Economic Performance, Individual Evaluations and the Vote: Investigating the Causal Mechanism

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Abstract

While there are many studies on the impact of the economy on elections, there is little evidence on the full mechanism of economic voting implied by performance-based theories of elections. Addressing the scarcity of evidence on the mechanism, this study provides the first estimates of the linkage between macroeconomic performance, individual economic evaluations, and vote choice. Building on recent advances in the statistical analysis of causal mechanisms, we conduct a causal mediation analysis in a data set covering 151 surveys in eighteen countries. We find that the effect of economic performance on the incumbent vote is largely accounted for by voters' retrospective evaluations of the national economy. The effect is stronger in contexts where policymaking power is concentrated rather than dispersed. Altogether, the results imply that the performance-based channel of voting is more relevant in accounting for election outcomes than suggested by recent individual-level studies.

Summer Meeting of the Society for Political Methodology, University of Iowa (July 2010), and the 69th Annual MPSA Conference in Chicago (April 2011). All errors are ours.

Performance-based theories of elections promise that retrospective voting based on economic outcomes allows voters to hold elected governments accountable for their management of the economy, even if voters are ignorant about policies or policymakers. The conventional argument is that by making economic performance since the last election the yardstick for whether to re-elect the incumbent government, voters provide incentives that mitigate the moral hazard problem entailed in the delegation of decision-making power to elected officials (e.g., **?**) and may also increase the chance of selecting competent policymakers (e.g., **?**). Regardless of whether they emphasize incentives or selection, performance-based theories suggest that retrospective voting based on economic outcomes, which we call economic voting for simplicity, can make elections work as instruments of democratic representation.[1]

The basic mechanism of voting implied by performance-based view is straightforward. Voters observe objective economic performance, evaluate it, and use those evaluations to judge whether to vote for or against the incumbent government. There is little evidence, however, on the full mechanism of economic voting. While there is a large empirical literature on the relationship between the economy and elections (for recent reviews, see **??**), studies of economic voting have either examined the macro-level relationship between economic performance and vote shares or the micro-level relationship between individual perceptions and vote choice and found evidence consistent with economic voting at both levels. Neither approach covers the full mechanism. Subjective evaluations may affect vote choice, but they may not be driven by objective economic performance. There is little comparative evidence on whether economic performance actually shapes evaluations, leaving open the possibility that subjective evaluations are not or only weakly related to the objective economy. As described decades ago by **?**, evaluations may instead reflect partisan or ideological concerns. Consistent with the skeptical view, individual-level studies show that economic evaluations are influenced by ideological considerations (e.g., **?**).[2] Micro-level studies focusing on the link between evaluations and vote choice cannot rule out the possibility that subjective evaluations are not sensitive to objective performance. Macro-level studies, on the other hand, do not address the question of whether the relationship between the economy and electoral outcomes works through voters' evaluations of the national economy.

In this paper, we provide direct evidence on the mechanism of voting implied by performance-based theories of election. We conduct a causal mediation analysis to estimate the linkage between macroeconomic performance, individual economic evaluations, and vote choice. Building on recent advances in statistical methodology for learning about causal mechanisms, we estimate a unified statistical framework that accounts for variation in institutional context. This allows us to test whether the linkage predicted by the performance-based view exists and whether its magnitude is substantively important. The general approach to causal mediation analysis provides clear identification assumptions and spells out an estimation algorithm than can be applied to non-linear models that are appropriate for the analysis of voting behavior (**???**). We implement this methodology for a multi-level model of economic voting with a binary dependent variable (incumbent vote choice), an ordinal mediating variable (retrospective economic evaluations) and continuous treatment variables (economic growth and changes in unemployment) using a data set covering 151 elections in 18 established democracies. Thus we are able to estimate how much, if at all, the real economy matters for vote choice by affecting economic evaluations. To the best of our knowledge, we provide the first estimates of the mechanism of economic voting working through evaluations of the national economy, thereby shedding new light on the contested micro-foundations of democratic accountability.[3]

In a nutshell, we find that economic performance has an important impact on the incumbent vote and that the effect is largely driven by voters' subjective evaluations of the economy. The findings provide considerable support for the performance-based view of elections. The estimates imply that in the context of political institutions that concentrate (disperse) policymaking power, the effect of a one percentage point increase in economic growth on the vote share of the chief executive's party working through evaluations is about 1.4 (0.8) percentage points. Once the mediating role of economic evaluations is accounted for, economic growth has no statistically significant direct effect on votes. A similar result holds using unemployment change as a measure of economic performance. A one-point increase in unemployment leads to a decline in economic evaluations that translates into a reduction of the vote share of the chief executive's party by approximately 2.8 (1.7) percentage points. The findings stand in contrast to the view, supported by several recent individual level studies, that accountability based on economic voting is unlikely to work because voters' evaluations are biased.[4] We find that while ideology matters, it does not blind voters to changes in economic performance. The finding implies that individual level evidence of biased perceptions is not sufficient evidence to diagnose the absence of electoral accountability. In a world where voters have some ideological bias but are significantly responsive to the real economy, accountability still works.

The mediation analysis accounts for institutional context, reflecting the argument that political institutions that disperse policymaking power undermine economic voting by reducing the identifiability of policymakers (**?**). We clearly find that the mechanism linking the real economy to the vote via voters' evaluations is more pronounced in contexts where policymaking power is concentrated rather than dispersed. The finding is consistent with previous studies (e.g., **???**, but see **?**). It adds to the concern that power-sharing institutions blunt electoral accountability. But it comes with an important nuance. Incumbents governing in a context of dispersed policymaking power are not isolated from the electoral effects of bad economic performance. In particular, the economy still matters for the electoral fate of coalition and minority governments.

Data

To evaluate the voting mechanism implied by performance-based theories of elections, we use a comprehensive data set on economic voting gathered by **?**. We have complemented it with survey-level variables on economic performance and the concentration of policymaking authority. Altogether, the data set contains 157 national surveys from 18 advanced industrial democracies between 1979 and 2001. This gives us a wide variation on survey-level variables.[5]

Each survey contains a vote choice question and an economic question needed to study retrospective economic voting. Following Duch and Stevenson, we have recoded the vote choice variable into an indicator variable that measures a respondent's reported vote (or intention to vote) for (1) or against (0) the party of the incumbent chief executive (i.e., prime minister in parliamentary regimes and president in the US). The chief executive is typically the most important elected policymaker, being endowed with institutional prerogatives, resources, and media attention. In the case of the United States, we use the party of the president as the relevant incumbent party for both presidential and congressional elections.[6]

Measuring retrospective economic evaluations of macroeconomic performance requires a survey item that is retrospective, refers to the national economy and concerns changes rather than the level of economic performance. All the surveys contain such an item. The general question format is something like: "Looking back over the last year, would you say that the economic situation in [name of country] has gotten much better, somewhat better, stayed the same, somewhat worse, or much worse?" (**?**, p. 46). This wording reflects the central idea of the performance-based view of elections according to which voters base their decision on economic outcomes, not policies (e.g., **?**, p. 519). We use a three-categorical variable on retrospective evaluations that was created by Duch and Stevenson. It measures whether the respondent says the economy has (1) gotten better, (2) stayed the same, or (3) gotten worse.

We use two alternative measures of economic performance: growth of real GDP (measured as percentage change from the previous year) and annual change in the unemployment rate (all from **?**). In line with much of the literature, we focus on changes in economic outcomes rather than levels. It is more reasonable to compare the effect of changes in economic outcomes (rather than levels) on evaluations and vote choice across surveys. The level of unemployment, for example, is shaped by many structural factors like labor market institutions that vary across countries and are relatively persistent, and so voters are unlikely to attribute the level primarily to the current government. Credit or blame for the annual change is much more plausibly related to the policies of the current government.

Context-sensitive theories imply that economic voting is contingent on the concentration of policymaking authority (e.g., ??). We measure concentration of policymaking authority with an indicator for the type of government. This variable is set to 1 if policymaking authority is concentrated in the hands of a single-party majority government and 0 otherwise (i.e, there is a coalition or minority government). A single-party majority government is defined as a government where the party of the chief executive has a majority of seats in (the lower house of) parliament and shares no executive portfolios with any other party. In the case of the US, the only fully presidential democracy in our data set, we treat periods of unified government as equivalent to single-party majority government in a parliamentary democracy. The coding is based on ?. The use of a simple indicator variable to capture the institutional context has several merits. It defines a clear counterfactual that is strongly linked to constitutional structure. The measure is time-variant and captures changes in the dispersion of policymaking authority due to institutional change, elections, or coalition bargaining (for a similar approach, see ??).

Given the concern that economic evaluations may reflect voters' preferences over policies or parties rather than actual economic performance, it is important to account for the ideological affinity of individual voters to the incumbent government. We do this using a measure of ideological proximity between each respondent and the party of the chief executive. Ideological proximity is the distance between an individual's ideology and the chief executive's party ideology. We measure individual ideology using respondents' left-right self placement, which we have normalized within each survey. The partisan ideology of the chief executive's party ideology is coded as left (-1), center (0), or right (1), following **?**.[7]

Empirical Approach

The main goal of the empirical analysis is to estimate how much, if at all, macro-level economic performance affects vote choice through individuals' economic evaluations. The performance-based view suggests that the economy matters for elections because it shapes the calculus of voting through individual evaluations of performance. As the state of the economy changes, voters' evaluations should move in the same direction. This affects the choice of whether to re-elect the incumbent party, at least in contexts where policymaking authority is sufficiently concentrated. In short, individual evaluations mediate the impact of economic performance. The conceptual insight of the mediation approach is to make explicit two separate counterfactuals underlying the idea of mediation that cannot be observed because objective and subjective economic performance move together. The causal mediation analysis examines what would happen to voting behavior if (1) subjective evaluations changed despite no change in objective performance or (2) objective performance changed while subjective evaluations were held constant.

To use the available data to assess the strength of the link between the real economy, subjective economic evaluations, and vote choice, we need a statistical method that is appropriate for a model of voting with a binary dependent variable (incumbent vote choice), an ordinal measure of economic evaluations (the mediating variable) and a continuous measure of economic performance in a multi-level setting. Traditional methods for making inferences about causal mechanisms - often referred to as causal mediation analysis in statistics - mostly rely on linear structural equation models (e.g., **?**). There is no off-the-shelf model that suits the data at hand. We build on a recent generalization of the causal mediation approach in the counterfactual framework of causal inference to estimate a non-linear model that is appropriate for data and thus allows us to examine the mechanism of economic voting implied by performance-based theories.[8]

Mediation, Total, and Direct Effects The total effect of the economy on the vote for the party of the incumbent chief executive can be decomposed into a mediation effect due to economic evaluations, reflecting the hypothesized channel of the performance-based view of elections, and a direct effect that captures other channels not emphasized by the performance-based view. The mediation effect is the effect of the objective economy on the incumbent vote that flows through the subjective economy. It captures the change in voters' support for the incumbent party that is caused by retrospective economic evaluations reflecting different levels of economic performance while actual economic performance is held constant. A positive mediation effect, as predicted by the performance-based view, requires that the objective economy shapes subjective economic evaluations, and that subjective evaluations shape vote choice. To the best of our knowledge, despite its theoretical importance and the large number of studies of economic voting, there are no direct estimates of the mediation effect. The direct effect captures how much the behavior of voters changes if economic performance changes while their retrospective economic evaluations remain fixed.[9]

To make the meaning of these key quantities of interests more precise, we define them formally using the potential outcome framework of causal inference. Let G_s denote a measure of economic performance, such as economic growth, for a particular survey s. Different counterfactual values of economic performance are denoted by g and g'. For example, economic growth may be 1 percent and the counterfactual value may be 2 percent. For a survey respondent, indexed by i, the effect of economic performance on vote choice is simply the difference between the probability that the respondent supports the incumbent party given economic performance g (e.g., 1 percent growth) and the probability that the respondent supports the incumbent party given a counterfactual value of economic performance g' (e.g., 2 percent growth). We call this the total affect as it may reflect a myriad of channels. Formally, the total effect can be defined as $TE \equiv V_{is}(g') - V_{is}(g)$, where V_{is} denotes the vote choice (for or against the party of the chief executive) of voter i in survey s as a function of economic performance. This formulation does not rule out the relevance of other variables, but for notational simplicity possible confounders are not made explicit. The total effect averaged over all voters in an election is the quantity of interest in most macro-level studies of economic voting. We call it the average total effect (ATE).

The goal of our analysis is to decompose the average total effect into a mediation effect driven by economic evaluations and a direct effect. This requires taking into account retrospective evaluations as a potential mediating variable between economic performance and vote choice. Let $R_{is}(G_s = g, X_{is} = x_{is})$ denote whether voter i in survey s thinks the economy got better, stayed the same, or got worse, which is a function of economic performance, G_s, and covariates, such as ideological proximity, X_{is}. For instance the same person who said that the economy has stayed the same when economic growth was 1 percent might have said that the economy was improving if growth was 2 percent. By considering both objective economic performance and subjective evaluations, we can conceptualize the vote choice of respondent i in survey s as function of economic performance, economic evaluations, and covariates, denoted by $V_{is}(G_s, R_{is}(G_s, X_{is}), Z_{is})$, where the covariates shaping retrospective evaluations (X_{is}) and vote choice (Z_{is}) need not be identical. Note that economic performance (G_s) appears twice in the vote choice function. By including both economic performance and evaluations in the vote function, we allow for the possibility that economic performance affects voting through evaluations and through other channels not emphasized by the performance-based view.

Now we can formally define the mediation effect for given voter i in survey s as the difference in the probability of voter i voting for the party of the chief executive caused by a change in evaluations from a baseline level of economic performance (g) to a different level

level (g') while holding controls and actual performance constant:

$$ME \equiv V_{is}(g, R_{is}(g' \mid x_{is}) \mid z_{is}) - V_{is}(g, R_{is}(g \mid x_{is}) \mid z_{is}) \tag{1}$$

The mediation effect captures, for instance, the difference in the probability of voting for the chief executive induced by a change of evaluation based on the perception of 2 percent rather than 1 percent economic growth while holding actual growth constant at 1 percent. We are interested in the average rather than the individual mediation effect. Electoral accountability concerns elections, not individual voters. Measuring accountability therefore requires a focus on the proportion of the electorate likely to support the incumbent, which is the average of the individual level probabilities. The average causal mediation effect (AME) aggregates the individual mediation effects. It captures how much the vote share of the party of the chief executive changes if one changes voters' economic evaluations from evaluations at the baseline value of economic performance, $R_{is}(g \mid x_{is})$, to evaluations at the counterfactual value of performance, $R_{is}(g' \mid x_{is})$, while holding performance constant at g' and controls at x_{is} and z_{is}. Following institutional arguments about the context dependence of performance-based voting, we allow the AME to vary by the type of government.

While the performance-based view implies that the effect of the macroeconomy will operate through retrospective evaluations of the economy, other causal pathways may be play. The direct effect captures all residual channels through which the real economy may affect vote choice. It reflects changes in the probability of voting for the chief executive holding individual evaluations R_{is} fixed while varying economic performance (G_s):

$$DE \equiv V_{is}\left(g', R_{is}(g \mid x_{is}) \mid z_{is}\right) - V_{is}\left(g, R_{is}(g \mid x_{is}) \mid z_{is}\right) \tag{2}$$

The average direct effect (ADE) is the effect of the objective economy on the vote share of the party of the chief executive that does not work through subjective evaluations.[10]

To summarize, we decompose the average total effect of the objective economy on the incumbent vote into two effects. The average mediation effect is the effect of the objective economy that flows through subjective evaluations. The average direct effect is the effect of the objective economy that is driven by other mechanisms. By decomposing the total effect, we can shed new light on how well standard theories of economic voting match reality.

Estimation Procedure We estimate these effects in a procedure that consists of two main steps, estimation and prediction. The procedure builds on the general estimation algorithm spelled out in detail in **?**, Appendix D. In the first step, we estimate separate regression models for the mediating variable, retrospective economic evaluations, and the outcome variable, vote choice. For the mediating variable, we fit an ordered probit regression that models subjective economic evaluations as a function of objective economic performance, measured by economic growth or unemployment. We control for the ideological proximity of each respondent to the party of the incumbent chief executive. In the regression using unemployment change as the measure of economic performance, we also control for the level of unemployment. The large number of surveys in the data set provides us with sufficient variation economic performance to identify the relationship between the economic performance and economic evaluations.[11]

For the the outcome variable, we estimate a multi-level logit model that regresses vote choice on economic evaluations. It is very similar to those in previous studies of economic voting using survey data. The intercept is allowed to vary by survey and the effect of economic evaluations on vote choice is allowed to vary by survey and the type of government. This model controls for ideological proximity and economic performance. Altogether, the first step yields regression parameters that describe each link between economic performance, economic evaluations, and vote choice.[12]

In the second step, we calculate the average mediation, direct, and total effects using the regression parameters estimated in the first step. Consider the average mediation effect. Given the regression results, we predict respondents' vote choice for a baseline value of economic performance g (e.g., 1 percent growth) using the value of economic evaluations predicted given the baseline economic performance. Based on individual respondents' predicted vote choice, we calculate the expected vote share of the party of the chief executive under the baseline condition. Next, we predict vote choice for the same baseline objective performance g but using the value of subjective evaluations predicted for a counterfactual economic performance g' (e.g., 2 percent growth), and compute the resulting expected vote share. The estimate of the average mediation effect is the difference between the expected vote shares.

By the same logic, the average direct effect is the difference in the expected vote share given the baseline performance g (e.g., 1 percent growth) and the expected vote share given the counterfactual performance g' (e.g., 2 percent growth) but holding evaluations fixed as those predicted under the baseline. The total effect is the sum of the mediation and the direct effect. It is the difference in the vote share under the baseline and the counterfactual economic performance. We estimate average effects for each type of government. We compute their statistical uncertainty by recalculating the effects for repeated draws of the regression estimates from their estimated sampling distribution (**?**).

There is a continuum of baseline and counterfactual values of economic performance that can be used in the prediction step. We focus on commonly observed magnitudes rather than rare events. In particular, we present results based on changes in performance of the magnitude of one percentage point for both economic growth and of unemployment change estimated at various baseline values of economic performance. A one point increase in GDP growth is about .5 standard deviations in our sample, while a one point increase in unemployment is a change of about .9 standard deviations.

Two assumptions are needed to identify the average mediation effect. They are similar to the traditional exogeneity assumptions familiar to users of most regression models. The first assumption requires that after controlling for pre-treatment covariates, economic performance is independent of all potential outcomes for incumbent vote choice and economic evaluations. This exogeneity assumption is commonly considered to be plausible in studies of economic voting. Indeed, several studies argue that the use of economic outcomes is a solution for the problem of endogenous economic evaluations (e.g., **?**).[13]

The second assumption is that observed economic evaluations are independent of all potential outcomes given the observed values for economic performance (and controls). In particular, this assumption implies that there are no country or time specific differences that are not accounted for by the random intercepts at the survey level. In other words, economic evaluations can be regarded as if they were randomized among voters who are exposed to the same economic performance and who share the same ideological predisposition. This additional assumption is not required for an analysis that is only interested in the total effect of economic performance. While consistent with the performance-based view of elections, it is strong in the sense that it is not guaranteed to hold even if economic performance were randomized.[14]

Results

Figure **??** reports the estimation results for economic growth. For a one percentage point increase in economic growth, it plots the average total effect (ATE) on the vote share of the party of the chief executives and decomposes it into the average mediation effect (AME) and the average direct effect (ADE). The AME works through changes in individual economic evaluations and the ADE reflects other channels of influence. The figure reports the point estimates and confidence intervals (on the y-axis of each panel) for various baseline values (on the x-axis) of economic growth.[15] The figure shows that economic growth has a significant and substantively important impact on incumbents' electoral fate through individual evaluations. In line with the voting mechanism of the performance-based view of elections, an increase in economic growth increases the vote share of the incumbent chief executive and the increase is entirely accounted for by the mediation effect. The effect is more pronounced in the context of concentrated policymaking power than in the context of dispersed policymaking power.

[Figure 1 about here.]

The panels in the top row show that under both single-party and coalition governments, there is a large and statistically significant effect of economic growth on support for the incumbent party. The second and third rows decompose this effect into mediation and direct effects. The second panel of the left column presents the average mediation effect in a context where the power is concentrated in the hands of the incumbent party (i.e., single-party majority government). The AME is about 1.4 percentage points across a large range of baseline values. Subjective evaluations of macroeconomic performance are an important channel through which objective economic performance affects the vote. The second panel of the right column shows the AME if no single majority party controls the executive and the legislature (i.e., coalition and/or minority government). For simplicity, we refer to this case of dispersed policymaking power as coalition government. The point estimates of the AME under coalition government are smaller by about 0.6 percentage point than those for majority governments, but they remain statistically distinguishable from zero. The estimates show that the chief executive in a coalition government gains fewer votes for an increase in

GDP growth than a single-party majority government would gain. Nonetheless, coalition governments do not appear to be completely isolated from the electoral consequences of good or bad economic growth.[16]

The panels in the third row of Figure **??** show that the ADE of economic growth is practically zero across both institutional contexts. In other words, if economic evaluations are held constant, economic growth has no residual impact on support for the chief executive. This finding suggests that there are no major channels other than evaluations through which economic growth affects vote choice or that all of these other channels average out to zero. According to these estimates, economic growth matters for elections by affecting voters' evaluations of the economy. In short, the results for economic growth clearly bear out the mechanism of economic voting implied by the performance-based view. In line with institutional arguments, they also indicate that the link between economic growth, evaluations and the vote is more pronounced if policymaking power is concentrated rather than dispersed.

Unemployment Effects Figure **??** reports the results for unemployment. For a one percentage point increase in unemployment, it decomposes the average total effect (top row) on the incumbent vote share into the mediation and the direct effects (second and third rows, respectively). As in the case of economic growth, the results for unemployment show an institution-varying impact of economic performance on the incumbent vote that works through subjective economic evaluations of the economy. As unemployment increases, the vote share of the incumbent decreases and the negative effect is entirely driven by changes in the economic evaluations captured by the AME. Again, the effect is stronger in contexts where the incumbent has concentrated rather shared control over the government. In fact, comparing the two panels in the top row, we can see that the total effect is statistically indistinguishable from zero under coalition governments.

The second panel in the left column shows the point estimates for the AME in the context of single-party majority government. They range from -2.9 percentage points to -2.4 percentage points. The confidence interval is strictly below zero throughout. Thus, consistent with the performance-based view the estimates suggest that - in the context of concentrated policymaking power - rising unemployment decreases the incumbent vote by making voters think the economy is getting worse. As shown in the top right panel, in the context of coalition government the estimates of the AME and their confidence intervals are negative as well. The point estimates range from -1.8 percentage points to -1.3 percentage point. The difference between the estimates of the average mediation effect under single-party and those under coalition government is about 1.1 percentage points.[17] As is the case for economic growth, the estimates for unemployment are consistent with the institutional argument that the performance-based voting mechanism is stronger in the context of concentrated policymaking power. They also suggest that incumbents in a context of dispersed power are not fully isolated from the electoral consequences of increasing unemployment.

The qualitative results for the mediation effect are the same for economic growth and unemployment. But with respect to the direct and treatment effects there are differences between the two measures of economic performance. The ADE reported in the third row of Figure ?? appears to be small, but positive. In contrast to the estimates for growth, this provides some evidence for the existence of alternative channels relating unemployment and incumbent vote share. The positive sign is at odds with pocketbook voting or an explanation based on valence characteristics, where competence in economic management is positively correlated with other electorally beneficial attributes of the incumbent. It may be driven by incumbents getting credit for policy responses to an economic downturn. We find the same pattern, however, when controlling for unemployment spending in the analysis.

[Figure 2 about here.]

Recall that the analysis controls for the ideological proximity between voters and the incumbent party. The coefficient on ideological proximity (see Tables 1 and 2 in the Online Appendix) is large and statistically significant in both stages for both the unemployment and the growth models. Respondents who are ideologically close to the party of the incumbent chief executive are more likely to have positive economic evaluations and to support the incumbent party. This suggests that evaluations are, consistent with previous studies, biased by ideological considerations. The importance of ideology does not, however, imply that voters are blind to actual performance. Controlling for ideological proximity, the results for both growth and unemployment show that there is a substantively important channel from real economic performance to individual evaluations to vote choice.[18]

Electoral Outcomes The magnitude of the estimated effects is politically relevant. The findings suggests that modest changes in economic performance can change the outcome of elections. To illustrate this, we calculate what proportion of election results would be overturned by an incremental change in economic performance. We used the average treatment effects estimated in Figures **??** and **??** and the 151 surveys to do so. The calculation reflects the following question: how often does a one percentage point decrease in economic growth (or increase in unemployment) change which party was supported by the largest number of survey respondents? The calculation requires making an assumption about where voters who desert the largest party will go. Figure **??** displays the proportion of leading parties whose margin was small enough to be flipped by such a change under two different assumptions. The first assumption considers a scenario where voters abandoning the leading party will distribute themselves to the other parties in proportion to the vote shares of those parties (uncoordinated). The second assumption considers the scenario where the voters abandoning the leading party will coordinate on the second largest party (coordinated).

[Figure 3 about here.]

Under either assumption, moderate changes in the economy may well switch the order of parties in election horse-races, suggesting that moderate changes in economic performance have real consequences for the probability that some chief executives will be re-elected. Close elections are common, both in our data and in the world at large, and Figure **??** suggest that the magnitudes of the effects we have estimated are large enough to shift the results of some of them. For example, consider the 1996 election in Spain, which ended twelve years of PSOE (socialist party) control of government. The margin between the two largest parties was just 300,000 votes, or just over 1% of the electorate, but was sufficient for José María

Aznar, of the PP (center right), to form a minority government. Our estimates suggest that if the incumbent government could have increased economic growth by one percentage point, the proportion of people believing the economy had improved would have increased from 18 to 26%, while decreasing the proportion who thought it had gotten worse by about the same amount. This, in turn, would have increased support for the PSOE by about 2%, returning them to the position of largest party and probably allowing them to remain in control of the executive.

Conclusion

This paper sheds new light on the old question of whether elections can serve as instruments of democracy. We have conducted a causal mediation analysis to examine the full chain of economic voting implied by performance-based theories of elections using 151 surveys covering 18 established democracies over a period of two decades. The estimation results reveal that good (bad) economic performance improves (worsens) voters' retrospective evaluations of the economy, and this improvement (worsening), in turn, causes an increase (decrease) in the probability that voters will support the party of the incumbent chief executive. The linkage between economic performance, voters evaluations, and the vote is stronger where democratic political institutions concentrate power in the hands of the chief executive. The findings are consistent with the voting mechanism implied by performance-based theories.

The results imply that the chain of accountability is not generically broken, as some interpretations of the literature on economic voting suggest. In line with existing studies, we find that the ideological affinity of voters to the incumbent government shapes voters' evaluations of the economy. Controlling for ideological distance, however, objective economic performance has a substantively important impact on the vote working through voters' subjective economic evaluations. We also find that the the mechanism varies by political context as predicted by institutional arguments. With respect to electoral accountability, the institutional finding is somewhat ambiguous. The linkage between economic performance and the vote is considerably weaker in situations of coalition and minority governments than in situations of single-party majority governments. However, the results do not indicate a complete absence of electoral accountability for coalition and minority governments. Plausible changes in economic growth produce electoral consequences, even in these contexts.

Examining the consequences of the incentives implied by economic voting for the behavior of elected policymakers is beyond the scope of this study. Nonetheless, our simulations indicate that the substantive effects are large enough to affect the outcome of elections. This suggests that re-election seeking politicians have an incentive to take actions that are likely to foster good economic performance and political parties have an incentive to recruit competent policymakers.

Notes

[1]An Online Appendix with supplementary material for this paper will be available at *at www.cambridge.org/cjo/TBA*. Data and code necessary to replicate the quantitative results presented in this paper will be made available on publication at (*site omitted*).

[2]While most of the literature does not examine the link between economic performance and evaluations, some studies show that they are correlated (e.g., **??**).

[3]The idea that the full mechanism should be examined together is not novel (e.g., see **?**). A different approach considers the impact of the real economy on vote choice via voters' propensities to support a particular party (**?**).

[4]Our approach complements studies addressing the concern that economic evaluations are endogenous to ideological attachments using instrumental variables and/or panel data (e.g., **???**). We decompose the effect of the real economy on the economic vote in a mediation effect reflecting subjective evaluations and a residual effect capturing other channels.

[5]After the elimination of surveys that lack the basic variables needed for the analysis, we are left with 151 surveys. The countries included are Australia, Belgium, Canada, Denmark France, Germany, Greece, Iceland, Ireland, Italy, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, UK, and US. For a more comprehensive description of the survey data, see **?**.

[6]Voters who expressed no preference were dropped from the analysis.

[7]Accordingly, both liberal (in all countries) and Christian Democratic parties (outside of Germany) are coded as center parties. An alternative measurement strategy is to interact ideology with indicators for left, center, or right government variables. This produces almost identical estimates.

[8]? provide a general identification result. ? spell out an estimation algorithm than can be implemented with a large class of parametric models. There also is a software (mediation) that implements this algorithm for several types of data and parametric models (?). It does not handle the data structure described above. For a summary and illustrations of the general approach, see ?.

[9]For example, the link may mainly reflect pocketbook considerations. Moreover, the media or interest groups may be more likely to support the re-election of an incumbent government that competently manages the economy. Strategic contributions, mobilization, and other forms of support by elites then affect voting behavior, but not necessarily through voters' evaluations of economic performance. Similarly, competence in economic management may be positively correlated with other qualities of the chief executive, such as competence in campaigning. Thus, the observed relationship between economic outcomes and vote choice may reflect the quality of candidates that affect voting behavior through channels other than economic evaluations. Such factors may entail macro-level accountability, but it would not be generated by the micro-level voting mechanism assumed by the standard performance-based view.

[10]The quantities of interests represented by Expressions (??) - (??) are formulated without reference to any specific statistical model. The recent methodological work by ? shows that the AME [the sample average of Expression (??)] - the main focus of this paper - is generally (i.e., non-parametrically) identified under assumptions discussed below.

[11]The standard errors allow for clustering of errors within each survey. Note that the non-linear specification allows for asymmetric voter responses to the economy driven by ceiling or floor effects (e.g., ?).

[12]For a formal statement of the statistical models, see the Online Appendix.

[13]While it is straightforward to argue that economic expectations about current or future behavior drive economic performance, as in bank runs, this is not the case for evaluations of past performance, which we use here.

[14]**?** combine both assumptions under the name of sequential ignorability. For a formal statement, see the Online Appendix. In contrast to an instrumental variables approach, which is otherwise quite similar to the models used here, sequential ignorability does not assume that the direct effect of economic performance is zero. The Online Appendix also displays the results of a sensitivity analysis that suggests that the correlation of errors between the two models would have to be quite large to reduce our estimate of the mediation effect to zero.

[15]A baseline of 2% economic growth means we are estimating the effect of changing growth from 2% to 3%.

[16]To get a better sense of the statistical significance of the difference between the effects under different types of governments, it is worth noting that the coefficients on the interaction terms (type of government multiplied by indicators for saying that the economy has gotten better or worse) in the second stage of the estimation are in the expected direction and that the interaction term between type of government and a perceived worsening economy is quite large and precisely estimated (see Table 2 in the Online Appendix). Tests of the significance of these effects confirm that the effect of economic outcomes differ across government types.

[17]This difference is statistically significant. See Table 2 in the Online Appendix for the coefficients and standard errors.

[18]The Online Appendix examines the robustness of our results. Duch and Stevenson conduct extensive robustness checks on a model quite similar to our second stage model, estimated with the same data (**?**, ch. 4). Our first-stage results have not previously been subjected to such rigorous tests, so we conduct several robustness checks, including using

both growth and unemployment change in the same model, including demographic controls and those controls interacted with the ideology of the incumbent, and country fixed effects. The results remain substantively unchanged. Finally, we conduct a sensitivity analysis that examines the effect of relaxing the assumption that there is no omitted variable that explains both evaluations and vote choice. It shows that an unlikely, though not impossible, violation of our identification assumptions is required to eliminate our qualitative results.

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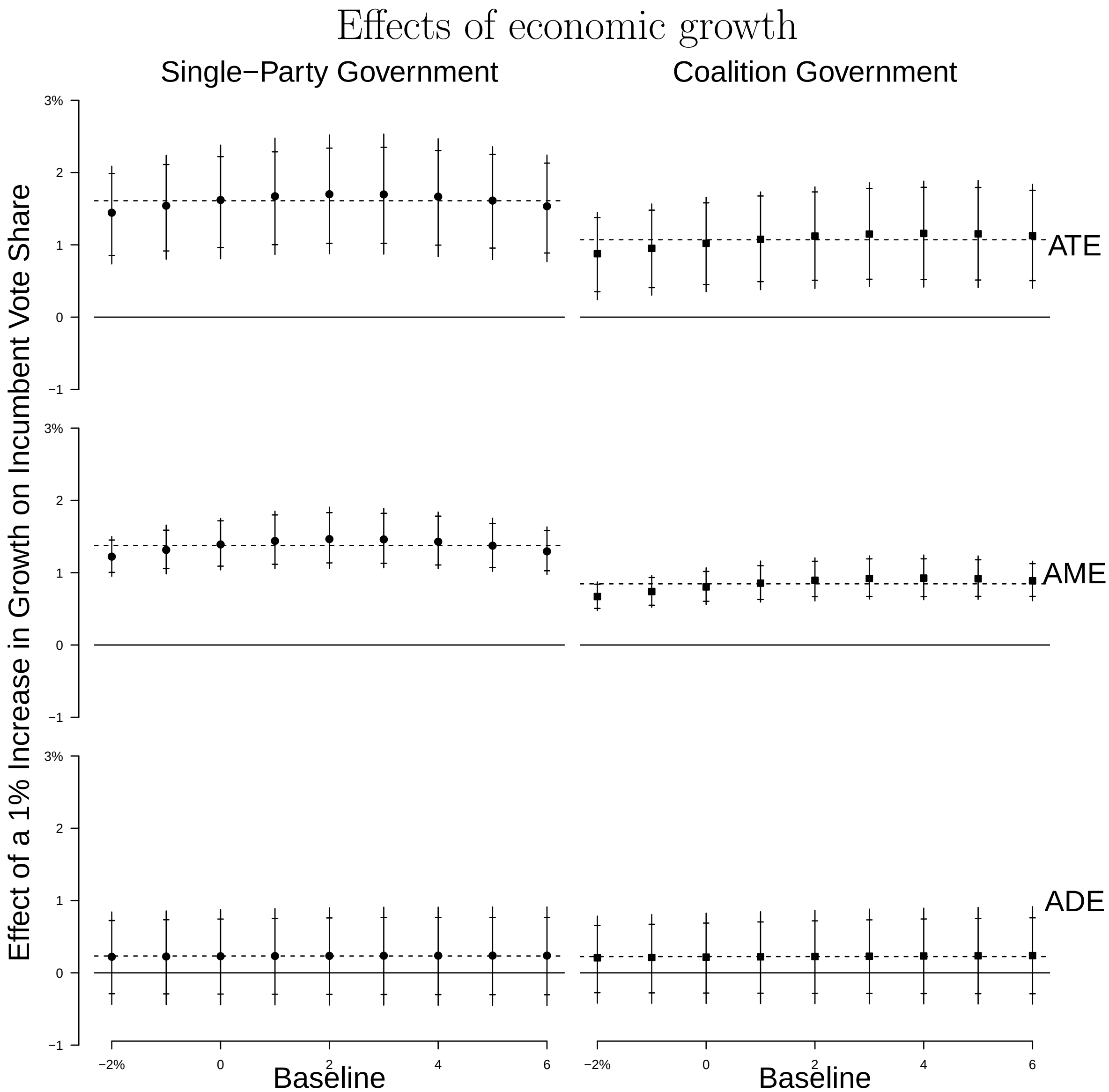

Figure 1: This figure displays the estimates of the average total effect (ATE), average mediation effect (AME), and average direct effect (ADE) of a one percentage point increase in economic growth on the vote share of the party of the incumbent chief executive for different baseline values of GDP growth. The AME is the part of the ATE that is driven by survey respondents' retrospective evaluations of the economy and the ADE captures other mechanisms. Each dot is a point estimate obtained from the non-linear structural equation model specified in the text. The dashed line is the average across all baselines. Vertical lines are 95 percent confidence intervals, while horizontal dashes bound the 90 percent confidence intervals.

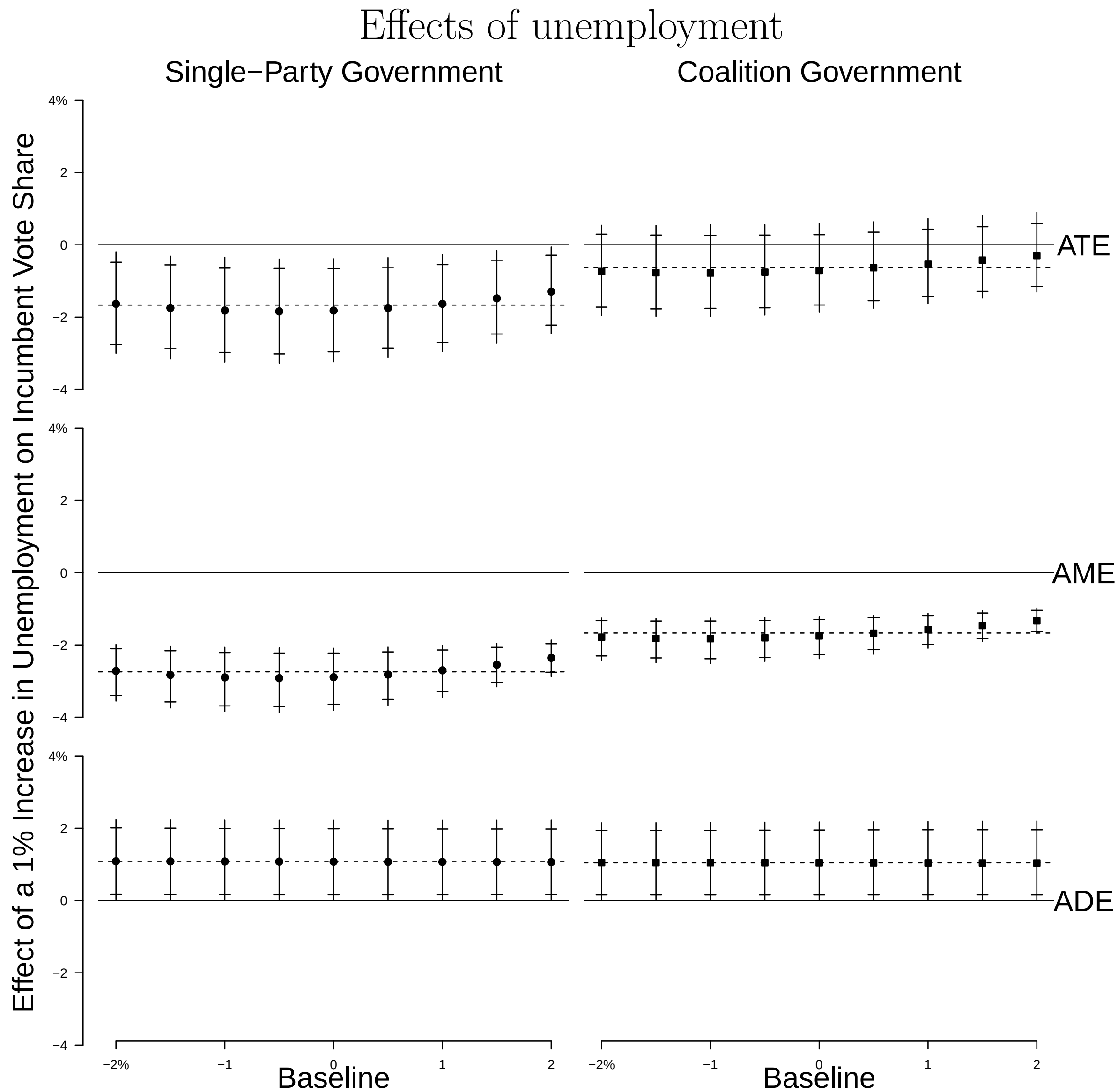

Figure 2: This figure displays estimates of the average total effect (ATE), average mediation effect (AME), and average direct effect (ADE) of a one percentage point increase in unemployment on the vote share of the party of the incumbent chief executive for varying baseline values of unemployment change. The AME is the part of the ATE that is driven by survey respondents' retrospective evaluations of the economy and the ADE captures other mechanisms. Each dot is a point estimate obtained from the non-linear structural equation model specified in the text. The dashed line is the average across all baselines. Vertical lines are 95 percent confidence intervals, while horizontal dashes bound the 90 percent confidence intervals.

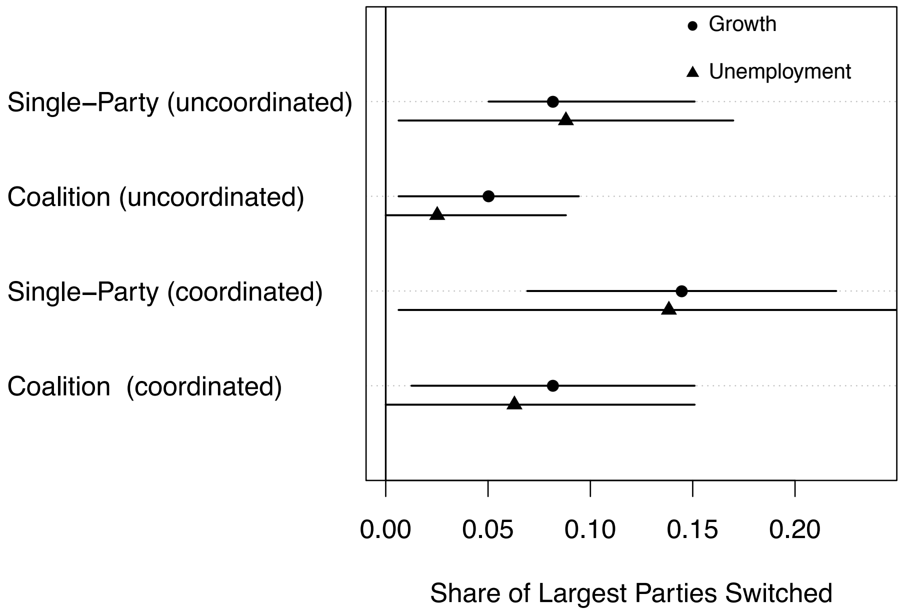

Figure 3: This figure shows the estimated proportion of surveys in which the margin of support between the largest and the second largest party was small enough to be flipped by a 1 percent decline (increase) in economic growth (unemployment). The calculation is based on the ATE in Figures **??** and **??** and the 151 surveys in our data set. Single-Party and Coalition labels refer to the type of government, while coordinated and uncoordinated refer to whether votes lost by the largest party are allocated only to the main challenger or are split across all other parties in proportion to their support.