

Accountability for the Local Economy at All Levels of Government in United States Elections

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Abstract

Retrospective voting is a crucial component of democratic accountability. A large literature on retrospective voting in the United States finds that the president's party is rewarded in presidential elections for strong economic performance and punished for weak performance. In contrast, there is no clear consensus about whether politicians are held accountable for the local economy at other levels of government, nor how voters react to the economy in a complex system of multilevel responsibility. In this study, we use administrative data on county-level economic conditions from 1969-2018 and election results across multiple levels of government to examine the effect of the local economy on elections for local, state, and federal offices in the United States. We find that the president's party is held accountable for economic performance across nearly all levels of government. We also find that incumbents are held accountable for the economy in U.S. House and gubernatorial elections. Our findings have broad implications for literatures on representation, accountability, and elections.

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1 Introduction

The mass public’s evaluation of elected officials’ performance at the ballot box forms a cornerstone of democratic accountability (Ashworth, 2012; Healy and Malhotra, 2013). It facilitates the selection of competent leaders (Fearon, 1999) and enables the public to incentivize politicians by rewarding strong performance (Ferejohn, 1986). An important element of this retrospective voting is that voters should reward elected officials for strong economic performance and punish them for a weak economy. Thus, understanding whether voters judge politicians for economic performance is crucial for any assessment of representative democracy (e.g., Key, 1966).

A simple view of retrospective voting, however, belies the complex way accountability operates in a federal system. Multiple levels of government could influence the economy, and voters might reward or punish any combination – or none – of them for economic performance. Furthermore, voters might attribute responsibility for the economy to any of those levels of government and reward or punish candidates at other levels of government based on their partisan connections to the level of government they perceive as responsible. Answering empirical questions about economic voting may therefore yield a nuanced picture of accountability.

Past studies have found that the incumbent president’s party’s vote share in presidential and Congressional elections is correlated with national economic conditions (Kramer, 1971; Tufte, 1978; Markus, 1988; Erikson, 1989). Several recent articles have also provided evidence of accountability for the local economy in presidential elections (Hill, Herron, and Lewis, 2010; Healy and Lenz, 2017; Cottrell, Herron, and Westwood, 2018).¹ But there has been little research about whether voters hold incumbent officeholders at other levels of government accountable for the local economy. Indeed, the small literature on retrospective voting in gubernatorial elections has demonstrated a limited or contingent impact of the

¹But see Hall, Yoder, and Karandikar (2019) for contrary evidence that the local economy did not have large effects on voting behavior during the Great Recession of 2008-2009.

economy on voting patterns (e.g., Peltzman, 1987; Ebeid and Rodden, 2006; Wright, 2012). There has also been little research focused on the degree to which the president’s party is held accountable in subnational elections, relative to the party of downballot incumbents. Given the centrality of retrospective voting for democratic accountability, it is important to understand whether Americans hold elected officials accountable for the economy at *all* levels of government — as well as *which* incumbent’s party is held accountable.

In this study, we conduct the first holistic evaluation of retrospective voting for the local economy across all levels of government in the United States. We examine whether voters reward and punish elected officials for the performance of the economy in elections for President, Senate, House, governors, downballot state offices, state legislatures, and local offices. We also assess whether this reward and punishment is tied to the party of the president or the party of downballot incumbents. This allows us to adjudicate between theories of president-centric or downballot-centric incumbent accountability. Our analysis is built upon fine-grained administrative data on the local economy. We combine these data with election results measured at the county level in federal, state, and county elections. With this rich dataset in hand, we utilize a variety of time-series, cross-sectional (TSCS) models (Angrist and Pischke, 2009) to estimate the causal effects of the economy on voting.

First, we examine economic accountability for the president’s party in federal, state, and local elections. We find strong evidence that voters are responsive to the condition of the economy when voting in both federal and state elections. However, the size of this effect is relatively modest. A one standard deviation increase in local wage growth leads to between a quarter and a half of a percentage point boost for the president’s party. This effect is very consistent across presidential, House, Senate, gubernatorial, and state house elections. We also find substantively similar, though statistically insignificant, point estimates of accountability in local elections, though our evidence there is limited by the relatively small set of county elections for which data exist. This supports theories of strong partisan linkages across levels of government and a president-centric view of economic accountability, even in

subnational elections.

Next, we examine whether voters judge downballot incumbents for the performance of the economy in downballot elections. For instance, do voters reward or punish the party of their current representative in Congress based on the conditions of the economy when voting in Congressional elections? We find that the governor’s party is held accountable in gubernatorial elections. We also find that House candidates are punished or rewarded based on the party that controls their seat. However, we find more mixed evidence for the U.S. Senate and state legislatures. This suggests limits to accountability for downballot incumbent officeholders.

Finally, we examine two potential moderators for accountability: whether accountability has changed over time, perhaps due to the increasingly nationalized nature of elections in the United States (Hopkins, 2018; Donovan et al., 2019), and whether the media influences accountability for local economic conditions. We find no clear evidence that retrospective voting has changed over time as elections have grown more nationalized. While there are a variety of theoretical reasons to believe that media coverage of the local economy facilitates accountability (e.g., Snyder and Strömberg, 2010; Hayes and Lawless, 2015), we also find only suggestive evidence that newspapers influence retrospective voting in elections.

Overall, our findings show that the local economy matters in both national and subnational elections. Moreover, economic voting in state and local elections is more similar to economic voting in presidential elections than scholars have previously thought. The president’s party is rewarded and punished for the economy in presidential as well as subnational elections. This suggests that there are electoral incentives for national, state, and local politicians from the president’s party to pursue policies that grow the economy. This has implications for literatures on distributive politics and legislative politics (e.g., Kriner and Reeves, 2015; Dynes and Huber, 2015). Our findings also indicate that subnational officeholders, and candidates from the parties of subnational incumbents, generally have an incentive to grow the economy. In particular, incumbent governors and U.S. House represen-

tatives may increase their electoral success by focusing on economic policy levers. Moreover, these results suggest that voters assign responsibility in a nuanced way: to the president, and to downballot incumbents in limited circumstances. This speaks to a growing literature arguing that voters’ decisions in subnational elections are shaped by forces of nationalization – that is, that voters make decisions at a subnational level based on their attitudes about national politics.

The paper proceeds as follows. First, we briefly review the background literature on economic voting, and particularly on local economic voting. Second, we discuss our theoretical expectations. Next, we discuss our data and research design, and then our main results. We then present results showing the relative stability in economic accountability across time periods and media environments. Finally, we briefly conclude and discuss the implications of our findings for democratic accountability.

2 Economic Voting in Multilevel Elections

Theories of retrospective voting predict that voters should hold both incumbents and candidates from the incumbent party accountable for economic performance (e.g., Fiorina, 1981). This expectation is defined by Fiorina (1978) as “whether responsible or not, does the administration prosper in good times and suffer in bad times” (430). A large empirical literature in line with these expectations has shown that the incumbent party’s vote share in Congressional and presidential elections is correlated with macro-level economic conditions (e.g., Kramer, 1971; Erikson, 1989; Fair, 1978; Markus, 1988).² These studies find that “citizen[s] vote for the government if the economy is doing all right; otherwise the vote is against” (Lewis-Beck and Stegmaier, 2000).³

²A number of studies have shown that national economic conditions influence voting in both US Senate and US House races (Abramowitz and Segal, 1986; Hibbs Jr, 1982; Kiewiet and Udell, 1998; Kramer, 1971; Tufte, 1978; Lewis-Beck and Rice, 1992; Lewis-Beck and Stegmaier, 2000). There is also similar evidence for economic voting in other countries (e.g. Elinder, 2010; Larsen et al., 2019; Simonovits, Kates, and Szeidl, 2019), though we focus on the U.S. here.

³A related literature shows that tax increases may also affect presidential voting (e.g. Besley and Case, 1995; Niemi, Stanley, and Vogel, 1995), whether or not they are actually due to government action (Sances, 2017).

Much of this research, however, ignores the fact that multilevel elections in the U.S. make for complex representation and therefore complex accountability. While the incumbent president’s party might be an easy target for credit or blame, voters are also represented by politicians in Congress, governors, state legislators, and a host of local elected officials. Though parties may form coalitions and coordinate across levels of government (Aldrich, 1995), voters might be represented by a different party at the national level than at the state or local level — or perhaps by no party at all in many local nonpartisan elected offices. Recent research on subnational politics indicates that state and local leaders may indeed affect policy (e.g. Caughey, Warshaw, and Xu, 2017; de Benedictis-Kessner and Warshaw, 2016, 2019). But in a federal system of government as in the U.S., such subnational governments are often constrained in their policymaking relative to the national government. This makes it less clear *which* incumbent’s party would be associated with the performance of the economy. If politics at the state and local levels is more nationalized, then the incumbent president’s party’s performance might matter for subnational election outcomes, but otherwise might not (Hopkins, 2018; Morgenstern, Smith, and Trelles, 2017; Rogers, 2016). Normative theories of accountability suggest that, if subnational governments do indeed influence economic performance, incumbents at these levels of government should be held accountable for the condition of the economy as well.

Moreover, the performance of the economy is not uniform across geography (Cho and Gimpel, 2009). While the economy might be booming at the national level, certain regions or industries might be declining. This can lead to vast differences in the meaning of economic performance for people who live in different areas. This presents measurement problems in a theory of economic voting. First, it is unclear which geographic aggregation of economic performance *should* affect people’s judgments of incumbents. Economic performance could be measured at a national level, state level, county level, or personal household level — or even as relative performance based on the difference between any two of these levels. Research on economic voting has advanced both sociotropic (e.g. Fair, 1978; Kinder and

Kiewiet, 1979) and egotropic (e.g. Fiorina, 1978; Tufte, 1978) theories, as well as theories positing a mixture of the two phenomena (Ansolabehere, Meredith, and Snowberg, 2014). Second, it is unclear which geographic level of economic performance does actually form people’s perceptions of the economy.⁴ While the national economy might be an easy cue to pick up from national news media, people might also make judgements about economic performance based on cues that are closer to home, such as county- or state-level economic performance, or their own personal finances over time.⁵

For a number of decades, there was a debate in political science and political economy about whether voters held presidential candidates accountable for local economic conditions (Eisenberg and Ketcham, 2004; Gosnell and Colman, 1940; Hill, Herron, and Lewis, 2010; Wright, 2012). However, as Healy and Lenz (2017) show, the mixed results in previous studies on the effect of the local economy were largely caused by a reliance on sample based-measures of economic performance. For instance, many studies rely on estimates of county-level unemployment from the Bureau of Labor Statistics (e.g., Wright, 2012), which are largely based upon the Current Population Survey. Healy and Lenz (2017) point out that sampling error in these unemployment estimates “can cause a county-level unemployment change to deviate from the truth by several percentage points.” The large measurement error in these estimates of unemployment can attenuate estimates of accountability. Healy and Lenz examine the effect of the mortgage crisis in 2008 in California, as well as the effect of changes in wages and employment at the county-level from 1990-2016 using population-based datasets that are not susceptible to sampling error. They find strong evidence that voters hold the president’s party accountable for local economic conditions in presidential voting.

Despite the consensus about the importance of economic voting in the literature on pres-

⁴Though see Bisgaard, Dinesen, and Sønderskov (2016) for evidence that voters form perceptions of the national economy from their microcontexts.

⁵These judgements may in turn be subject to a variety of differences across different types of people — sophisticated voters may perceive the economy based on different cues than unsophisticated voters, for instance, or those who have more exposure to fluctuations in the economy may update their judgments to a greater degree (Larsen et al., 2019). These judgments may also be subject to biases due to partisan motivated reasoning (Bisgaard, 2015) and elite cues (Bisgaard and Slothuus, 2018).

idential elections at the national-level, there has been no clear consensus about whether voters hold subnational politicians accountable for economic conditions (see Table 1). For instance, a number of studies have examined the role of the economy in gubernatorial elections. Some cross-sectional studies based on surveys find that strong evaluations of the state economy (Atkeson and Partin, 1995; Carsey and Wright, 1998; Howell and Vanderleeuw, 1990; Stein, 1990) or state-level personal income growth (Niemi, Stanley, and Vogel, 1995) help the party of the incumbent governor. Others find contingent effects. But the findings in all of these studies could be confounded by the endogeneity between vote choice and economic evaluations, as well as omitted variable bias. In contrast to the survey-based studies, recent studies using electoral data generally find little evidence of accountability in gubernatorial elections for economic performance at either the state (Ebeid and Rodden, 2006) or local levels (Wright, 2012, 695).⁶ The findings in past studies on the role of the economy in gubernatorial elections could be attenuated, however, due to measurement error in their sample-based data on economic conditions (Healy and Lenz, 2017).⁷ In addition, Wright (2012) focuses on a very short time frame (1996-2008). So, overall, it remains unclear whether gubernatorial candidates are held accountable for economic performance.

There is also no consensus on retrospective voting in local elections. The urban politics literature often highlights economic development as a critical feature of performance upon which local leaders are held accountable (Logan and Molotch, 1987; Stone, 1989). But the empirical literature has yielded inconsistent and often contingent findings (e.g., Arnold and Carnes, 2012; Howell and McLean, 2001; Howell and Perry, 2004; Kaufmann, 2004; Oliver and Ha, 2007; Hopkins and Pettingill, 2018).⁸

⁶Ebeid and Rodden (2006) examine elections from 1950-98, and find that voters only hold governors accountable in states with more industrialized and diversified economies. Wright (2012, 695) examines elections from 1996-2008, and finds that higher county-level unemployment improves Democratic vote share. But he finds no evidence that voters reward (or punish) candidates from the incumbent's party. It is important to note, however, that both of these studies largely rely upon sample-based measures of unemployment.

⁷Another limitation of previous work is that the studies that use population-based measures generally rely on growth in personal income. But personal income includes transfers from the federal government, dividends, interest, and many other components that have little to do with true economic conditions.

⁸One of the challenges in this literature is the paucity of data on local elections (Trounstine, 2010). This has restricted the focus of many studies of local voting to small samples of cities.

Table 1: Previous Studies on Economic Accountability in Subnational Elections

Author	Time Period	Economic Indicator	State or Local Econ.	Office	Research Design	Accountability for Incumbent President's Party	Local's Party
Based on Surveys							
Stein (1990)	1982	Self-Evals	State	Governor	XS	Yes	No
Howell and Vanderleeuw (1990)	1988 ¹	Self-Evals	State	Governor	XS	–	Yes
Stoboda (1995)	1982, 86	Self-Evals	State	Governor	XS	–	Yes
Partin (1995)	1990	Self-Evals & PCI	National & State	Governor	XS	No	Yes
Atkeson and Partin (1995)	1986, 90	Self-Evals	State	Governor	XS	Yes	Yes (suggestive)
Niemi, Stanley, and Vogel (1995)	1986	PCI	State	Governor	XS	Yes	Yes
Carsey and Wright (1998)	1986, 90	Self-Evals	State	Governor	XS	Yes	Yes
Hansen (1999)	1967-1997 ²	Unemp./PCI	State	Governor	Panel	–	Yes
Cohen and King (2004)	1980-2001	Unemployment	State-National	Governor	Panel	–	Yes
Brown (2010)	2006	Self-Evals	State-National	Governor	XS	–	Contingent
Rogers (2013)	2008, 10, 12	Self-Evals	National	State Leg	XS	Yes	Yes
Howell and McLean (2001)	1996, 98 ³	Self-Evals	Local	Mayor	XS	–	No
Kaufmann (2004)	1997 ⁴	Self-Evals	Local	Mayor	XS	–	Yes
Howell and Perry (2004)	2000 ⁵	Self-Evals	Local	Mayor	XS	–	Mixed
Oliver and Ha (2007)	2004-2005	Self-Evals	Local	City Council	XS	–	No
Arnold and Carnes (2012)	1984-2009 ⁶	Δ Unemp. + Δ inflation	Local	Mayor	TS	–	Yes
Based on Election Results							
Kenney (1983)	1946-80 ⁷	Unemploy./Inflation/PCI	State	Governor	TS	–	No
Peltzman (1987)	1949-84	Δ PCI	State	State	Panel	Yes	No
Holbrook-Provow (1987)	1950-1982	Δ GNP	National	Governor	TS	Yes	–
Chubb (1988)	1940-82	Δ PCI	State	Gov & State Leg	Panel	Yes	Small(Gov)/No(Leg)
Leyden and Borrelli (1995)	1972-91	Δ Unemployment	State	Governor	TS	Yes	Contingent
Lowry, Alt, and Ferree (1998)	1968-1992	Δ PCI	National-State	Gov & State Leg	Panel	–	Yes(Gov)/No(Leg)
Ebeid and Rodden (2006)	1950-98	Δ PCI/Unemploy.	State	Governor	Panel	No	Contingent
Wright (2012)	1996-08	Unemployment	Local	Governor	Panel	No	No
Rogers (2013)	1972-2010	PCI/Unemploy./GDP	National & State	State Leg	Panel	Yes	No
Holbrook and Weinschenk (2014)	1996-2011 ⁸	Unemployment	National-Local	Mayor	XS	–	Mixed
Hopkins and Pettingill (2018)	1990-2011	Unemployment	National-Local	Mayor	Panel	–	Contingent

Notes:

¹ Howell and Vanderleeuw (1990) use survey data from Louisiana voters only.

² Hansen (1999) uses survey data from CA 1967-1997 and seven other states 1980-1997.

³ Howell and McLean (2001) use two survey samples from New Orleans.

⁴ Kaufmann (2004) uses exit poll data from New York City.

⁵ Howell and Perry (2004) use survey samples from four cities.

⁶ Arnold and Carnes (2012) use a series of surveys from New York City.

⁷ Kenney (1983) uses a panel of 14 states.

⁸ Holbrook and Weinschenk (2014) use data from 441 elections in 139 large cities.

3 Theoretical Expectations

Much of the research in this literature presents clear expectations for economic voting. An established body of theoretical and empirical work demonstrates that voters in presidential elections respond to economic performance. More recent research suggests that many of the mechanisms of accountability at the national level may function similarly at subnational levels (Trounstein, 2010; Warshaw, 2019). Candidates at the national, state, and local levels of government all claim credit for economic performance. This line of reasoning suggests that voters might also make electoral choices at each of these levels based on economic conditions.⁹ We focus on two major theories of accountability for the local economy in this paper, each with their own empirical predictions.

A “president-centric” or nationalized view would predict that voters will hold the president’s party accountable at all levels of elections. In other words, candidates from the president’s party may be rewarded for strong local economic performance, and punished for weak performance. Recent research has shown that state elections are increasingly nationalized (Hopkins, 2018; Rogers, 2016). For instance, national and state election results are increasingly correlated with each other, potentially because of an increase in straight-ticket voting (Abramowitz and Webster, 2016). There is also abundant anecdotal evidence for this view. For instance, following the Great Recession during the Obama presidency, Democratic governors were much more likely to lose re-election in 2010 than their Republican counterparts — a pattern of Democratic candidates under a Democratic president performing badly in elections when the economy is doing worse.¹⁰ This evidence supports a nationalized theory of subnational politics and a model of partisan accountability dependent on strong partisan

⁹This is separate from the normative question of whether or not voters *should* blame or credit politicians at any of these levels for the performance of the economy, especially given that they may not actually influence it in the short term (Dynes and Holbein, 2020) and that subnational governments are often constrained under federalism, as well as the question of whether this would result in better outcomes (e.g., Ashworth and Bueno de Mesquita, 2014).

¹⁰Of course, it is difficult to separate a midterm slump from economic voting using anecdotal evidence. Indeed, the Democratic gubernatorial losses in 2010 could have been due to the nationwide Republican wave or due to state-specific economic performance.

ties across levels of government and large divisions between parties along national lines. It suggests that voters may reward and blame the party of the president across offices.

Alternatively, a “state-centric” or local view would predict that voters are likely to hold the current incumbent in an office accountable for local economic policies and outcomes. Recent research suggests that shifts in the partisan control of state and local offices after elections can lead to consequential changes in policy (e.g., Caughey, Warshaw, and Xu, 2017; de Benedictis-Kessner and Warshaw, 2016, 2019). Voters might therefore rationally associate incumbent subnational candidates with past performance. Moreover, voters might associate policies not merely with the current incumbent but with their party as well (Ebeid and Rodden, 2006). Under this view, for example, gubernatorial candidates from the governor’s party would be rewarded for strong economic performance and punished for weak performance. Similarly, local candidates from the current local incumbent’s party would be rewarded or punished for economic conditions.

4 Data and Research Design

In order to evaluate retrospective voting in presidential, gubernatorial, and local elections, we built a panel dataset of election returns and economic conditions at the county level. This dataset is broad in temporal and geographic scope, and incorporates precise measures of economic conditions, which, alongside a credible research design, allows us the statistical power to test for the causal effect of changes in the local economy.

We assembled national, state, and local election results from 1968-2018 using a variety of sources (see Table 2 and Appendix A). For national elections between 1970 and 1990, we use the General Election Data for the United States, 1950-1990 hosted by the ICPSR (ICPSR, 2006, 2013). For presidential, senate, and gubernatorial elections between 1990 and 2014, we use data from CQ’s Voting and Elections Collection. For House elections during this period, we use data from the Atlas of U.S. Elections (Leip, 2016). For other state offices

(e.g. attorney general, secretary of state, and treasurer), we use crowd-sourced data from OurCampaigns.com. For state legislative elections, we match state legislative district results to counties (Klarner, 2018).¹¹ We use county-level data that Stephen Pettigrew assembled for presidential, senate, house, and gubernatorial election results in 2016 and 2018 (Pettigrew, 2017). For local elections, we use data from de Benedictis-Kessner and Warshaw (2019) on county legislative elections from 1990-2014. We also use data on the incumbent governor in each state/year from 1970-2014 which we obtained from Klarner (2015) and updated through 2016, as well as data on the county legislative majority from de Benedictis-Kessner and Warshaw (2019).

Table 2: Data Sources

Office	Temporal Coverage	Data Source
President	1968-2016	ICPSR, CQ, Pettigrew
Senate	1968-2018	ICPSR, CQ, Pettigrew
House	1968-2018	ICPSR, Leip, Pettigrew
Governor	1968-2018	ICPSR, CQ, Pettigrew
Other State Offices	1974-2018	ICPSR, OurCampaigns.com
State House	1968-2016	Various ICPSR Datasets + GIS
County Legislature	1990-2014	de Benedictis-Kessner and Warshaw (2019)

The main independent variable in our analysis is the change in wages per worker in each county between year_{*t*} and year_{*t-1*}.¹² Previous work in political science has commonly used

¹¹For the period prior to 1990, we used data on the number of votes from each county in each legislative district from the ICPSR. For 1990 and afterwards, we assigned state legislative votes for the Democratic and Republican candidates in each district to counties that overlap with each district, based on the percentage of the population (measured using the previous decennial Census) in districts that are within the county. We calculate these overlaps using the Geocorr application of the Missouri Census Data Center (University of Missouri Office of Social and Economic Data Analysis, available online: <http://mcdc.missouri.edu/applications/geocorr.html>) for each census year. For each county we total the weighted number of votes from all districts that overlapped with the county to create the measure of Democratic vote share county-wide.

¹²There are two reasons that we use deltas rather than levels for the economy in our main model specifications. First, recent previous literature on economic voting and accountability primarily has used deltas rather than levels (e.g., Bartels, 2008; Healy and Lenz, 2014, 2017). The theoretic rationale is that voters care about relative performance of the economy rather than abstract levels of the economy. Second, our main specification passes placebo tests to verify the validity of the parallel trends assumption (see Appendix B). However, the results were not as reassuring when we used levels rather than deltas for the outcome and/or treatment variables. In both cases, we found that these specifications failed placebo tests to evaluate the validity of the parallel trends assumption.

sample-based measures of economic conditions, such as those based on the Current Population Survey. In contrast, following recent work by Healy and Lenz (2017), we measure changes in the local economy using a dataset with annual measures of county-level economic conditions from 1969-2018 based on the population of business establishments in the United States: the Bureau of Economic Advisors’ (BEA) Local Area Personal Income and Employment data.¹³ We interact this variable with a binary indicator for whether the incumbent is a Democrat. However, the results are robust to other coding decisions.

In order to estimate the causal effect of changes in local economic conditions, we estimate a series of panel models using the following equation:

$$\Delta DemVotePct_{it} = \alpha \Delta Wages + \beta \Delta Wages \times DemInc + \gamma_i + \tau_{st} \quad (1)$$

The dependent variable is the change in the Democratic candidate’s share of the two-party vote for each office in every county between the current election and the most recent election for that office ($\Delta DemVotePct_{it}$).¹⁴ In order to examine partisan accountability in these models, we assess the effect of economic performance ($\Delta Wages$) on voteshare differentially by interacting this measure with an indicator for a Democratic incumbent. The base effect of $\Delta Wages$, α , is therefore the effect of wage growth on the change in Democratic voteshare under a Republican incumbent (Brambor, Clark, and Golder, 2006). The effect of wage growth under a Democratic incumbent is the base effect of the economy added to the interaction effect (i.e. $\alpha + \beta$). Meanwhile, our main quantity of interest is the coefficient on

¹³This dataset is largely based upon the Quarterly Census of Employment and Wages (QCEW), which is produced by the Bureau of Labor Statistics using administrative data on employers’ unemployment insurance (UI) filings. It also incorporates a number of other administrative datasets from state and federal sources to encompass businesses that are not covered by UI.

¹⁴As Hall, Yoder, and Karandikar (2019) point out in the context of their study of accountability for foreclosures in the Great Recession, “given that we want to study how [the local economy] affects incumbent performance, it might seem more logical to use incumbent party vote share, rather than Democratic party vote share, as our dependent variable. This would allow us to forego the interaction term between [the local economy] and Democratic incumbency. However, it seems unlikely that counties trend in terms of their general support for incumbents, and far more likely that they might trend in terms of their partisanship. As such, it makes more sense to use the interactive specification with Democratic vote share as the dependent variable, so that we can account for these trends directly.” This also allows us to model the potential asymmetry in the effect of the economy on candidates from either party.

the interaction term, β , which represents the difference in the effect of the economy when there is a Democratic incumbent compared to when there is a Republican incumbent.¹⁵

In subsequent models, we also interact economic performance with an indicator for the party of the incumbent local officeholder in that county. The party of the incumbent representing each county is relatively straightforward to calculate for the offices of Governor and U.S. Senator. For the county legislature, we use an indicator for the county legislative majority, as we do not have sub-county electoral data. For the U.S. House and both state legislative chambers, we calculate the percentage of each county represented by a Democratic representative in each of these offices.¹⁶ This allows us to assess economic accountability for the incumbent party holding those subnational offices. We hypothesize that Democratic candidates should be rewarded for growth when there is a Democratic incumbent, whether that is at the presidential level or the level at which they cast their vote for governor/county legislator, and Republican candidates should be rewarded when there is a Republican incumbent.

Our main models use county fixed effects, represented by γ_i , to account for time-invariant confounders in each county, and state-year fixed effects, represented by τ_{st} , to control for time-varying confounders at the state and national levels (Fowler and Hall, 2018).¹⁷ Given that our outcome and treatment variables are both first-differenced, the county fixed effects mean that our models are controlling for long-term trends in the economy and election results in each county. The state-year fixed effects mean that our analyses are comparing the changes over time in counties with greater wage growth to the changes over time in counties with

¹⁵Note that we omit the base effect of this indicator for a Democratic president, as it would be completely absorbed by the state-year fixed effects. To assess economic accountability for candidates of the president’s party running in federal, state, or local elections, we use the appropriate measure of $\Delta DemVotePct_{it}$ measured in that election.

¹⁶To do so we utilize a combination of sources and methods. For some years and offices, we use the Missouri Census Data Center’s Geocorr application to create population-weighted overlaps between districts and counties, for others we create area-based overlap counts using shapefiles provided by NHGIS (Manson et al., 2018) and by Lewis et al. (2013), and for others we use vote totals by county from ICPSR data. For each of these calculations, these geographic correlations allow us to approximate the proportion of people in a given county represented by a Democratic incumbent.

¹⁷We also cluster our standard errors at the county level in all of our analyses to account for serial correlation in errors.

lower wage growth in the same state (Hall, Yoder, and Karandikar, 2019). The estimand in these models represents the effect of changes in economic growth relative to the typical economic growth in the county, compared to the counterfactual changes in economic growth in other counties in the state, on the change in voteshare in a county relative to typical changes in voteshare in that county. While this estimand differs from that implied by more traditional models using levels of economic conditions or levels of voteshare, it represents the effect of economic conditions on vote patterns that we are able to causally identify.¹⁸

This specification gives us well-identified variation in our independent variable, allowing us the causal leverage to assess the impact of economic performance.¹⁹ This leverage stems from the fact that there is a great deal of variation in local economic conditions across geography and time. By way of example, we show these changes within county and across years in Figure 1. Each map shows all counties’ change in economic conditions relative to the average in their state and year, in 2008 (1a) and 2012 (1b).

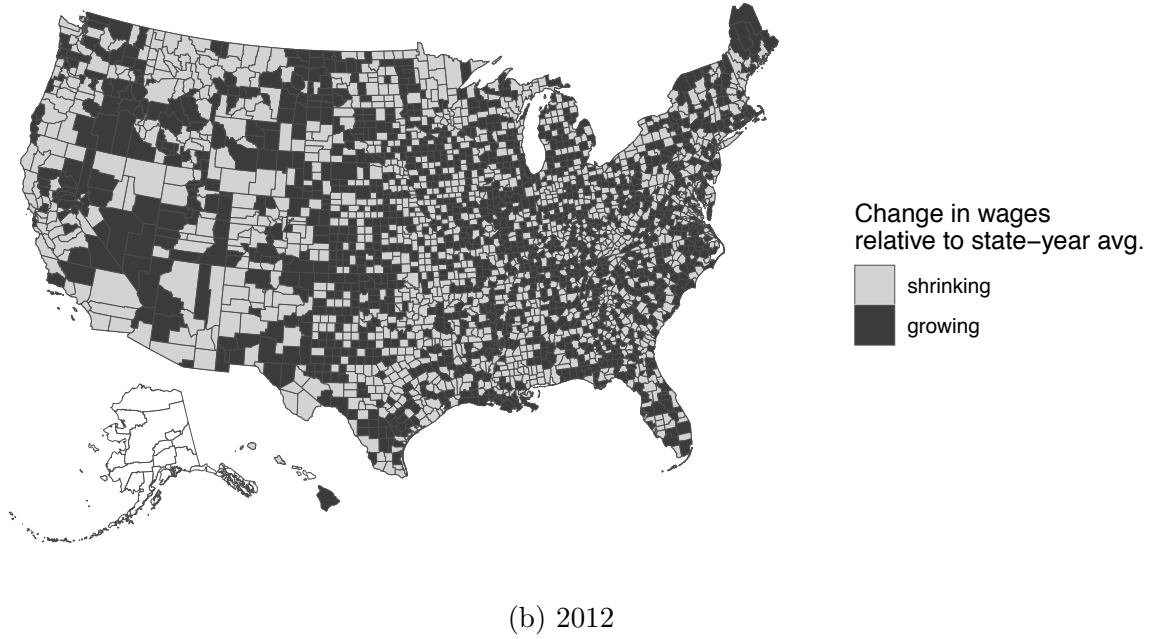
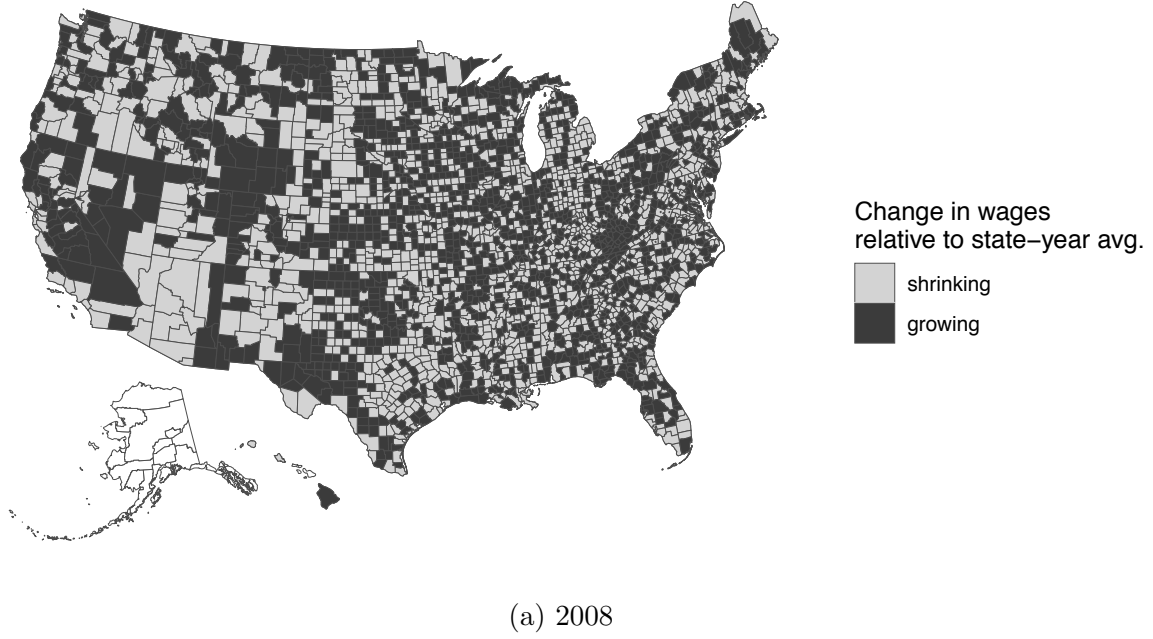
Finally, our main models focus on counties with more than 20,000 people.²⁰ This approach reduces the sensitivity of our results to small counties, which often have volatile economic statistics and therefore might introduce measurement error. It also captures the political reality that politicians generally care more about counties with large populations than ones with small numbers of voters. However, we obtain substantively similar results in models that include all counties, but weight by population (Section 5.2).

¹⁸However, we obtain substantively similar results using a variety of other specifications, which we show in Section 5.2.

¹⁹Much like standard difference-in-difference models, the crucial assumption underlying this research design is that there are not time-varying confounders that might affect both the economy and voting in certain counties and year but not others. We formally examine this assumption by demonstrating that there are parallel trends in our main outcome in Appendix B.

²⁰We found that smaller counties had much more volatile changes in the local economy than medium and large ones.

Figure 1: Change in Economic Conditions



5 Main Results

In this section, we discuss our main results. First, we examine accountability for the president's party in federal, state, and local elections. We also show the robustness of our

main results to a variety of plausible, alternative model specifications. Lastly, we examine accountability for the party that controls other offices.

5.1 Accountability for President's Party

We first examine accountability for the president's party in federal, state, and local elections. Each model uses the specification described above and in equation (1). The main quantity of interest to assess accountability is the interaction between our measure of economic performance and the indicator for a Democratic incumbent. This interaction measures the degree to which economic performance affects the voteshare of candidates from the Democratic party when the presidential incumbent is also a Democrat relative to when the incumbent is a Republican.

Table 3: Accountability for President's Party in Federal Elections

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	President	Senate	House	Federal Average
	(1)	(2)	(3)	(4)
Change in logged wages \times Democratic president	0.134*** (0.030)	0.069* (0.035)	0.169** (0.073)	0.124*** (0.043)
Change in logged wages	-0.095*** (0.023)	-0.071*** (0.022)	-0.088* (0.047)	-0.072*** (0.028)
FE for State-Year	X	X	X	X
FE for County	X	X	X	X
Observations	21,686	29,670	43,045	44,800
R ²	0.873	0.876	0.283	0.500
Adjusted R ²	0.858	0.864	0.230	0.465

Note:

*p<0.1; **p<0.05; ***p<0.01

Standard errors clustered by county.

Table 3 shows our results for federal elections. Given that our independent variable is operationalized on a log scale, the coefficients across all models can be interpreted approximately as the change in voteshare due to an increase in wage growth of one percent (Gelman and Hill, 2007, 60-61). The interaction term in column (1) indicates that a one percent

greater change in local wages leads to a 0.13 percentage point difference in Democrats' vote shares in presidential elections when there is a Democratic president compared to when there is a Republican president. That is, the Democratic candidate does better when the economy grows and worse when it declines when there is a Democratic president. Columns (2) and (3) show that the president's party is also rewarded and punished for economic performance in Senate and House elections. In Senate elections, a one percent greater change in local wages leads to a 0.07 percentage point difference in Democratic candidates' vote shares when there is a Democratic president compared to when there is a Republican president. In House elections, a one percent greater change in local wages leads to a 0.17 percentage point difference in Democratic candidates' vote shares when there is a Democratic president than when there is a Republican president.

Averaging across all these federal elections, an approximately one percent greater change in local wages leads to a 0.124 percentage point difference in Democratic candidates' vote shares when there is a Democratic president compared to when there is a Republican president.²¹ A one standard deviation change in wages within counties is about 2.3% (Mummolo and Peterson, 2018). This implies that one standard deviation greater wage growth leads to about a 0.29 percentage point difference in federal Democratic candidates' vote shares when there is a Democratic president compared to when there is a Republican one.

Next, we examine accountability for the president's party in state and local elections (Table 4). The interaction term in column (1) shows that a one percent greater change in wages leads to a 0.18 percentage point difference in Democratic candidates' vote shares in gubernatorial elections when there is a Democratic president rather than a Republican president. Column (2) suggests, however, that the local economy has no effect on elections for other state offices such as attorney general and secretary of state. Column (3) shows that an approximately one percent greater change in local wages leads to 0.22 percentage point difference in Democratic candidates' vote shares in state house elections when there

²¹To average across all federal elections, we create a measure of the democratic share of total votes cast across presidential, senate, and house elections in each county.

is a Democratic president than when there is a Republican president. Column (4) examines accountability for the president’s party in county legislative elections. The point estimates here are also consistent with the results for other federal and state elections. However, the results are not statistically significant. While the results for local elections are likely underpowered, there is not clear evidence that the president’s party is rewarded or punished for the economy in local elections.

Table 4: Accountability for President’s Party in State and Local Elections

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>				
	Governor	Downballot State Offices	State House	County Legislature	State Average
	(1)	(2)	(3)	(4)	(5)
Change in logged wages \times Democratic president	0.175*** (0.047)	−0.052 (0.044)	0.217** (0.106)	0.358 (0.812)	0.177*** (0.065)
Change in logged wages	−0.081*** (0.027)	−0.002 (0.028)	−0.109 (0.080)	−0.566 (0.533)	−0.100** (0.039)
FE for State-Year	X	X	X	X	X
FE for County	X	X	X	X	X
Observations	23,123	15,967	34,173	2,629	41,173
R ²	0.818	0.860	0.125	0.313	0.325
Adjusted R ²	0.797	0.839	0.046	−0.008	0.270

Note: *p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by county.

Averaging across all state and local offices, an approximately one percent greater change in local wages leads to a 0.18 percentage point difference in Democratic candidates’ vote shares when there is a Democratic president compared to when there is a Republican president, as we show in column (5). This implies that a one standard deviation increase in local wage growth leads to about a 0.41 percentage point difference in Democratic candidates in state and local elections when there is a Democratic president compared to when there is a Republican one.

We show the main results from Tables 3 and 4 graphically in Figure 2, using separate points within each office for the effect of the economy on Democratic party voteshare under a Democratic president (blue triangles) and under a Republican president (red circles). We also plot the difference between the two (black squares), which represents the interaction terms from Tables 3 and 4. The top panel shows these results in federal elections. It shows

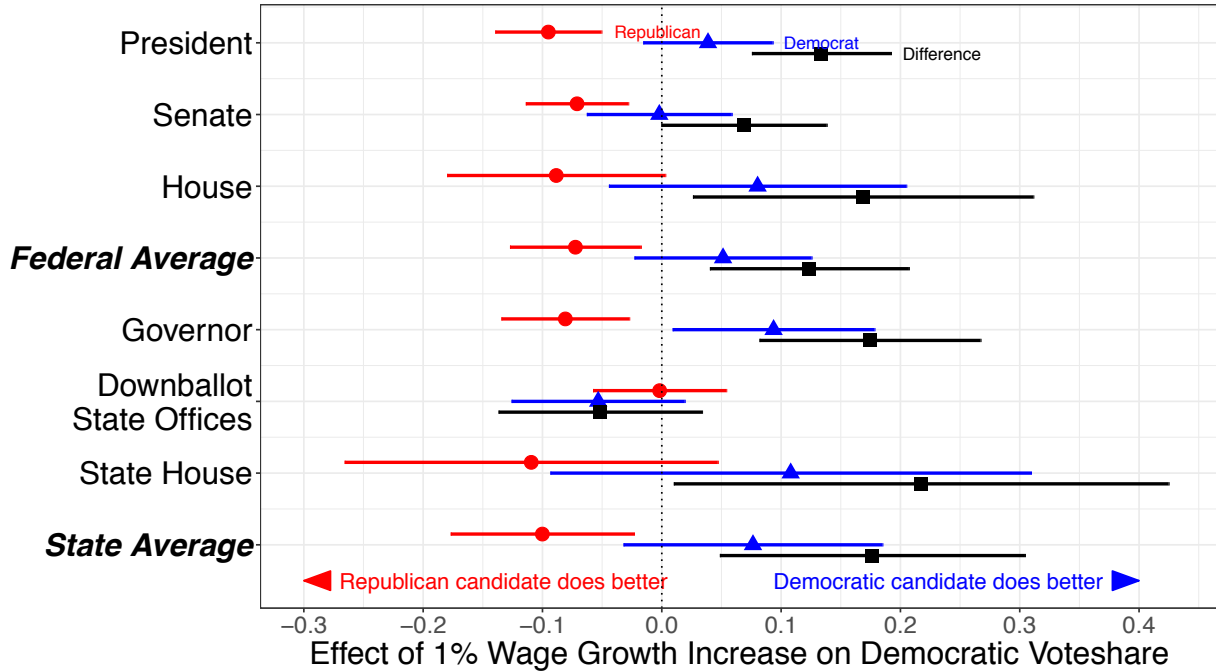


Figure 2: Accountability for the President's Party. This graph shows the effect of a 1% increase in local wage growth on the change in Democratic vote share, split by the incumbent president's party in federal and state elections.

that the interaction effect representing partisan accountability is similar across federal races. The baseline effects of the economy under a Democratic president and under a Republican president are similar in presidential and U.S. House elections, though slightly smaller in Senate elections. Averaging across federal races, a 1% increase in local wage growth leads to a 0.07 percentage point decrease in Democratic vote share when there is a Republican president. Under a Democratic president, this same increase in wage growth leads to a 0.05 percentage point increase in Democratic vote share.

The bottom panel of Figure 2 shows the results from Table 4 in elections for state offices. Once again, the results are generally similar across elections. They are also similar to the results from federal elections. Averaging across state races, an approximately 1% increase in local wage growth leads to a 0.1 percentage point decrease in Democratic vote share in state elections when there is a Republican president, but a 0.08 percentage point increase in Democratic vote share when there is a Democratic president. Overall, Figure 2 illustrates

that the president’s party is rewarded and punished for the economy across nearly all levels of government. Moreover, economic accountability for the president’s party is broadly similar in both federal and state elections. However, it is important to emphasize that the size of these effects are relatively modest. In addition, in Appendix C, we show that these effects are driven by the changes in the economy in the year of the election (rather than previous years during an incumbent’s tenure). This suggests that the small but systematic impact of the economy on voting is driven primarily by late-term shifts in economic performance (Achen and Bartels, 2017; Healy and Lenz, 2014)

5.2 Robustness Checks of Accountability for President’s Party

The preceding analyses showed a strong relationship between the performance of the local economy and the incumbent president’s party in both federal and state elections. In Tables 5 and 6, we examine the robustness of these results to differences in model specifications.

- First, in column (1), we show the model that we use in our main analyses, which uses the change in Democratic vote share as the dependent variable. This specification includes fixed effects for county and state-year. Finally, it uses counties with more than 20,000 people.
- In column (2), we examine a model that is identical to column (1), except that we substitute year fixed effects for state-year ones. This is similar to the specification commonly used in prior studies (e.g., Healy and Lenz, 2017; Kriner and Reeves, 2012).
- In column (3), we examine a model that is identical to column (1), except that we omit county fixed effects.
- In column (4), we examine a model that is similar to column (1), except that it includes all counties and weights the results by population.

- In column (5), we examine a model that is identical to column (4), except that we substitute year fixed effects for state-year ones.
- Columns (6)-(10) replicate models (1)-(5), but they use levels of Democratic vote share as the outcome rather than changes in Democratic vote share.
- In column (11), we examine a model similar to that in column (6), but including a lagged dependent variable.

Table 5 shows the results averaging across elections for federal offices. The point estimates are significant in nearly every model and the substantive size of the results are always similar.²² The only substantive difference across specifications is that the point estimates for the effect of the economy are generally larger when we use levels rather than deltas to capture election results. However, it is important to note that the specifications using levels for the outcome generally do not pass placebo tests (Appendix B). Thus, they should be interpreted with caution.

Table 5: Robustness of Results for Accountability for President's Party in Federal Elections

	<i>Dependent variable:</i>										
	Δ in Democratic Vote Share					Democratic Vote Share					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Change in logged wages \times Democratic president	0.124*** (0.043)	0.217*** (0.050)	0.133*** (0.041)	0.082 (0.053)	0.259*** (0.061)	0.174*** (0.051)	0.285*** (0.060)	0.070 (0.069)	0.234*** (0.071)	0.444*** (0.090)	0.151*** (0.041)
Change in logged wages	-0.072*** (0.028)	-0.102*** (0.031)	-0.071*** (0.027)	-0.079** (0.032)	-0.148*** (0.034)	-0.078** (0.030)	-0.072** (0.036)	-0.037 (0.038)	-0.142*** (0.037)	-0.186*** (0.046)	-0.076*** (0.026)
Lagged Democratic voteshare											0.599*** (0.009)
FE for State-Year	X		X	X		X		X	X		X
FE for Year		X			X		X			X	
FE for County	X	X		X	X	X	X		X	X	X
Unweighted, Pop >20,000	X	X	X			X	X	X			X
Weighted by Pop, All counties				X	X				X	X	
Observations	44,800	44,800	44,800	75,898	75,898	44,947	44,947	44,947	76,224	76,224	44,801
R ²	0.500	0.178	0.489	0.493	0.179	0.728	0.502	0.455	0.747	0.573	0.820
Adjusted R ²	0.465	0.142	0.475	0.463	0.144	0.709	0.480	0.439	0.732	0.554	0.807

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

The results when using the average across state and local offices in Table 6 are somewhat less robust to alternative model specifications. They are only statistically significant in 5

²²In Appendix D, we also show that the results are similar with a lagged outcome (LDV) in the model with levels for the outcome but omitting county fixed effects to avoid Nickell bias (Nickell, 1981).

of the 11 model specifications. But the point estimates are in the expected direction in nearly every model. Overall, the results in this section show that our results are robust to differences in model specifications.

Table 6: Robustness of Results for Accountability for President’s Party in State/Local Elections

	<i>Dependent variable:</i>										
	Δ in Democratic Vote Share					Democratic Vote Share					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Change in logged wages \times Democratic president	0.177*** (0.065)	0.093 (0.069)	0.168*** (0.062)	0.113 (0.069)	−0.035 (0.087)	0.021 (0.070)	0.044 (0.080)	−0.114 (0.096)	0.247*** (0.075)	0.302*** (0.109)	0.132** (0.060)
Change in logged wages	−0.100** (0.039)	−0.116*** (0.042)	−0.095** (0.037)	−0.117*** (0.035)	−0.139*** (0.045)	−0.065* (0.037)	0.030 (0.043)	−0.032 (0.045)	−0.160*** (0.040)	−0.032 (0.047)	−0.092*** (0.035)
Lagged Democratic voteshare											0.688*** (0.011)
FE for State-Year	X		X	X		X		X	X		X
FE for Year		X			X		X			X	
FE for County	X	X		X	X	X	X		X	X	X
Unweighted, Pop >20,000	X	X	X			X	X	X			X
Weighted by Pop, All counties				X	X				X	X	
Observations	41,173	41,173	41,173	69,705	69,705	41,575	41,575	41,575	70,651	70,651	41,168
R ²	0.325	0.080	0.310	0.418	0.091	0.696	0.531	0.411	0.711	0.538	0.773
Adjusted R ²	0.270	0.036	0.287	0.379	0.048	0.672	0.508	0.393	0.692	0.517	0.755

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

5.3 Accountability for Incumbents

In this section, we examine whether the party that controls offices other than the president influences retrospective voting above and beyond the effect of sharing a partisan label with the President. For instance, are House candidates from the same party as the incumbent House representative in their district rewarded for a strong economy?

Table 7 shows the results. Looking across offices, the results continue to show that the president’s party is rewarded for a strong economy and punished for a weak one (second row). In all offices except the state house, the interaction between wages and the indicator for a Democratic president is positive and statistically significant. A one percent greater increase in wage growth leads to difference in Democratic voteshare of between 0.07 and 0.21 percentage points when the president is a Democrat than when the president is a Republican.

Moreover, there is strong evidence that the party of the current governor and U.S. House

seat matters. The party of the incumbent in these elections is awarded a substantial boost in a strong economy — an increase of 0.08 percentage points for governor and 0.27 percentage points for the House from one percent greater wage growth. We find little evidence, however, that voters hold accountable candidates of the party of the current Senator or state house member.²³

Table 7: Accountability for Incumbents

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>				
	President	Senate	House	Governor	State House
	(1)	(2)	(3)	(4)	(5)
Change in logged wages \times Democratic incumbent		-0.027 (0.033)	0.266*** (0.067)	0.081* (0.046)	-0.141 (0.099)
Change in logged wages \times Democratic president	0.134*** (0.030)	0.070** (0.036)	0.208*** (0.077)	0.166*** (0.048)	0.191* (0.107)
Change in logged wages	-0.095*** (0.023)	-0.057** (0.028)	-0.237*** (0.061)	-0.119*** (0.030)	-0.022 (0.093)
Democratic incumbent			-1.636*** (0.159)		-0.776*** (0.289)
FE for State-Year	X	X	X	X	X
FE for County	X	X	X	X	X
Observations	21,686	29,528	39,401	23,021	33,252
R ²	0.873	0.877	0.262	0.816	0.125
Adjusted R ²	0.858	0.865	0.207	0.795	0.046

Note: Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

²³Appendix E shows the results from a less saturated model, omitting the indicator for the party of the president. These results are largely the same, indicating that candidates of the incumbent's party are only held accountable in elections for governor and the U.S. House. Appendix E also shows the results from a fully saturated model (i.e. interacting the indicator for the party of the president with the indicator for the downballot incumbent's party). The results vary a bit across offices. But, overall, incumbents from the president's party are rewarded slightly more in a strong economy and punished more in a weak economy than incumbents from the opposition party. Finally, Appendix F examines accountability that the party that controls the House and the Senate.

6 Heterogeneity Over Time

We next investigate whether economic accountability in federal, state, and local elections has changed over time. To do so, we replicate our main analyses from Tables 3 and 4 but interact the main treatment variables for accountability with a standardized variable for the year.

Table 8: Changes in Accountability Over Time

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>	
	Federal Elections	State/Local Elections
	(1)	(2)
Change in logged wages \times Democratic pres. \times year	0.018 (0.044)	0.053 (0.066)
Change in logged wages \times Democratic gov. \times year		0.097 (0.060)
Change in logged wages \times Democratic pres.	0.126*** (0.046)	0.105 (0.066)
Change in logged wages \times Democratic gov.		0.118* (0.066)
Change in logged wages \times year	-0.014 (0.026)	-0.013 (0.043)
Change in logged wages	-0.077*** (0.029)	-0.132*** (0.050)
FE for State-Year	X	X
FE for County	X	X
Observations	44,800	38,318
R ²	0.500	0.346
Adjusted R ²	0.465	0.293

Note: Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

We report the results of these analyses in Table 8. The coefficient of interest that would correspond with a change in accountability over time is that on the triple interaction between wages, the indicator for a Democratic incumbent, and the year. However, we find no clear evidence of changes over time in retrospective voting for either the party of the president or governor in federal (column 1) or in state (column 2) elections. In Appendix G, we analyze time trends separately for presidential, U.S. House, Senate, governor, and state

house elections. And in Appendix H, we analyze accountability in federal and state elections in the era before 1990 and the era after 1990. In these analyses, we also find no consistent evidence of changes over time in retrospective voting for the local economy.²⁴

7 Local Media and Accountability

In the previous sections, we have found strong evidence that the president’s party is held accountable in state and federal elections. Previous literature has also demonstrated that economic accountability may be contingent on other institutional factors. One important institutional question is whether the media influences retrospective voting in elections. There are a variety of theoretical reasons to believe that media coverage of the local economy facilitates accountability. For instance, media coverage has important effects on people’s knowledge about politics (Snyder and Strömberg, 2010; Hayes and Lawless, 2015). Some work has even directly suggested that counties that constitute a larger portion of their media market are likely to have more media coverage of the local economy, which may affect retrospective voting (Hopkins and Pettingill, 2018). Yet there is limited evidence on the link between the media and local economic voting.

To examine this question, we harness data on the circulation of local newspapers and replicate our main analyses of economic voting but interact our main independent variables with a variable capturing the availability of media in that county. Our media coverage variable measures whether counties form the plurality of their dominant newspaper’s circulation area and is based on circulation data from 2011.²⁵ Admittedly, these data are cross-sectional in nature and so do not enable us to assess over-time changes in media coverage within counties, which would be the best possible way to examine this question. Using this static measure, however, we assess whether counties with better media coverage in 2011 demon-

²⁴Our results in this section are consistent with those of Cottrell, Herron, and Westwood (2018), who find that the local economy mattered in the 2016 presidential election.

²⁵This indicator takes a value of 1 for a county if the most-read newspaper in that county took the plurality of its readers from that county. This variable is based on circulation data from the Audit Bureau of Circulations (now known as the Alliance for Audited Media) and measured in 2011.

strate a stronger pattern of economic voting.²⁶ To do so, we focus on two models – one that averages across federal elections and one that averages across state and local elections, which we report in Table 9. In each model, we create an interaction between the local economy, the party of the president, and our measure of media availability. We find some suggestive evidence that newspapers may increase accountability for the president’s party in federal elections, as indicated by the positive triple interaction term in column (1) and the relative size of the difference coefficients in Figure 3.²⁷ But we find no evidence that newspapers influence retrospective voting in state and local elections. In Appendix I, we analyze the role of the media separately for presidential, U.S. House, Senate, governor, and state house elections. In these analyses, we also find only suggestive evidence that the media moderates retrospective voting in federal elections.

Table 9: Media and Accountability

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>	
	Federal Elections	State/Local Elections
	(1)	(2)
Change in logged wages \times Democratic pres. \times newspaper	0.131 (0.112)	−0.023 (0.152)
Change in logged wages \times Democratic pres.	0.112** (0.047)	0.201*** (0.076)
Change in logged wages \times newspaper	−0.006 (0.071)	−0.092 (0.089)
Change in logged wages	−0.076** (0.032)	−0.091** (0.046)
FE for State-Year-Newspaper	X	X
FE for County	X	X
Observations	44,800	41,173
R ²	0.514	0.348
Adjusted R ²	0.465	0.273

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

It is worth noting several limitations of our research design on the role of the media as a

²⁶Interpreting these analyses as a valid assessment of the role of the media in enabling accountability, of course, hinges on the assumption that newspaper circulation patterns at the county level have stayed more or less fixed overtime.

²⁷We evaluated the robustness of these results using an alternative measure of media presence in Appendix J. These results show a substantively similar effect of the media on accountability in federal elections.

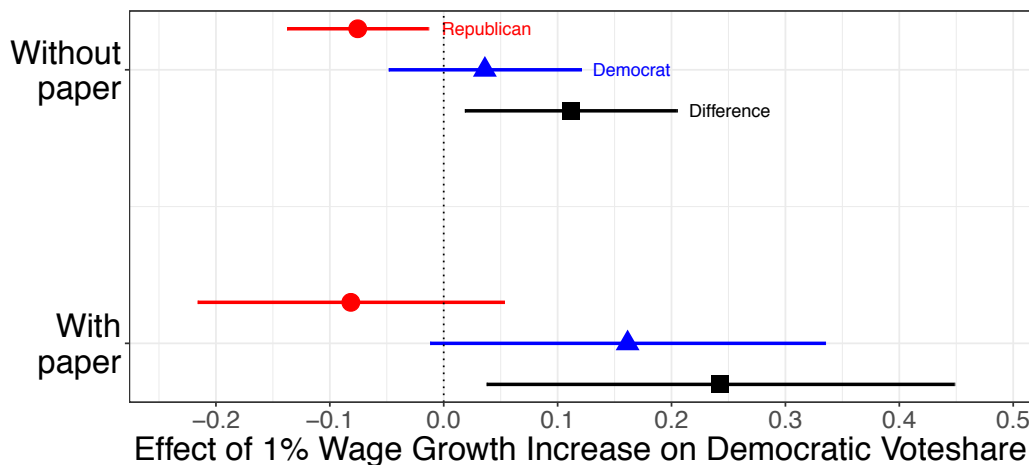


Figure 3: Accountability for the President’s Party in Federal Elections. This graph shows the effect of a 1% increase in local wage growth on the change in Democratic vote share, split by the incumbent president’s party and the presence of a newspaper in the county, averaged across federal elections.

moderator for accountability. First, our measure of newspaper circulation is only measured cross-sectionally in a single year (2011). Of course, there have been changes in the newspaper industry in recent years, and many smaller newspapers have closed, leading to an overall decline in coverage of politics — especially state and local politics (Darr, Hitt, and Dunaway, 2018; Martin and McCrain, 2019; Peterson, 2019). Second, our analysis here lacks a causal identification strategy. There could be any number of differences between counties with newspapers and those that lack them and any of these factors might confound a causal interpretation of these analyses. For instance, counties with newspapers tend to be larger and more dense. Nonetheless, our tentative findings on the limited role of the media suggest that the media does not play a crucial role in enabling retrospective voting.

8 Conclusion

In this paper, we compile the first comprehensive evidence on retrospective voting for the economy at all levels of government in the United States. There are strong theoretic and empirical reasons to believe that economic voting exists in elections, both nationally and

subnationally. However, previous work on whether politicians are rewarded and punished for the economy has focused almost entirely on presidential elections. When it has focused on subnational elections, it has found mixed or contingent evidence of economic voting.

We find evidence that the president’s party is rewarded and punished for the local economy at multiple levels of government in the United States. Voters reward and punish candidates for the local economy in presidential, senate, house, gubernatorial, and state house elections based on whether or not they share a partisan label with the president. A one percent increase in wage growth at the county level leads to an increase in vote share of candidates from the incumbent president’s party of 0.12 percentage points in federal elections and 0.18 percentage points in state and local elections, on average. In contrast, we find limited evidence of these patterns according to the party of downballot incumbent officeholders. Only in U.S. House and gubernatorial elections is the party that controls that level of government rewarded and punished for economic conditions. Candidates from the party in power in other offices, on the other hand, are not rewarded and punished for the performance of the economy. These findings support a president-centric, or nationalized, theory of elections, in which voters link politicians at all levels of government to the president based on partisan labels.

Overall, these findings reinforce previous work on retrospective voting based on the national economy, which have shown that the economy has an influence on elections across both state and federal government. The substantive size of our findings on retrospective voting based on the local economy is similar to recent findings in comparative politics (Larsen et al., 2019), as well as other recent work in American politics on presidential elections (Healy and Lenz, 2017).²⁸ Though the effects of the national economy are hard to causally identify, descriptive evidence suggests that these effects may occur in addition to the small effects of the local economy that we are able to identify in this paper.

²⁸In particular, our findings are broadly parallel, though somewhat smaller in size, to those of Healy and Lenz (2017) on presidential elections, who show that “a one standard deviation improvement [in the economy] adds less than one point to the incumbent party’s vote margin” (1430).

Moreover, the fact that these effects are driven by changes in the economy in the final year before the election, as we show in Appendix C and as others have shown in federal elections (e.g. Achen and Bartels, 2017; Healy and Lenz, 2014), suggests that voters have a recency bias when holding government accountable in subnational elections as well. The president, and members of her party, therefore have a clear incentive to grow the economy late in their tenure. In anticipation of voters' myopia in the arena of economic performance, strategic politicians at all levels of government may target resources and policies for economic growth towards the period immediately before elections, despite potentially negative long-term consequences (Tufte, 1978).

In addition, strategic politicians have incentives to target geographic areas likely to have close elections with distributive spending and other policies to grow the economy. Indeed, our findings are consistent with past work showing that voters reward incumbent presidents (or their party's nominee) for increased federal spending in their communities (e.g., Chen, 2013; Kriner and Reeves, 2012). The results from this paper suggest that the president's party could reap electoral rewards from growing the economy in battleground states that are likely to be pivotal in presidential elections. Our results also show that the president's party has strong incentives to grow the economy in areas that are likely to have close Senate, House, gubernatorial, or state legislative elections as well. Thus, our work provides an electoral rationale for previous research showing that members of the president's party tend to get more distributive spending in their districts (Berry, Burden, and Howell, 2010; Dynes and Huber, 2015; Kriner and Reeves, 2015).

More tentatively, our work also provides an electoral rationale for the behavior of elites at the subnational level. Past work has shown that subnational incumbents may focus on economic development both in their policymaking (Logan and Molotch, 1987) and in their communication (Holman, 2016) to try to boost their electoral fortunes. Our results show how candidates from an incumbent officeholder's party may receive an increase in their voteshare from better economic performance in some races, indicating that these efforts may pay off.

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Appendix for “Accountability for the Local Economy at All Levels of Government in United States Elections”

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January 8, 2020

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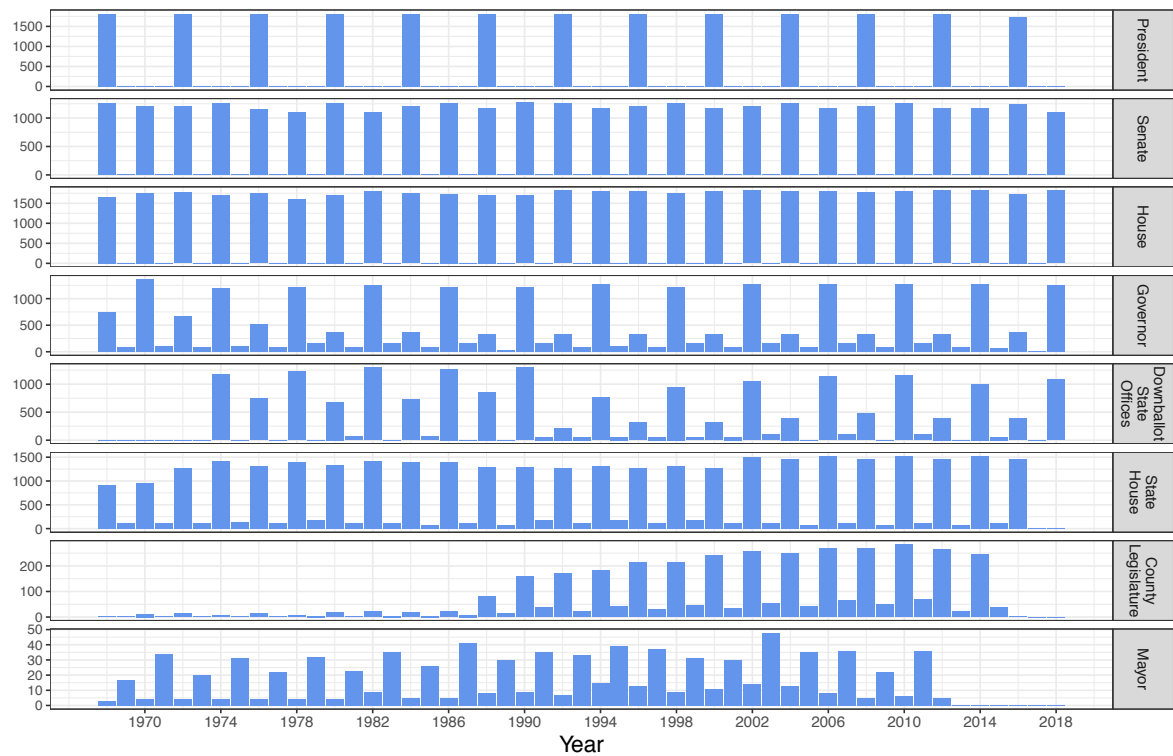
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A Data

The elections data in the paper come from a variety of sources, as described in Table 2 of the main paper. We compiled these data to create the panel of county-level election results at multiple levels of government spanning five decades. Figure A-1 shows the breadth of these data over time and across different levels of government in counties with populations over 20,000 people.

Figure A-1: Elections Data



B Validity of Parallel Trends Assumptions

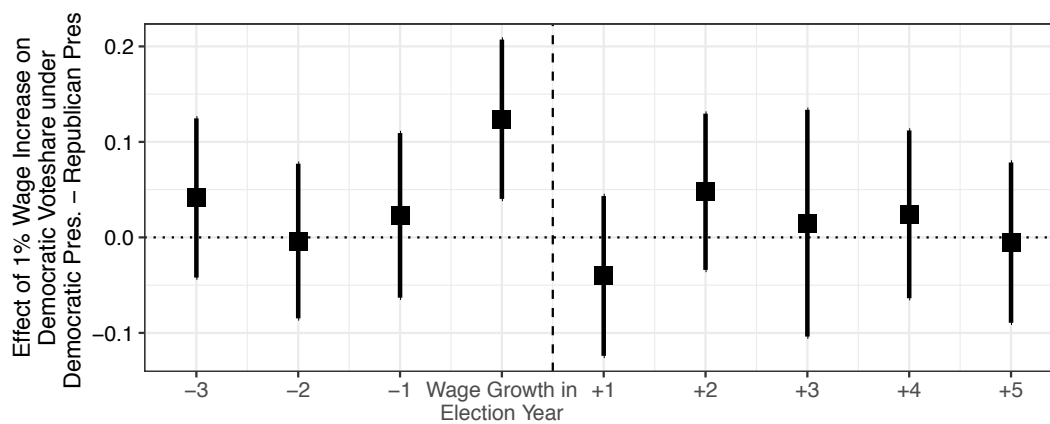
The identification strategy for our panel research design that we use in the main body of our paper relies on the assumption that there are no time-varying confounders, typically called the parallel trends assumption. In order to demonstrate that this assumption is likely to be valid, researchers commonly demonstrate that there are parallel trends in pre-treatment outcomes. In the panel framework that we use in our analyses, we can similarly demonstrate parallel trends by looking at the effects of leads of our main independent variable on contemporaneous outcomes. If future “treatment” (differing economic growth) affected voting in previous elections, we might worry that the groups of counties with worse economic performance were affected by other factors that also affect voting and our assumptions about time-varying confounders would not be validated.

The top panel of Figure B-2 evaluates the validity of this assumption by showing the interaction between lags and leads of economic growth and the indicator for a Democratic president. This figure indicates that future economic growth has no effect on voting for the president’s party in our main specification using deltas for both the treatment and outcome variables. The point estimates of the effect of future changes in local economic conditions are all statistically insignificant and close to zero. That is, we do not observe voters “punishing” the president’s party for future changes in local economic conditions. This validates the main assumption of the difference-in-difference models that we use for our analyses and gives us confidence in our ability to examine the causal effect of the economy on retrospective voting.

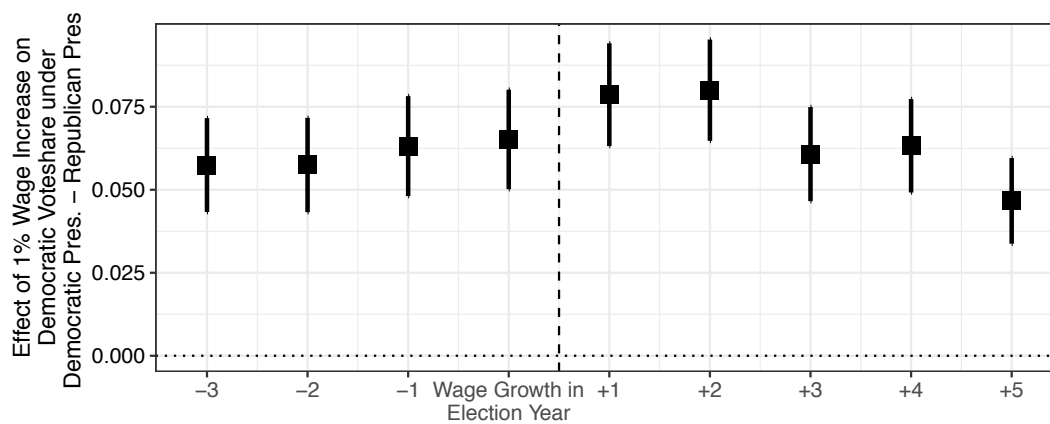
However, the results of these placebo checks were not as reassuring when we used levels rather than deltas for the outcome and/or treatment variables. First, we examined the validity of models using levels for both the treatment (economy) and outcome (election results) variables. This specification is most consistent with standard panel and diff-in-diff models. We found, however, that these models clearly do not satisfy the parallel trends assumptions of difference-in-difference models. Indeed, we found that future levels of wages have roughly the same effect on elections as contemporaneous levels of economic conditions

(middle panel of Figure B-2).

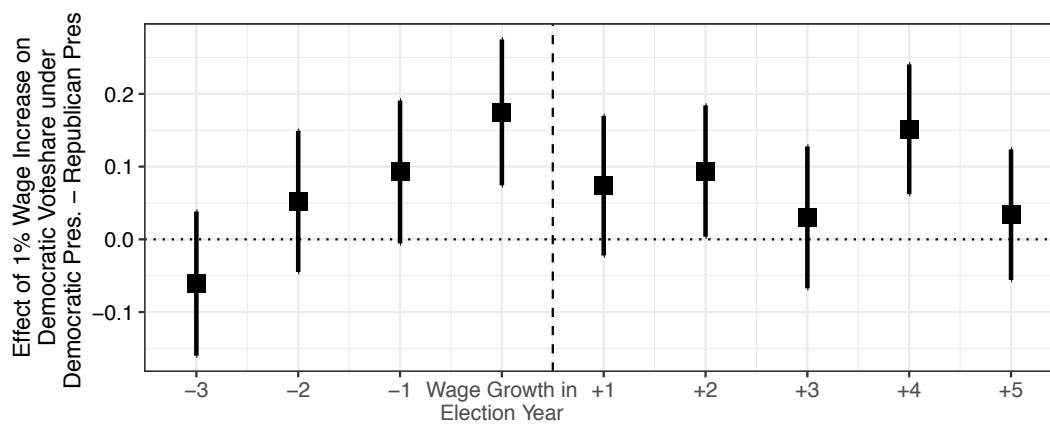
Figure B-2: Validity of Parallel Trends Assumption



(a) Main Specification: Deltas for both Democratic voteshare and wages



(b) Alternative Specification 1: Levels for both Democratic voteshare and wages



(c) Alternative Specification 2: Deltas for wages and levels for Democratic voteshare

We also examined the validity of the DiD assumption using the specification of deltas for wages and levels for Democratic voteshare. There are two problems with this specification. First, conceptualizing the treatment in deltas and the outcome in levels lacks a clear interpretation of the effects. Second, our validity checks indicate that this specification also fails this placebo check, suggesting that the assumption of parallel trends is not satisfied. The bottom panel of Figure B-2 shows that the effects of future changes in the economy on contemporaneous election outcomes are large and, in the year four past the election year, statistically significant.

C Effect of Economy over Entire Electoral Cycle

In this section, we examine whether voters are responsive to changes in the local economy in years prior to the election year, or are myopic and respond only to election-year wage growth. Consistent with the findings in previous studies (e.g., Achen and Bartels, 2017; Healy and Lenz, 2014), we find that changes in wages prior to the election year have little or no effect on federal or state elections. We assess this using our primary regression specification, but including measures of wage growth in the election year as well as wage growth in the three years previous to the election year, the results from which are in Table C-1. These results are shown graphically in Figure C-3 for federal elections and Figure C-4 for state elections.

Figure C-3: Voter Myopia in Federal Elections

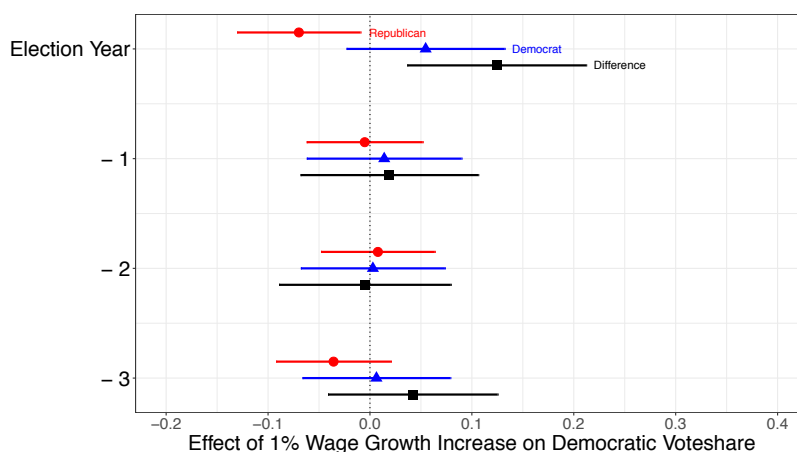


Figure C-4: Voter Myopia in State Elections

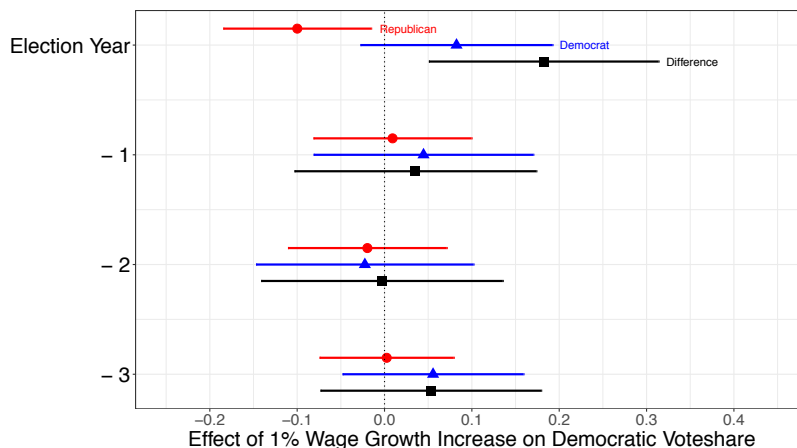


Table C-1: Accountability over Electoral Cycle

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>	
	Federal Average	State Average
	(1)	(2)
Change in logged wages \times Democratic president	0.124*** (0.045)	0.182*** (0.067)
Change in logged wages (t-1) \times Democratic president	-0.070** (0.031)	-0.100** (0.043)
Change in logged wages (t-2) \times Democratic president	-0.005 (0.029)	0.009 (0.046)
Change in logged wages (t-3) \times Democratic president	0.008 (0.028)	-0.020 (0.046)
Change in logged wages	-0.036 (0.029)	0.003 (0.039)
Change in logged wages (t-1)	0.019 (0.044)	0.035 (0.071)
Change in logged wages (t-2)	-0.005 (0.043)	-0.003 (0.071)
Change in logged wages (t-3)	0.042 (0.042)	0.053 (0.064)
FE for State-Year	X	X
FE for County	X	X
Observations	41,219	37,717
R ²	0.502	0.316
Adjusted R ²	0.465	0.259

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

D Additional Specifications

In this section, we present the additional regression specification using the level of Democratic voteshare as the outcome, controlling for a lagged measure of the Democratic voteshare, both with and without unit fixed effects. These results are consistent with those presented in the main text, indicating that voters reward and punish candidates in federal and state elections in accordance with the performance of the economy and whether they share the party of the president. We present these results in Table D-2 for federal and state elections, both with county fixed effects (columns 1 and 3) and without (columns 2 and 4). We present these results in graphical form in Figure D-5, with the top panel showing models with county fixed effects and the bottom panel without them.

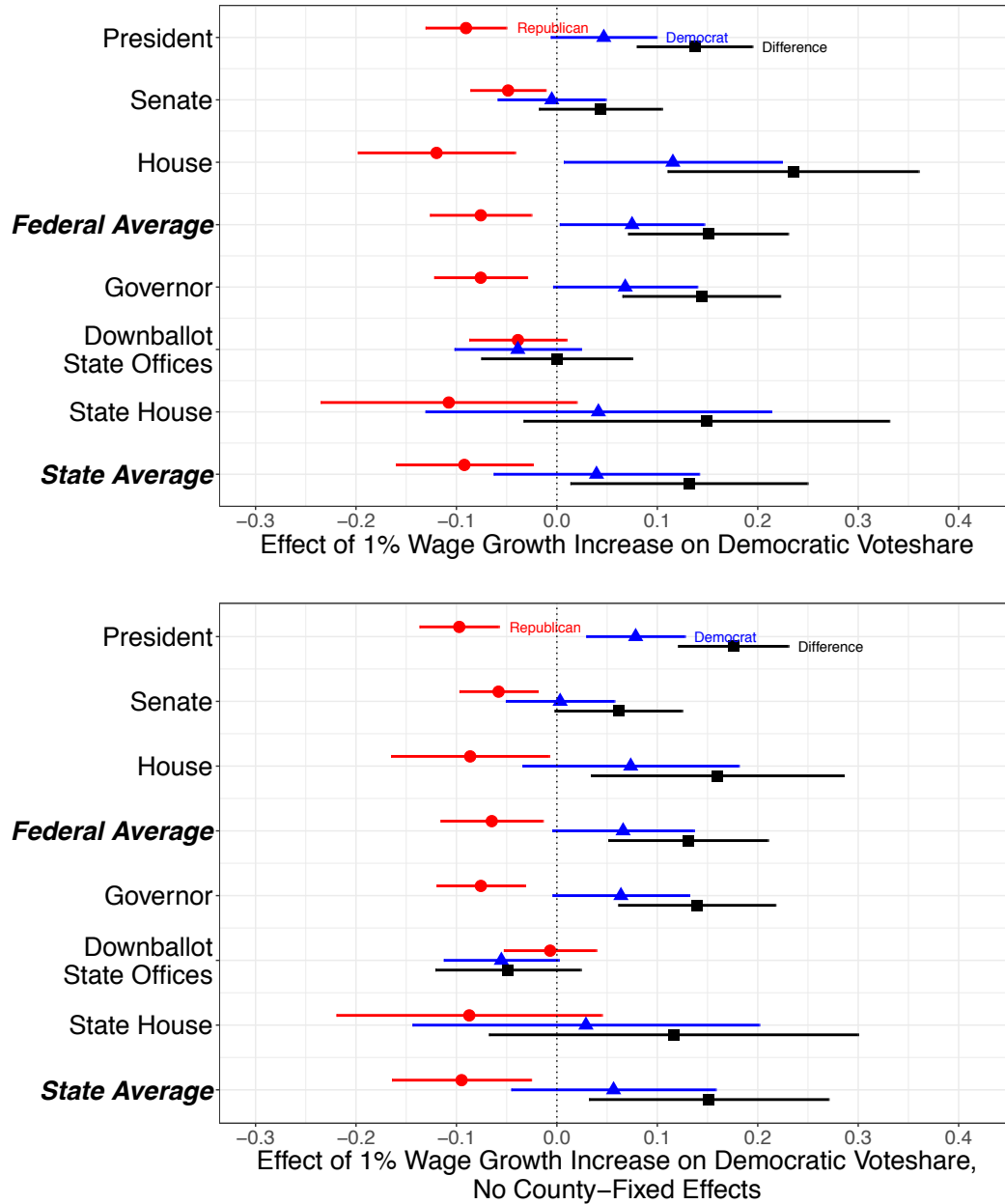
Table D-2: Models using levels of voteshare and lagged dependent variable

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	Federal Average		State Average	
	(1)	(2)	(3)	(4)
Change in logged wages \times Democratic president	0.151*** (0.041)	0.131*** (0.041)	0.132** (0.060)	0.151** (0.061)
Change in logged wages	-0.076*** (0.026)	-0.065** (0.026)	-0.092*** (0.035)	-0.095*** (0.035)
Lagged Democratic voteshare	0.599*** (0.009)	0.806*** (0.006)	0.688*** (0.011)	0.988*** (0.009)
FE for State-Year	X	X	X	X
FE for County	X		X	
Observations	44,801	44,801	41,168	41,168
R ²	0.820	0.794	0.773	0.736
Adjusted R ²	0.807	0.788	0.755	0.728

Note:

*p<0.1; **p<0.05; ***p<0.01
Standard errors clustered by county.

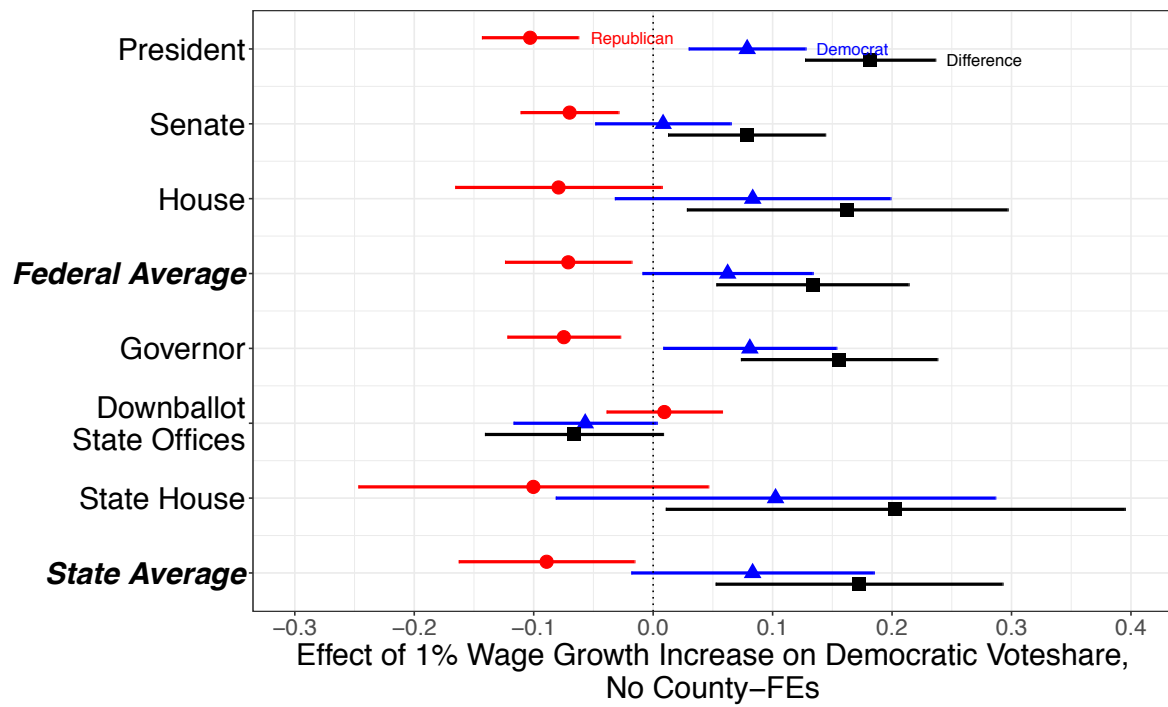
Figure D-5: Models using levels of voteshare and lagged dependent variable



In addition, we show the results from our main panel difference-in-differences specification (i.e. using the change in democratic voteshare and the change in wages per worker) but omitting county fixed effects (from column 3 in Tables 5 and 6 of the main paper) in Figure D-6. These results are largely consistent with those presented in the main paper: the point estimates are quite similar, and the interaction effect is statistically significant in both federal and state elections on average. The fact that our results are not sensitive to the inclusion

of unit fixed effects suggests that the fixed effects are not explaining a large amount of the variation in either wage growth or changes in voteshares.

Figure D-6: Models omitting county fixed effects



E Accountability for Incumbents

This appendix shows the results from both a less saturated and a fully saturated model of accountability for incumbents. First, in Table E-3 shows the results from a model omitting the indicator for a Democratic president – i.e. only including an indicator for the party of the downballot incumbent. These results largely corroborate the results presented in the main text of the paper: that is, that the party of the downballot incumbent only changes the effect of wage growth on votes in gubernatorial and U.S. House elections. Figure E-7 shows these results graphically.

Table E-3: Simplified model of downballot incumbency on economic voting

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	Senate	House	Governor	State House
	(1)	(2)	(3)	(4)
Change in logged wages \times Democratic incumbent	−0.028 (0.033)	0.248*** (0.067)	0.094** (0.045)	−0.158 (0.100)
Change in logged wages	−0.031 (0.023)	−0.150*** (0.052)	−0.074*** (0.027)	0.065 (0.072)
Democratic incumbent		−1.615*** (0.159)		−0.772*** (0.289)
Observations	29,528	39,401	23,021	33,252
R ²	0.877	0.262	0.816	0.125
Adjusted R ²	0.865	0.207	0.794	0.046

Note: Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

Next, in Table E-4 we show the results from a fully-saturated model (i.e. interacting the relevant indicators for a Democratic president and a Democratic downballot incumbent). The results vary a bit across offices. But, overall, incumbents from the president’s party are rewarded slightly more in a strong economy and punished more in a weak economy than incumbents from the opposition party.

Figure E-7: Downballot incumbency and economic voting, simplified model

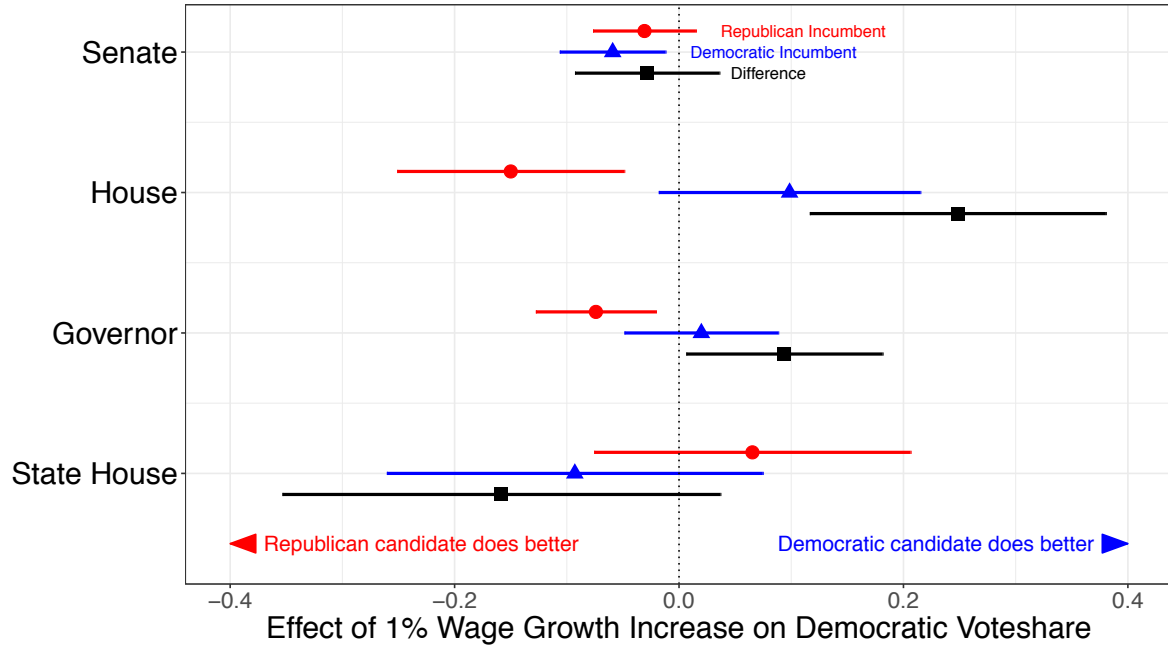


Table E-4: Fully saturated model of downballot incumbency and economic voting

	Dependent Variable - Δ in Democratic Vote Share for:				
	President (1)	Senate (2)	House (3)	Governor (4)	State House (5)
Change in logged wages \times Democratic pres. \times Democratic incumbent		-0.203*** (0.070)	0.311** (0.136)	0.078 (0.093)	0.494** (0.207)
Change in logged wages \times Democratic president		0.179*** (0.053)	0.062 (0.098)	0.125** (0.063)	-0.071 (0.146)
Change in logged wages \times Democratic incumbent	0.134*** (0.030)	0.048 (0.043)	0.154* (0.089)	0.057 (0.058)	-0.360** (0.145)
Change in logged wages	-0.095*** (0.023)	-0.098*** (0.032)	-0.176*** (0.068)	-0.108*** (0.032)	0.107 (0.107)
Democratic incumbent			-2.309*** (0.219)		-0.345 (0.385)
Democratic president \times Democratic incumbent			1.708*** (0.339)		-0.952* (0.499)
Observations	21,686	29,528	39,401	23,021	33,252
R ²	0.873	0.877	0.263	0.816	0.126
Adjusted R ²	0.858	0.865	0.207	0.795	0.046

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

F Accountability for Party that Controls Legislative Chamber

In this appendix, we examine whether the party that controls offices other than the president influences retrospective voting. For instance, are House candidates from the House majority party rewarded for a strong economy?

Table F-5: Accountability for Partisan Control in Federal Elections

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	President (1)	Senate (2)	House (3)	Federal Average (4)
Change in logged wages \times Democratic pres.	0.100** (0.040)	0.043 (0.040)	0.141* (0.081)	0.087* (0.048)
Change in logged wages \times Democratic Senate	0.026 (0.035)	0.044 (0.044)	0.148* (0.088)	0.145*** (0.054)
Change in logged wages \times Democratic House	-0.063 (0.045)	-0.068 (0.045)	-0.051 (0.095)	-0.078 (0.062)
Change in logged wages	-0.056 (0.036)	-0.043 (0.032)	-0.128 (0.080)	-0.090* (0.051)
FE for State-Year	X	X	X	X
FE for County	X	X	X	X
Observations	21,686	29,670	43,045	44,800
R ²	0.873	0.876	0.283	0.501
Adjusted R ²	0.858	0.864	0.230	0.465

Note: Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

Table F-5 shows the results for federal elections. Overall, the results continue to show that the president's party is held accountable, particularly in presidential elections. We find no evidence, however, that it matters which party controls the House of Representatives for any office. We find tentative evidence that voters hold accountable the party that controls the Senate, particularly when we average across elections for all three federal offices (column 4).¹

¹It is worth noting, of course, that the party that controls Congress is extremely collinear with the party that controls the presidency. This increases the uncertainty in these results.

Table F-6: Accountability for Partisan Control in State and Local Elections

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>				
	Governor (1)	Downballot State Offices (2)	State House (3)	County Legislature (4)	State/Local Average (5)
Change in logged wages \times Democratic Pres.	0.166*** (0.048)	-0.055 (0.044)	0.193* (0.110)	0.475 (0.864)	0.145** (0.063)
Change in logged wages \times Democratic Gov.	0.081* (0.046)	0.026 (0.046)	0.169 (0.119)		0.085 (0.064)
Change in logged wages \times Democratic Leg.				-0.007 (0.676)	
Change in logged wages	-0.119*** (0.030)	-0.012 (0.034)	-0.196* (0.116)	-0.422 (0.588)	-0.142*** (0.049)
FE for State-Year	X	X	X	X	X
FE for County	X	X	X	X	X
Observations	23,021	15,918	31,962	2,313	38,548
R ²	0.816	0.860	0.124	0.326	0.339
Adjusted R ²	0.795	0.839	0.043	-0.007	0.286

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

Next, we examine whether voters hold the governor's party accountable in state government elections (Table F-6). Column (1) provides clear evidence that the governor's party is held accountable in gubernatorial elections. Indeed, the effect of holding the governorship is roughly 2/3 of the effect of the president's party. Column (2) indicates that the governor's party is not held accountable in other state-level elections: those for attorney general, treasurer, and secretary of state. The point estimate in Column (3) for state house elections is similar to the one in column (1) for gubernatorial elections, but it is not statistically significant. Column (4) examines whether the party that controls county government is held accountable in local government elections. Overall, we find no evidence that the party that controls local governments is held accountable in local elections (cf. Arnold and Carnes, 2012; Hopkins and Pettingill, 2018). It is worth noting though that it is possible that our null results here stem from a lack of statistical power. Indeed, we have about a tenth as much data on local elections as on state and national ones.

In the last column (5), we show the results when we average across all of these offices. Again, the results show that the party of the president is clearly held accountable for the economy. The result for the party of the governor is suggestive, but does not quite rise to the

level of statistical significance. Overall, these results further reinforce that the president's party is held accountable in state government elections. But there is only clear evidence that the governor's party matters in gubernatorial elections.

G Heterogeneity Over Time in Accountability: Incumbents

In this section, we analyze time trends separately for presidential, U.S. House, Senate, governor, and state house elections. In these analyses, we also find no consistent evidence of substantial changes over time in retrospective voting.

Table G-7

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>				
	President (1)	Senate (2)	House (3)	Governor (4)	State House (5)
Change in logged wages \times Democratic pres. \times year	-0.011 (0.039)	0.038 (0.039)	-0.032 (0.084)	-0.156*** (0.052)	0.184 (0.123)
Change in logged wages \times Democratic incumbent \times year		0.030 (0.033)	-0.013 (0.071)	-0.096** (0.047)	-0.109 (0.114)
Change in logged wages \times Democratic pres.	0.116*** (0.030)	0.069* (0.040)	0.182** (0.088)	0.180*** (0.053)	0.170 (0.125)
Change in logged wages \times Democratic incumbent		-0.025 (0.033)	0.294*** (0.072)	0.064 (0.047)	-0.116 (0.113)
Change in logged wages \times year	0.026 (0.028)	-0.033 (0.031)	0.057 (0.067)	0.100*** (0.027)	-0.017 (0.104)
Change in logged wages	-0.084*** (0.018)	-0.062** (0.028)	-0.231*** (0.065)	-0.100*** (0.029)	-0.076 (0.104)
Year \times Democratic incumbent			-1.850*** (0.159)		-2.153*** (0.227)
Democratic incumbent			-1.617*** (0.162)		-0.695** (0.293)
FE for State-Year	X	X	X	X	X
FE for County	X	X	X	X	X
Observations	21,686	29,528	39,401	23,021	33,252
R ²	0.873	0.877	0.263	0.816	0.127
Adjusted R ²	0.858	0.865	0.208	0.795	0.048

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

H Accountability Before and After 1990

In this section, we analyze accountability in federal and state elections in the era before 1990 and the era after 1990. In these analyses, we also find no consistent evidence of changes over time in retrospective voting.

Table H-8

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	Federal (pre-1990) (1)	State (pre-1990) (2)	Federal (post-1990) (3)	State (post-1990) (4)
Change in logged wages \times Democratic pres.	0.145* (0.082)	0.139 (0.107)	0.088 (0.059)	0.236** (0.099)
Change in logged wages	-0.073** (0.036)	-0.069 (0.052)	-0.060 (0.046)	-0.149** (0.074)
FE for State-Year	X	X	X	X
FE for County	X	X	X	X
Observations	17,737	16,222	27,063	24,386
R ²	0.527	0.432	0.505	0.297
Adjusted R ²	0.459	0.342	0.455	0.215

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

Figure H-8: Accountability in Federal Elections, Pre-1990

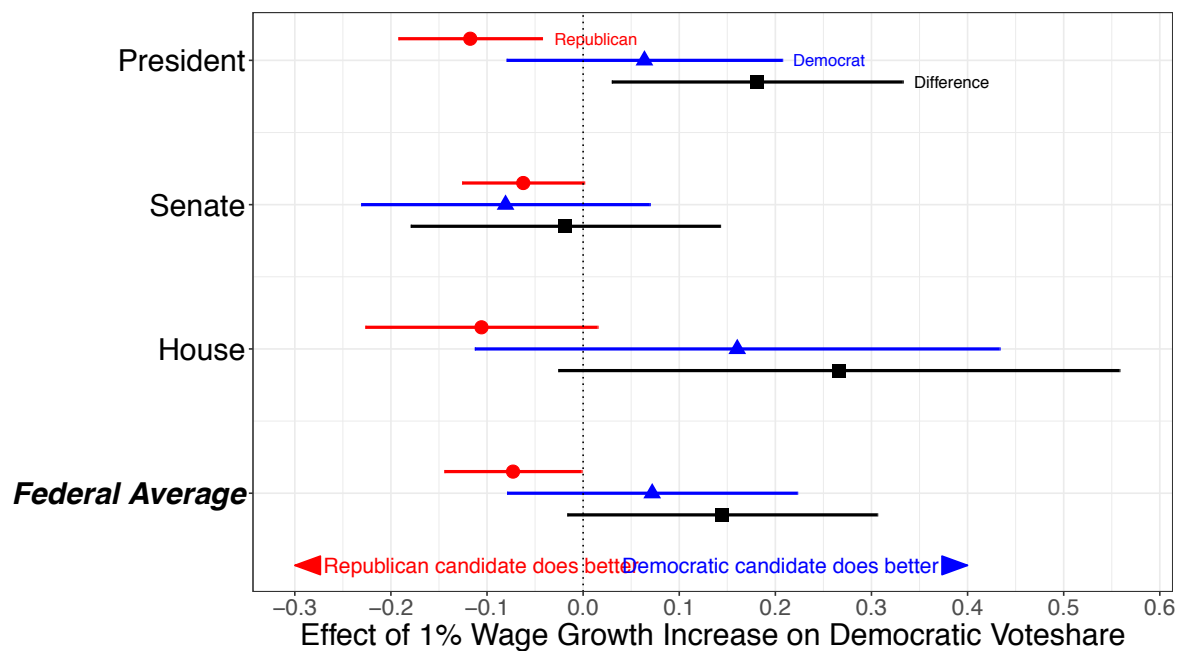


Figure H-9: Accountability in Federal Elections, Post-1990

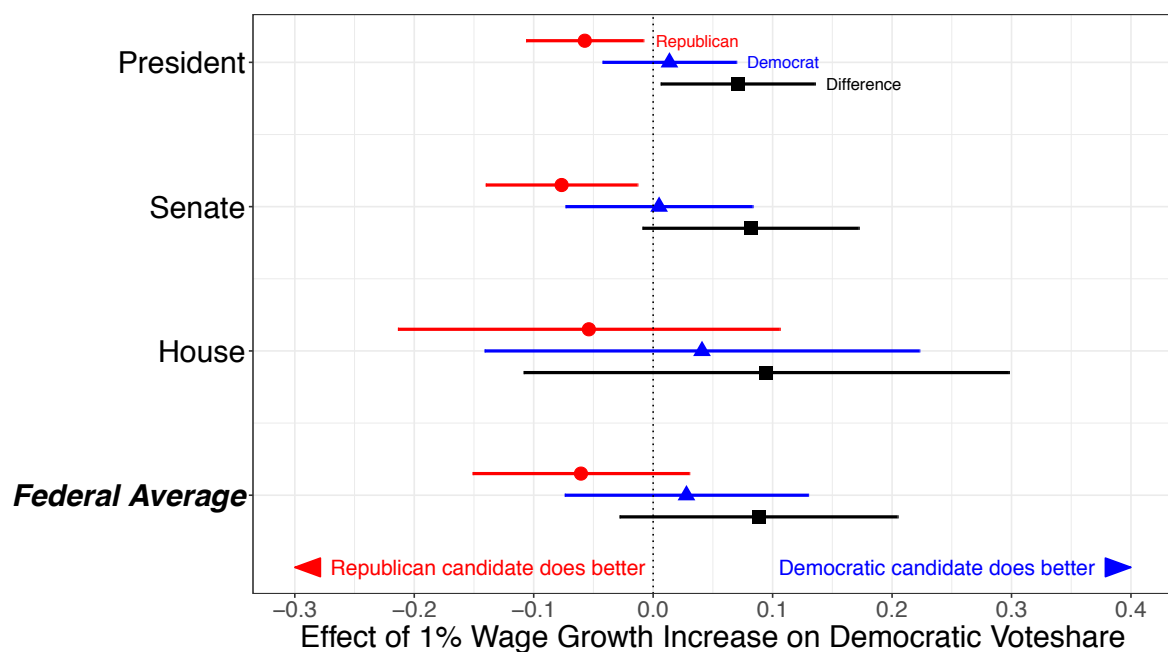


Figure H-10: Accountability in State Elections, Pre-1990

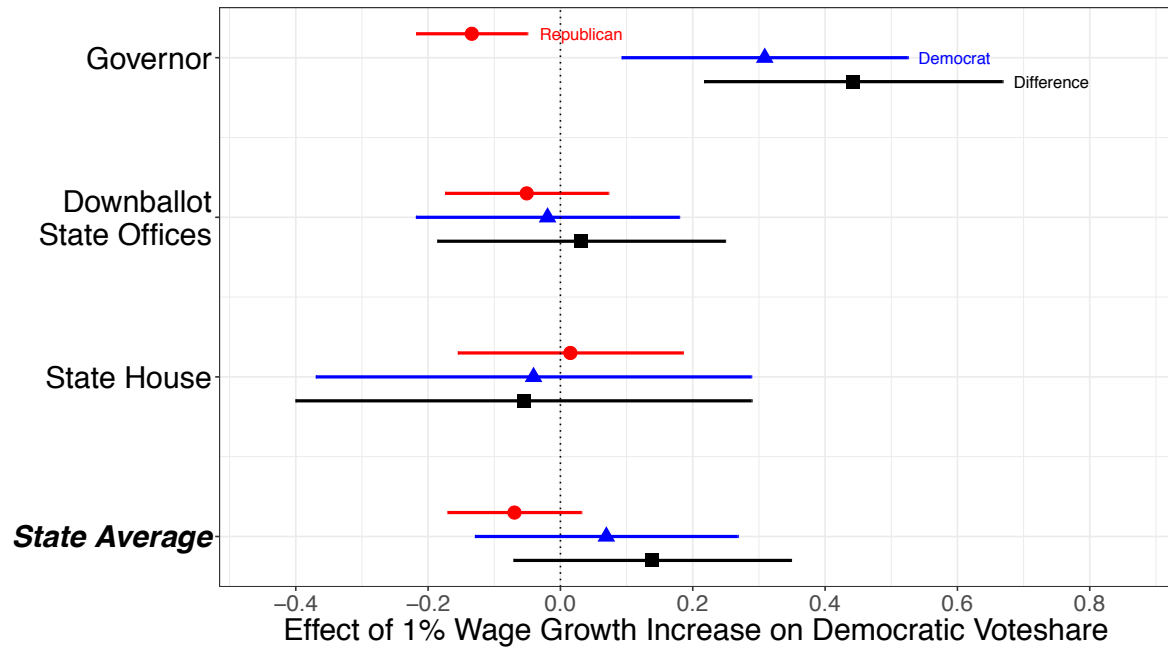
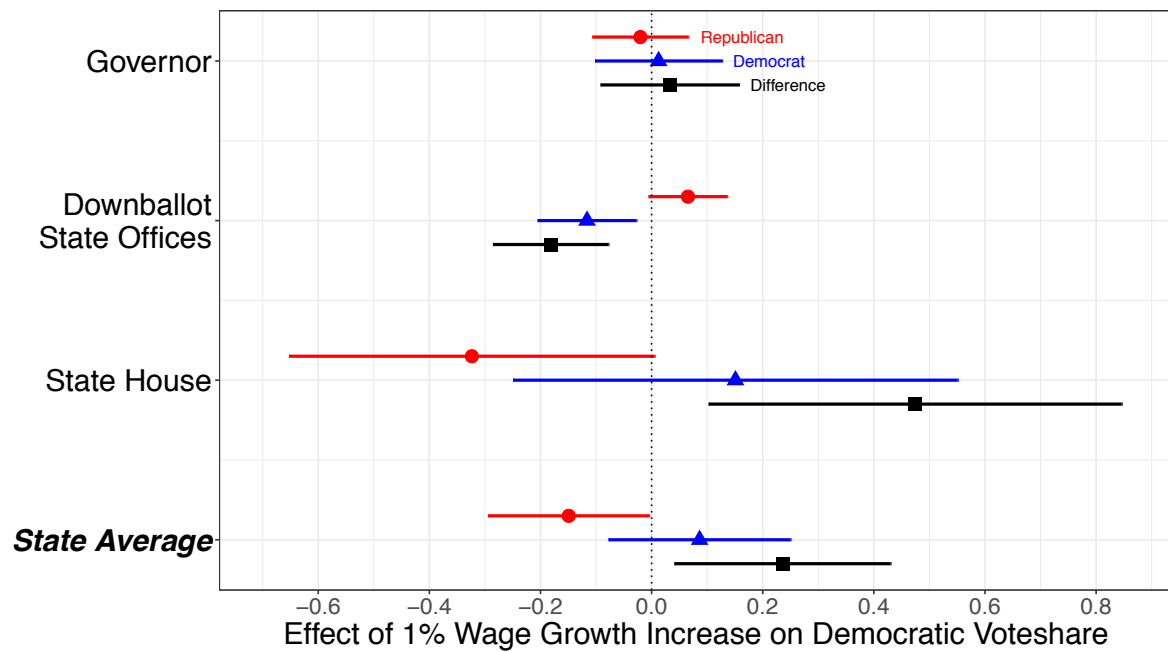


Figure H-11: Accountability in State Elections, Post-1990



I Local Media and Accountability for Incumbents

In this section, we analyze the role of the media separately for presidential, U.S. House, Senate, governor, and state house elections. In these analyses, we also find only suggestive evidence that the media moderates retrospective voting in federal elections.

Table I-9: Media and Accountability: Individual Offices

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>				
	President	Senate	House	Governor	State House
	(1)	(2)	(3)	(4)	(5)
Change in logged wages \times Democratic pres. \times newspaper	0.188** (0.077)	0.053 (0.074)	0.112 (0.154)	-0.070 (0.101)	-0.208 (0.183)
Change in logged wages \times Democratic incumbent \times newspaper		0.041 (0.065)	-0.162 (0.160)	0.011 (0.088)	0.136 (0.188)
Change in logged wages	-0.097*** (0.025)	-0.061** (0.030)	-0.253*** (0.065)	-0.107*** (0.031)	-0.023 (0.101)
Democratic incumbent			-1.658*** (0.183)		-0.748** (0.343)
Change in logged wages \times Democratic pres.	0.110*** (0.033)	0.064* (0.037)	0.196** (0.082)	0.180*** (0.050)	0.223* (0.114)
Change in logged wages \times newspaper	-0.059 (0.059)	0.028 (0.058)	0.071 (0.119)	-0.078 (0.061)	0.013 (0.151)
Democratic pres. \times newspaper		0.228 (0.172)	0.601** (0.283)	0.154 (0.236)	0.310 (0.336)
Change in logged wages \times Democratic incumbent		-0.035 (0.035)	0.297*** (0.073)	0.077 (0.048)	-0.161 (0.112)
Democratic incumbent \times newspaper		-0.479*** (0.162)	0.087 (0.279)	-0.247 (0.197)	-0.137 (0.500)
FE for State-Year-Newspaper	X	X	X	X	X
FE for County	X	X	X	X	X
Observations	21,686	29,528	39,401	23,021	33,252
R ²	0.881	0.877	0.262	0.816	0.125
Adjusted R ²	0.863	0.865	0.207	0.795	0.046

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

J Alternative Measure of Media Coverage

Given the lack of available datasets on newspaper coverage, we attempted to augment our current static measurement of media coverage by collecting additional data on the presence of newspapers in counties over time from the Library of Congress’s “Chronicling America” project. The Library of Congress collects historic records of newspapers in the United States from 1690 to the present, and provides information on the years when each paper was published, where it was published, and the frequency with which it was published online, searchable by county and year (Library of Congress, 2019).

We scraped these records from the Library of Congress’ website to create a panel of counties across the years in our dataset, with an indicator for whether or not each county had a daily newspaper published in that year. This provides a more dynamic measure of the availability of information than our previous cross-sectional measure of media coverage. However, the construct validity of this measure is more questionable than the one we currently use. It is unclear whether this measure (having a paper in the same county as voters) necessarily translates into voters’ access to information about the local economy. For one, the Library of Congress does not record the circulation numbers for the newspapers in its database — meaning that any kind of paper would be given equal weight in this dataset, regardless of whether it is distributed to the majority of the county or only a small portion of voters. In addition, given that newspapers often cover an entire metropolitan area rather than a single county, the presence of a newspaper’s headquarters in a county (which is how the data is stored as a paper’s location in this database) is not necessarily a good measure of its distribution in that county.

We present our results comparing both the measure we use in the main text of the paper and this alternative measure of newspaper presence in Table J-10. Columns 1 and 2 show the results that we present in the main paper using the cross-sectional measure of newspaper circulation. Columns 3 and 4 use the panel measure we collected from the Library of Congress. The panel measure shows a somewhat smaller effect of the media on

accountability in federal elections than our main results. In both cases, however, there is suggestive, though not statistically significant, evidence the newspaper coverage strengthens accountability for the economy in federal elections. Overall, we think that the cross-sectional measure of newspaper circulation by county that we include in the main text of the paper is the best we can do with available data. The results do not appear to be sensitive to which data source we use.

Table J-10: Media and Accountability: Comparison of Different Newspaper Measures

	<i>Dependent Variable - Δ in Democratic Vote Share for:</i>			
	Federal (XS)	State (XS)	Federal (Panel)	State (Panel)
	(1)	(2)	(3)	(4)
Change in logged wages \times Democratic pres. \times newspaper	0.131 (0.112)	-0.023 (0.152)	0.056 (0.093)	-0.054 (0.136)
Change in logged wages \times Democratic pres.	0.112** (0.047)	0.201*** (0.076)	0.084 (0.064)	0.199** (0.095)
Change in logged wages \times newspaper	-0.006 (0.071)	-0.092 (0.089)	0.054 (0.057)	-0.030 (0.080)
Change in logged wages	-0.076** (0.032)	-0.091** (0.046)	-0.094** (0.038)	-0.090 (0.056)
FE for State-Year-Newspaper	X	X	X	X
FE for County	X	X	X	X
Observations	44,800	41,173	41,929	39,091
R ²	0.514	0.348	0.518	0.357
Adjusted R ²	0.465	0.273	0.467	0.282

Note:

Standard errors clustered by county. *p<0.1; **p<0.05; ***p<0.01

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