Election of [Year]?” Same coding as for the vote variable.
- Ideology: “In political matters people talk about ‘the left’ and ‘the right.’ What is your position? Please indicate your views using any number on a 10-point scale. On this scale, where 1 means ‘left’ and 10 means ‘right’, which number best describes your position?”
- Class: “If you were asked to choose one of these five names for your social class, which would you say you belong to — the working class, the lower middle class, the middle class, the upper middle class, or the upper class?”
- Religiosity: “How often do you attend religious services: several times a week, once a week, a few times a year, once a year or less, or never?”

- National economic perceptions (NEP): In 1989, 1994, 2004, 2009 and 2014: “What do you think about the economy? Compared to 12 months ago, do you think that the general economic situation in this country is: a lot better, a little better, stayed the same, a little worse, or a lot worse?” In 1999: “How about the state of the [country’s] economy? Very satisfied, somewhat satisfied, somewhat dissatisfied, very dissatisfied?”

Descriptive statistics for the individual-level data are presented in table S.5.

Table S.5: Descriptive statistics

	Mean	SD	Min	Max	n
Ideology	0.50	0.26	0.00	1.00	51030
Year	2001.63	8.70	1989.00	2014.00	55184
National Economic Perceptions	0.43	0.28	0.00	1.00	55184
Class	0.45	0.31	-0.33	1.33	52700
Religiosity	0.51	0.32	0.00	1.17	49165
Prospective NEP	0.53	0.40	0.00	3.50	39571
Country Code	5.53	2.90	1.00	10.00	55184
Economic growth	1.85	2.96	-5.64	10.76	48842
Inflation	2.24	2.82	-4.48	13.70	47967
Unemployment rate	10.16	5.24	3.40	26.30	48842
Coalition government	0.63	0.48	0.00	1.00	55184
Lagged executive party vote	0.34	0.47	0.00	1.00	49266
Executive party vote	0.29	0.46	0.00	1.00	55184
Tenure	5.46	4.24	1.00	17.00	55184
Trichotomised time	0.78	0.82	0.00	2.00	55184

Descriptive statistics for the subnational data are presented in table S.6.

Table S.6: Descriptive statistics

	Mean	SD	Min	Max	n
Total number of eligible voters	2349.64	2563.93	6.30	31458.61	1823
Support for mayoral party 05	35.11	18.34	0.00	87.74	1823
Proportion of votes cast for mayoral party 09	32.26	14.52	0.00	82.61	1823
Municipality amalgamated	0.80	0.40	0.00	1.00	1823
New incumbent	0.44	0.50	0.00	1.00	1823
Change in support for mayoral party	-2.85	15.67	-45.20	78.15	1823
Unemployment 07	2.31	0.86	1.00	8.70	1823
Unemployment 09	4.51	0.81	2.30	8.30	1823
Right wing mayor	0.43	0.50	0.00	1.00	1823
Turnout	0.69	0.06	0.37	0.89	1823
Proportion of votes for right wing parties	0.48	0.14	0.10	0.88	1823
Increase in unemployment rate	2.20	0.67	-0.40	4.10	1823
Log of eligible voters	7.24	1.10	1.84	10.36	1823
Trichotimized unemployment	1.11	0.80	0.00	2.00	1465

S4: Alternative measure of growth

In table S.7, we re-estimate the models from table 1 using an alternative measure of economic growth: economic growth across the past two years, rather than just the past year. The interaction effect becomes slightly larger, remains negative and statistically significant.

Table S.7: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)
Economic growth - 2 years	0.93*	1.09*	1.05*	1.31*
	(0.29)	(0.35)	(0.39)	(0.38)
Tenure	-0.01	0.02	-0.22	-0.19
	(0.14)	(0.13)	(0.16)	(0.18)
Economic growth - 2 years \times Tenure	-0.08*	-0.10*	-0.08*	-0.08*
	(0.03)	(0.03)	(0.03)	(0.03)
Executive election	-2.98*	-2.04	-1.08	-1.99*
	(1.52)	(1.51)	(1.94)	(0.55)
Year FE		✓	✓	
Country FE			✓	✓
Leader FE				✓
Observations	406	406	406	406

Standard errors in parentheses

Standard errors clustered by country.

⁺ $p < 0.10$, * $p < 0.05$

S5: Using controls in the country-level data

Below, we add some controls to the models estimated on the country-level dataset of elections. This means dropping a number of the observations, about 80, for which we do not have data coverage for the control variables. In order to make the estimates with and without controls more comparable, we start by estimating the same models as in table 1 on the smaller sample of elections, for which we have controls. This is done in the four furthest left columns of table S.8. As we can see, the results are fairly similar to those found using the full sample. The main difference is that the interaction effects become slightly smaller, and the standard errors become slightly larger, leaving the interaction terms insignificant.

Next, we introduce the controls. The controls we use are number of government coalition partners, including a dummy for one, two and three or more partners; majority government, including a dummy for whether the government has more than fifty percent of the seats in parliament; and effective number of parties in parliament, a linear index measuring the size-adjusted number of parties in parliament. All these variables have been taken from the database of political institutions (Beck et al., 2001). They have been chosen with the following considerations in mind: we know that government composition affects economic voting (cf. Powell and Whitten, 1993), depressing the clarity of responsibility for economic policy, and it seems plausible that the effective number of parties can work in a similar way – the more parties, the more political actors there are to blame for any economic misfortune. It also seems likely that government and parliamentary composition can influence the tenure of the executive party, making it a good candidate for a confounding factor. Finally, unlike most other institutional factors, government and parliamentary composition are not already controlled for using the year, country and leader fixed effects. In the last four columns of table S.8 the controls are introduced. This leaves the interaction effects practically unchanged.

In sum, while the interaction estimates remain substantially unchanged, the statistical significance of the interaction coefficients drops when introducing the controls; however, this is only a result of the fact that another, smaller sample of elections are being analysed. As such, there is no evidence that the controls introduced in any way confound the negative relationship between economic voting and time in office.

Table S.8: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Executive election	-3.00 ⁺ (1.57)	-1.88 (1.54)	-1.20 (1.99)	-4.52* (1.35)	-2.21 (1.61)	-1.00 (1.54)	-0.20 (1.93)	-3.38* (1.29)
Economic growth	0.68* (0.28)	0.71* (0.30)	0.60 ⁺ (0.32)	1.08* (0.34)	0.75* (0.28)	0.79* (0.30)	0.67* (0.31)	1.15* (0.31)
Tenure	-0.08 (0.16)	-0.04 (0.14)	-0.38 ⁺ (0.20)	-0.27 (0.21)	-0.05 (0.15)	-0.01 (0.14)	-0.36 ⁺ (0.19)	-0.24 (0.21)
Economic growth \times Tenure	-0.05 (0.03)	-0.05 (0.04)	-0.03 (0.04)	-0.05 (0.04)	-0.05 (0.03)	-0.05 (0.04)	-0.03 (0.04)	-0.06 (0.04)
Government has majority in legislature					-2.28* (1.12)	-2.69* (1.30)	-2.62 ⁺ (1.40)	-4.51* (1.82)
One coalition partner					2.59* (1.30)	2.62 ⁺ (1.44)	1.02 (1.57)	0.41 (2.58)
Two coalition partners					-0.41 (1.83)	-0.19 (1.71)	-0.58 (1.62)	-0.73 (2.18)
More than two coalition partners					1.44 (1.43)	1.10 (1.67)	-0.31 (1.76)	2.68 (2.08)
Effective number of parties					0.52 (0.41)	0.54 (0.49)	1.09 (0.68)	0.48 (0.58)
Time FE		✓	✓			✓	✓	
Country FE			✓	✓			✓	✓
Leader FE				✓				✓
Observations	330	330	330	330	330	330	330	330

Standard errors in parentheses

Standard errors clustered by country.

⁺ $p < 0.10$, * $p < 0.05$

S6: Sensitivity to outliers

Are the interaction effects presented above based on broad patterns in voting behavior or idiosyncrasies related to just one country? This is always an important question when dealing with time-series cross-sectional data. In order to investigate whether this was the case for the present analyses, we re-estimated the key models in the country-level, individual-level and subnational datasets, looking for evidence of instability in the effect-sizes which stem from the exclusion of one important set of cases.

For the country-level data, we re-estimate the models from table 1 excluding one country, for all countries in the sample. The resulting 41×4 regression coefficients, attached to the interaction between economic conditions and incumbent tenure, are plotted for each model in the top left panel of figure S.1. As can be seen from this figure, the interaction coefficients in models 1 and 2 seem rather stable; however, in models 3 and 4 one of the estimated coefficients deviates substantially from the rest. An inspection of the underlying data, reveals that the omitted country in this context is Luxembourg. There are two reasons why this is not that

disconcerting. First, the problem is less severe in model 4, which is the more demanding model of the two. Second, Luxembourg is not one of the countries included in the individual-level dataset, and therefore the negative relationship between economic voting and tenure cannot be attributable to Luxembourg alone.

For the individual-level data, we re-estimate the models from table 2 excluding one survey, for all surveys in the sample (i.e. country-year). The resulting 60×3 logistic regression coefficients, attached to the interaction between economic perceptions and incumbent tenure, are plotted for each model in the top right panel of figure S.1. As can be seen from this figure, the interaction coefficients are relatively stable across all models.

For the subnational data, we re-estimate the models from table 3 excluding one municipality, for all municipalities in the sample. The resulting 66×3 regression coefficients, attached to the interaction between *unem* and *newinc*, are plotted for each model in the bottom panel of figure S.1. As can be seen from this figure, the interaction coefficients are relatively stable across all models.

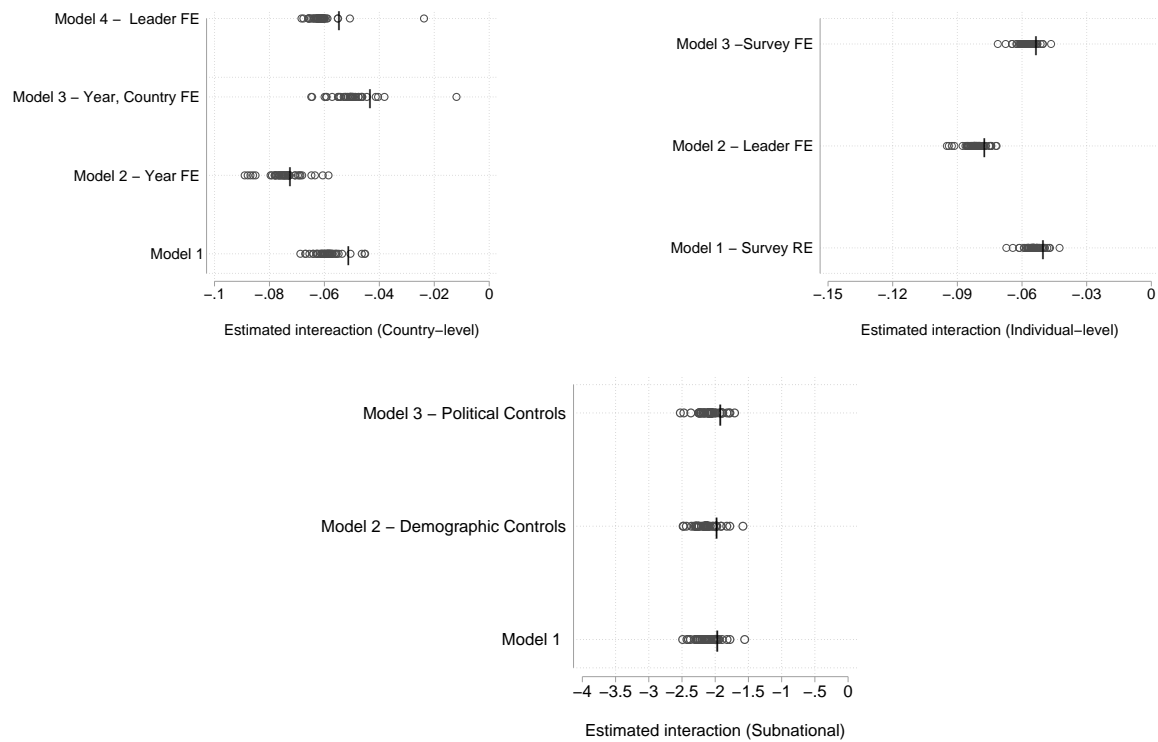


Figure S.1: Lines represent the interaction coefficients from linear and logit models in tables 1, 2 and 3. Each dot in the top left panel represents an interaction coefficient from one of the four country-level linear models, estimated with one of the 41 countries omitted. Each dot in the top right panel represents an interaction coefficient from one of the three individual-level logit models, estimated with one of the 60 surveys omitted. Each dot in the bottom panel represents an interaction coefficient from the three subnational linear models, estimated with one of the 66 municipalities omitted.

S7: Further checks of the interaction terms

In a recent paper, Hainmueller, Mummolo and Xu (2016) suggests three diagnostics to run when encountering a multiplicative interaction term. Below, we look at each of these in turn for the interactions estimated in the country-level, individual-level and subnational data.

The first diagnostic is examining whether the L-kurtosis of the interaction variable is below 0.16. If the L-kurtosis is above 0.16, then much of the variation in the interaction variable is based on just a few observations. The L-kurtosis for the time in office variable in the country-level dataset is 0.2. This means that the interaction effect in the country-level data potentially relies on just a few observations, making the interaction term less reliable. The L-kurtosis for the time in office variable in the individual-level dataset is 0.075. In the subnational data, the L-kurtosis for the unemployment variable is 0.14. This is below the cut-off, and accordingly, we probably do not need to be concerned with the reliability of the interaction variable in the individual-level or the subnational data.

The second diagnostic looks for monotonicity in the average marginal effects. That is, we should expect average marginal effects to move monotonically with the interaction variable. To test this we trichotomised our interaction variables for all three datasets based on the variables' terciles. For the linear interaction models we then estimate the average marginal effect at the median of each tercile using a binning estimator (cf. equation (4) in Hainmueller, Mummolo and Xu, 2016). For the non-linear model which analyze the individual-level data we cannot use the binning estimator. Instead, we estimate a model using the trichotomised interaction variable as a set of dummy-interactions instead of the linear interaction, deriving the average marginal effects for the bottom, middle and top tercile. For the country-level, individual-level, and subnational data, we find that the average marginal effects monotonically decrease across the three terciles.

The final diagnostic is examining the linearity of the interaction. To do this, we plot the average marginal effects from the trichotomised interaction terms, along with the average marginal effects derived from simple linear interaction terms, in figure S.2. The trichotomised interaction terms are plotted at the median within each tercile. While the average marginal effects from the trichotomised interaction terms do not match the average marginal effect from the linear

interaction terms exactly, they do not deviate substantially from each other.

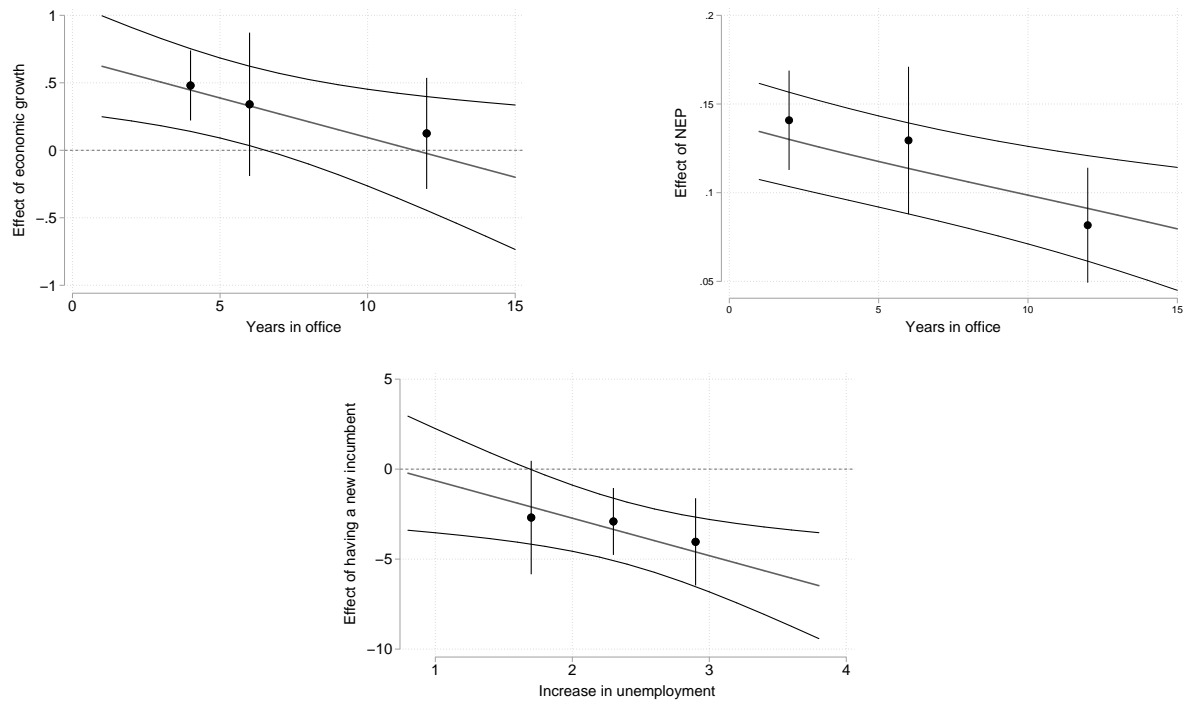


Figure S.2: The lines represent the average marginal effects of economic growth, national economic perceptions and *newinc* across the interaction variable. Derived from column one of table 1, column three of table 2 and column one of table 3. Dots represent the average marginal effects from binning estimators, which include a trichotomised interaction. All the average marginal effects are plotted with 90 pct. confidence intervals.

S8: Strategic election timing

To probe the plausibility of the strategic election timing explanation, we augment our country-level analysis in two different ways.

First, we introduce a control variable which measures how often an incumbent calls for an election (i.e. years served divided by elections called). By introducing this variable we hold constant the incumbents' inclination to call early elections. We add this variable as a control to the set of models already estimated in table 1, and report estimates of these extended models in the first four columns of table S.9. As can be seen from table S.9, the interaction remains negative, it has the same size, and in three of the four specifications, it is statistically significant ($p < 0.1$).

Table S.9: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic growth	0.68*	0.79*	0.63*	0.90*	0.86 ⁺	0.47*	-0.19	0.71
	(0.25)	(0.28)	(0.29)	(0.30)	(0.45)	(0.15)	(0.41)	(0.54)
Tenure	-0.08	-0.06	-0.31 ⁺	-0.25	0.23*	-0.02	-0.40*	0.04
	(0.15)	(0.14)	(0.16)	(0.17)	(0.03)	(0.08)	(0.17)	(0.08)
Economic growth × Tenure	-0.06 ⁺	-0.08*	-0.05	-0.06*	-0.09*	0.01	-0.02	-0.10*
	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)	(0.03)
Executive election	-3.01 ⁺	-2.06	-1.31	13.80*	-3.03	-1.76	-0.61	
	(1.55)	(1.53)	(1.94)	(1.73)	(3.86)	(2.48)	(3.29)	
Time FE		✓	✓			✓	✓	
Country FE			✓	✓			✓	✓
Leader FE				✓				✓
Observations	409	409	409	409	60	60	60	60

Standard errors in parentheses

Standard errors clustered by country.

Executive election dummy omitted in column (8) due to perfect collinearity with Leader FE.

⁺ $p < 0.10$, * $p < 0.05$

Second, we disentangle election-timing and tenure by restricting the sample of elections to the five countries in our dataset where terms are fixed. This leaves 60 of the original 409 elections. In these countries, the executive cannot time the election, and accordingly, any relationship found between time in office and the importance of the economy cannot be attributed to election timing. Using this restricted sample, we re-estimate the models from table 1. The key estimates from these models are reported in the four rightmost columns of table S.9. As can be seen from table S.9, the interaction effect remains negative and statistically significant in the most demanding model, which includes the leader fixed effects.

Taken together, the fact that, across both types of control for election timing, the interaction remains negative and substantially unchanged in the most demanding specification (cf. columns 4 and 8), suggests that the results laid out in table 1 were not the result of strategic election-timing.

S9: Coalition and single-party governments

In table S.10, we re-estimate the models from table 1 only for single-party governments (columns one through four) and only for coalition governments (columns five through eight). Across all specifications the estimated interaction coefficient is negative, however, there are some differences across the two sets of models. In the models with no controls and the model with leader fixed effects, the negative interaction seems to be smaller for single-party governments. In the models with year and country fixed effects, the interaction seem to be smaller for multi-party governments. As such, there are no consistent differences across the two groups.

This suggests that the negative interaction term identified in the country-level data cannot be explained in terms of differences in how voters judge coalition and single-party governments over time. If this was the case, we would expect to see no interaction between time in office and economic voting for the single-party governments, and a very strong and statistically significant interaction among coalition governments. This is not what we find in table S.10.

Table S.10: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Economic growth	0.70 ⁺	1.04 ⁺	0.75	0.98	0.45 ⁺	0.61*	0.62*	0.21
	(0.36)	(0.53)	(0.67)	(0.71)	(0.25)	(0.26)	(0.21)	(0.28)
Tenure	-0.37*	-0.05	-0.28	-0.64 ⁺	0.01	-0.06	-0.25	-0.23
	(0.19)	(0.30)	(0.31)	(0.35)	(0.15)	(0.16)	(0.16)	(0.16)
Economic growth × Tenure	-0.03	-0.09	-0.09	-0.01	-0.07*	-0.07 ⁺	-0.06*	-0.04
	(0.04)	(0.07)	(0.08)	(0.10)	(0.03)	(0.04)	(0.03)	(0.03)
Time FE		✓	✓			✓	✓	
Country FE			✓	✓			✓	✓
Leader FE				✓				✓
Observations	113	113	113	113	239	239	239	239

Standard errors in parentheses

Standard errors clustered by country.

⁺ $p < 0.10$, * $p < 0.05$

In table S.11, we re-estimate the models from table 2 only for single-party governments (columns one through three) and only for multi-party governments (columns three through six). There are no substantial differences across the two sets of models, which once again suggest that any differences in economic voting across tenure cannot be explained away by differences in how voters hold single-party and coalition governments electorally accountable for the economy.

Table S.11: Multi-level logit model of voting for executive party

	(1)	(2)	(3)	(4)	(5)	(6)
National Economic Perceptions	2.44*	2.48*	2.44*	1.56*	1.60*	1.59*
	(0.25)	(0.26)	(0.26)	(0.23)	(0.22)	(0.22)
Tenure	0.03	-0.02		0.06 ⁺	-0.02	
	(0.04)	(0.04)		(0.03)	(0.06)	
National Economic Perceptions × Tenure	-0.06 ⁺	-0.07 ⁺	-0.06 ⁺	-0.07*	-0.08*	-0.07*
	(0.04)	(0.04)	(0.04)	(0.02)	(0.02)	(0.02)
Individual lvl. controls	✓	✓	✓	✓	✓	✓
Survey RE	✓	✓	✓	✓	✓	✓
Leader FE		✓	✓		✓	✓
Survey FE			✓			✓
Observations	14,444	14,444	14,444	25,112	25,112	25,112

Standard errors in parentheses

Standard errors clustered by country.

Tenure omitted in models (3) and (6) due to collinearity with Survey FE.

⁺ $p < 0.10$, * $p < 0.05$ **S10: Mismatch in tenure**

In table S.12, we re-estimate the models from table 1, including a control for whether the tenure of the executive officer (i.e. president or prime minister) is different from that of the executive party. We include this control by itself and interact it with time in office. This control is, obviously, highly co-linear with time in office. As such, the longer a party is in office, the more likely it is that it switches out the executive officer. Adding these controls shift the estimates and standard errors slightly, making the interaction estimate significant at the .1 level rather than at the 0.05 level in columns one and four.

Table S.12: Linear regression of changes in executive party vote share

	(1)	(2)	(3)	(4)
Mismatch tenure (person v. party)	-3.13 ⁺ (1.85)	-3.17 ⁺ (1.88)	-2.78 (2.15)	-3.45 (2.29)
Economic growth	0.68* (0.24)	0.76* (0.27)	0.59* (0.28)	0.88* (0.30)
Tenure	-0.11 (0.24)	-0.08 (0.23)	-0.15 (0.21)	-0.31 (0.28)
Mismatch tenure (person v. party) × Tenure	0.22 (0.25)	0.21 (0.25)	0.02 (0.29)	0.27 (0.29)
Economic growth × Tenure	-0.05 ⁺ (0.03)	-0.07* (0.03)	-0.04 (0.03)	-0.05 ⁺ (0.03)
Executive election	-2.80 ⁺ (1.49)	-1.82 (1.50)	-1.01 (1.95)	-3.90* (1.50)
Year FE		✓	✓	
Country FE			✓	✓
Leader FE				✓
Observations	409	409	409	409

Standard errors in parentheses

Standard errors clustered by country.

⁺ $p < 0.10$, * $p < 0.05$

S11: Two-step models of individual-level data

Another way to examine whether there is an interaction between time in office and national economic perceptions is to estimate a multilevel model which allows for a random slope with respect to national economic perceptions across the different surveys, and then examine whether the size of the survey-specific slopes are related to the tenure of the incumbent party at the time of the survey.

To do this, we estimate a set of multi-level logit models of the probability of voting for the executive party with the full set of individual-level controls, omitting time in office, allowing the effect of national economic perceptions to vary across the surveys (i.e., estimate a random slope model). We estimate three of these models: one with survey random effects, one with leader fixed effects and one with survey fixed effects. For each of these models, we obtain sixty different logit coefficients, which represent the effect of national economic perception in the individual surveys. We plot these logit coefficients against incumbent tenure at the time of the survey for each of the three models in figure S.3.

As can be seen from these figures, there is a negative relationship between time in office and the size of the logit coefficients. OLS regressions of time in office on the logit coefficients reveal that the negative relationship is statistically significant ($p < 0.05$, using country-clustered

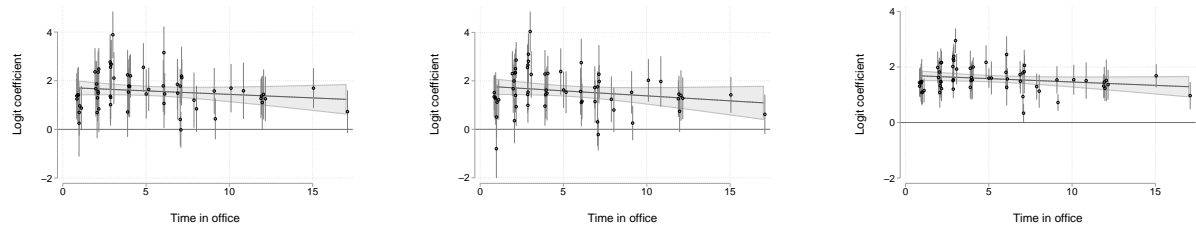


Figure S.3: Random slope of NEP plotted with 95 pct. confidence intervals. From left to right the models used for plotting include random effects, leader fixed effects and survey fixed effects. Uniformly distributed random noise added to the horizontal placement of the dots. The figure shows a linear fit with 95 pct. confidence intervals.

standard errors). As such, this alternative way of estimating the effect of time in office on the economic vote gives the same basic result as that identified in table 2.

S12: The role of prospective economic conditions

In table S.13, we re-estimate the models presented in table 2, adding a measure of prospective national economic perceptions and an interaction between these perceptions and tenure.

To measure prospective national economic perceptions, we use the following question from the EES: “Over the next 12 months, how do you think the general economic situation in this country will be: a lot better, a little better, stay the same, a little worse, or a lot worse?”. We rescale this variable to go from zero (a lot worse) to one (a lot better). This question was not asked in the '89 and the '99 EES, and we therefore omit these years when estimating the models with prospective economic perceptions.

As can be seen from table S.13, there is no statistically significant interaction between prospective economic perceptions and time in office. Further, the negative interaction between time in office and (retrospective) national economic perceptions remains statistically significant, and is three times the absolute size of the interaction for prospective economic conditions. In sum, there is no evidence that incumbents time in office lead voters to shift their focus from one type of economic perceptions to another. They simply become less reliant on retrospective national economic conditions when deciding whether to vote for the incumbent.

Table S.13: Multi-level logit model of voting for executive party

	(1)	(2)	(3)
Prospective NEP	0.27 (0.18)	0.28 (0.18)	0.27 (0.18)
National Economic Perceptions	1.67* (0.27)	1.61* (0.27)	1.71* (0.28)
Tenure	0.06 (0.04)	0.05 (0.05)	
Prospective NEP \times Tenure	0.02 (0.03)	0.02 (0.03)	0.02 (0.03)
National Economic Perceptions \times Tenure	-0.06* (0.03)	-0.06* (0.03)	-0.07* (0.03)
Lagged executive party vote	4.28* (0.17)	4.29* (0.16)	4.29* (0.17)
Ideology	2.43* (0.33)	2.44* (0.33)	2.44* (0.34)
Religiosity	0.09 (0.15)	0.09 (0.15)	0.09 (0.15)
Class	0.29* (0.15)	0.30* (0.15)	0.28 ⁺ (0.15)
Survey RE	✓	✓	✓
Leader FE		✓	✓
Survey FE			✓
Observations	28,894	28,894	28,894

Standard errors in parentheses

Standard errors clustered by country.

Tenure omitted in model (3) due to collinearity with Survey FE.

⁺ $p < 0.10$, * $p < 0.05$

S13: Endogeneity in National Economic Perceptions

In the individual-level data, we generally found higher levels of economic voting across all levels of tenure than we did in the country-level data. As mentioned above, this might be because the endogeneity of national economic perceptions is leading us to overestimate the level of economic voting in the individual-level data. To investigate whether this is the case, we re-analyze the individual-level data in two different ways, both of which might allow us to sieve out some of this endogeneity.

First, we examine a smaller, restricted sample. Specifically, we exclude those who voted for the incumbent at the last election, because these are more likely to be incumbent partisans and thus engaged in the type of “wishful thinking” described above.¹¹ In the first three columns of table S.14, we present the results of this analysis for the same model specifications that were used in the main analysis. Figure S.4 plots the average marginal effects of national economic percepts across tenure for the censored sample, based on the model presented in column three of table S.14. As can be seen from this figure, the pattern identified in this censored sample matches up more closely with that found for the country-level data. As such, when we leave out incumbent “partisans”, incumbent tenure tends to completely crowd out economic voting.

Second, we use aggregate objective economic conditions to instrument national economic conditions. This approach sidesteps problems with endogeneity by only examining the differences in national economic perceptions which are caused by changes in objective economic conditions (see Nadeau, Lewis-Beck and Bélanger, 2013, for the details of this method). This means sieving out variation in national economic perceptions which are caused by other factors, such as partisanship.

In measuring objective economic conditions we include election year inflation, unemployment and economic growth at the country-level. All these variables were taken from the World Banks database. The reason we do not simply use economic growth, as we did in the analysis of the country-level data, is that it is possible to get estimates for unemployment and inflation for the time period covered by the EES. The same was not possible for the country-level

¹¹A more standard measure of party identification would be preferable, however, no such measure is included in the EES.

Table S.14: Addressing Endogeneity Problems

	(1)	(2)	(3)	(4)
National Economic Perceptions	2.41*	2.53*	2.51*	0.39*
	(0.31)	(0.31)	(0.31)	(0.04)
Tenure	0.05	0.00		0.01*
	(0.03)	(0.04)		(0.00)
National Economic Perceptions \times Tenure	-0.13*	-0.18*	-0.14*	-0.02*
	(0.05)	(0.05)	(0.05)	(0.01)
Ideology	2.98*	3.01*	2.99*	
	(0.28)	(0.28)	(0.28)	
Religiosity	-0.13	-0.15	-0.12	
	(0.14)	(0.15)	(0.14)	
Class	0.27	0.30 ⁺	0.29	
	(0.17)	(0.17)	(0.18)	
Survey RE	✓	✓	✓	
Leader FE		✓	✓	
Survey FE			✓	
R ²				
RMSE				0.45
Observations	25,220	25,220	25,220	47,967

Standard errors in parentheses

Standard errors clustered by country.

Tenure omitted in model (3) due to collinearity with Survey FE.

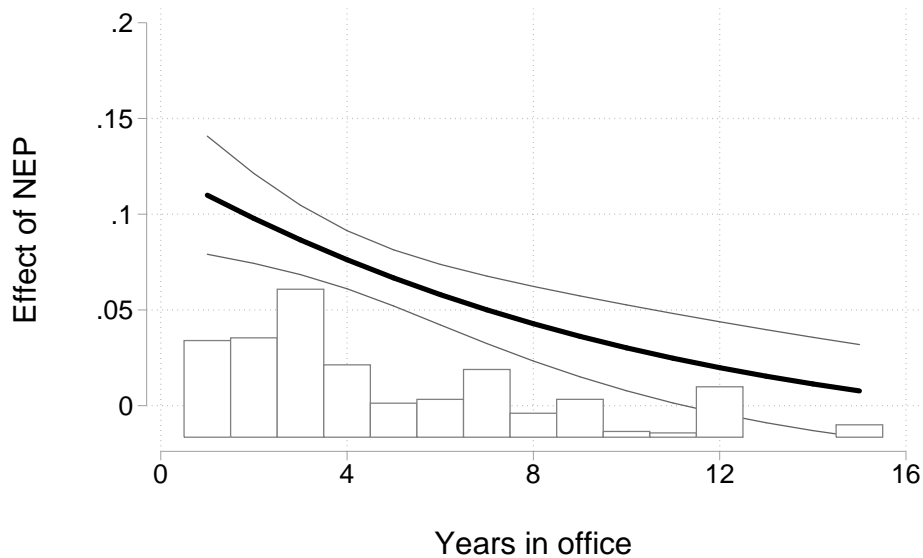
⁺ $p < 0.10$, * $p < 0.05$ 

Figure S.4: The average marginal effects of national economic perceptions on the probability of voting for the executive party across levels of tenure with 90 pct. confidence intervals. Estimated based on the model presented in column three of table S.14. Derived from the model using respondents who did not vote for the executive party at the last election with survey fixed effects. The bar plot shows the density of the variable years in office.

data. Turning to estimation, we instrument national economic perceptions and the interaction between these percepts and tenure using growth, unemployment and inflation as well as an interaction between these three variables and time in office. We omit the individual-level controls, since these are potentially endogenous as well, and we do not use survey or leader fixed effects as these would be perfect or near-perfectly collinear with the aggregate level economic indicators. Finally, we link the instrumented economic perceptions and incumbent support using a linear probability model rather than a logit model to make the estimation less computationally complex.

The estimates produced using this instrumental variables approach are presented in the fourth column of table S.14. As can be seen from this model, we still see a statistically significant negative interaction between tenure and the now-instrumented national economic perceptions. In figure S.5, we plot the average marginal effects based on the instrumental variables regression. Here, we see that after taking potential problems with endogeneity into account, the level of economic voting becomes statistically indistinguishable from zero after roughly 15 years in office. This trajectory is roughly similar to what we find in the country-level data, where the effect of economic voting also becomes statistically indistinguishable from zero as time in office increases (although this already happens after eight years, cf. figure 1).

Taken together, these analyses lend credibility to the conclusion that both the individual-level and country-level dataset paints a similar picture of the relationship between time in office and economic voting.

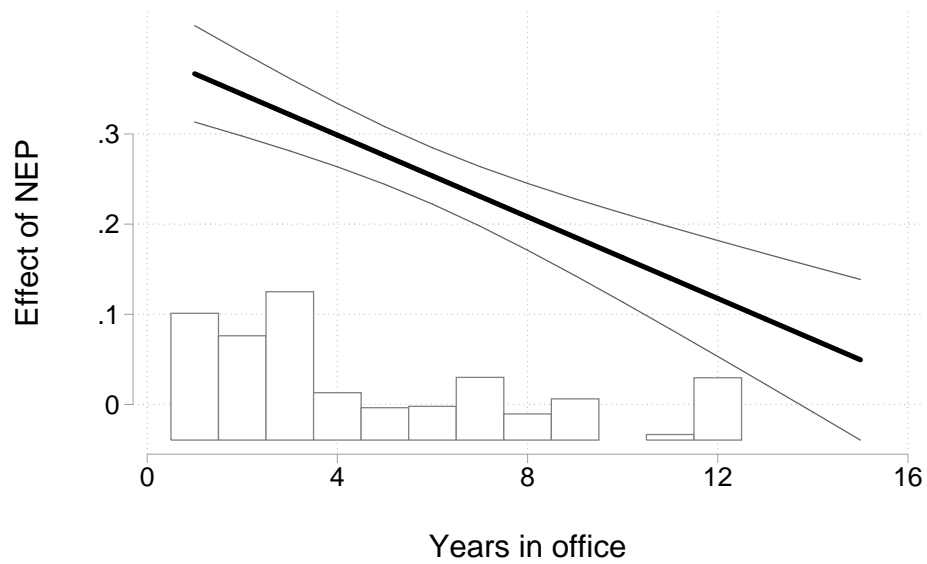


Figure S.5: The average marginal effects of national economic perceptions on the probability of voting for the executive party across levels of tenure with 90 pct. confidence intervals. Derived from the instrumental variables estimation, cf. column four of table S.14. The bar plot shows the density of the variable years in office.