

Economic Geography and Economic Voting:
Evidence from the U.S. States

Michael Ebeid
Assistant Professor
Boston University
Department of Political Science
232 Bay State Road
Boston, MA 02215
(617) 353-2545
mebeid@bu.edu

Jonathan Rodden
Corresponding Author
Associate Professor
Massachusetts Institute of Technology
Department of Political Science
E53-433
Cambridge, MA 02139
(617) 253-6261
jrodden@mit.edu

This Draft: July 18, 2003

Abstract

If voters use information about the economy to assess the competence of incumbents, a connection between economic conditions and incumbent success should only be discernable in settings where public policy might plausibly affect the economy, and where the assignment of government responsibility is relatively straightforward. Applying this logic to United States gubernatorial elections, we test the following hypothesis: the connection between economic conditions and incumbents' vote shares is mediated by the structure of the state economy. This hypothesis is premised on the idea that voters understand that raw macroeconomic aggregates – when driven by factors like weather, commodity prices, and federal policy – are poor signals of incumbent performance. Using data from gubernatorial elections held between 1950 and 1998, we show that the connection between macroeconomic indicators and incumbent success is weak in states dominated by natural resources and farming but quite strong elsewhere. This finding helps explain why earlier studies found no connection between state-level economic conditions and gubernatorial elections.

Most politicians and pundits take it for granted that the state of the economy plays a decisive role in electoral outcomes. Invariably, they see a strong economy as a boon for an incumbent's reelection hopes and a weak economy as a curse on them. These beliefs draw support from numerous studies that demonstrate a connection between national macroeconomic conditions in the United States and aggregate national election results (e.g., Kramer 1971; Fair 1978; Tufte 1978; Rosenstone 1983; Hibbs 1987; Erikson 1989; Holbrook 1991). However, researchers have been less successful in efforts to detect an analogous relationship between *state-level* economic conditions and *state-level* elections. In particular, several analyses of gubernatorial elections held prior to the mid 1980s find that gubernatorial vote shares are essentially impervious to fluctuations in state economic conditions (Kenney 1983; Peltzman 1987; Chubb 1988). This finding seems especially perplexing in an era when most governors devote tremendous resources to the economic well-being and development of their states. Why would governors focus so much attention on economics if not for the electoral rewards such attention presumably bestows?

In trying to resolve this empirical puzzle, we also address a general theoretical question. In what situations do economic conditions affect election outcomes? While aggregate evidence of economic voting at the national level in the United States is strong, the cross-national empirical literature is mixed. A recent review concludes that “in different samples different economic variables sometimes matter for political outcomes, but the findings are far from robust” (Cheibub and Przeworski 1999, 230). This should not be surprising, given that voters possess different information and incentives in different political systems. For instance, Powell and Whitten (1993) demonstrate that the effect of economic performance on voting is weak in countries in which “policymaking responsibility is blurred between government and opposition,” and quite strong in countries where “responsibility is more sharply focused” (410).¹ Following a

¹ Anderson (2000) provides a review of similar findings, along with further evidence of the relationship between “clarity of responsibility” and economic voting.

similar logic, Leyden and Borrelli (1995) and Lewis-Beck and Nadeau (2000) suggest that economic voting is stronger during periods of unified party control of government as compared to divided government.

Voters might consider a wide range of information when making assessments about incumbents and challengers. Whether they see and feel it directly or rely on media reports, voters seem to use information about the economy to assess the quality, or “type” (Fearon 1999) of incumbent politicians. However, such information is likely to be useful only if voters can reasonably attribute economic outcomes to the actions of incumbent individuals or parties.² The studies cited above suggest that it is difficult for voters to establish a causal link between actions and outcomes under coalition or divided government. More generally, these results suggest that if voters are rational (or even quasi-rational) and reasonably discerning, economic voting should not be a universal phenomenon. Rather, we should expect to see evidence of a relationship between economic data and electoral results primarily in places and at times where signals can be distinguished from noise – that is, where economic information is relatively easy to interpret and can be plausibly connected with incumbent performance.

This paper uses evidence from the U.S. states to take this argument in a new direction. Specifically, we consider the challenges voters in multi-tiered systems of government face in attempting to apportion policy-making responsibility for economic conditions. We argue that even if all subnational governments in a multi-tiered system have identically extensive fiscal and regulatory tools at their disposal, the usefulness of local economic information for voters might vary a great deal from one state to another depending on the character of the subnational economy. Apportioning responsibility for local economic conditions to subnational officials in multi-tiered systems is quite difficult in general, but the possibility of doing so is heavily conditioned by economic geography.

² Business cycles add noise to such information, but voters might deal with this by simply expecting greater economic growth during good times and slower growth during bad times (Manin, et al. 1999).

The simple hypothesis explored in this paper is that subnational economic voting is more likely to arise in jurisdictions with modern, diversified economies than in those with agricultural or extractive economies. The economic well-being of the population in the former may be closely linked to the presence of mobile investment capital, a good investment environment, and a skilled workforce—factors over which state governments may have some influence—while in the latter it is likely driven by the value of fixed assets and natural resources. In diversified modern jurisdictions, aggregate information on income growth or unemployment might contain a reasonably high ratio of performance signal to noise given the role local politicians can play in making their jurisdictions attractive places for capital and workers. In the latter, however, the noise may dominate the signal because the jurisdiction’s economic fortunes are largely determined by factors obviously beyond the control of local politicians, such as price fluctuations in international commodity markets and other uncontrollable forces such as the weather and federal subsidies. We test this hypothesis by introducing industrial structure data to a standard model of incumbent vote share in U.S. state gubernatorial elections.

Section one introduces the problem of information, economic outcomes, and voting in multi-tiered systems, and section two lays out the economic geography argument. Section three presents a basic model – inspired by previous work on gubernatorial elections – that estimates the electoral effects of economic conditions from 1950 to 1998. Section four adapts the basic model to explore the conditional effect of state economic structure. Section five discusses the results and concludes.

I. Economics and Elections at the Subnational Level

The presence of strong subnational governments introduces some of the same challenges to accountability presented by coalition or divided government. If two levels of government (henceforth “federal” and “state”) have authority over certain aspects of macroeconomic and economic development policy, or at least attempt to claim credit for fostering economic growth,

voters may not know how to interpret information about the regional economy. While it is always difficult to differentiate between favorable cyclical or international circumstances and wise policy choices, the task is even more difficult if two levels of government are simultaneously claiming credit for success or shifting blame for failure. Voters in the states have at least four ways of responding to the credit-claiming attempts of state-level officials:

- (1) Evaluate the performance of state officials by considering state-level economic information only (i.e., evaluating state officials independently).
- (2) Evaluate the performance of state officials by considering state-level economic information *relative* to national economic information (i.e., evaluating state officials by whether the state economy is better or worse than the overall national economy).
- (3) Use information about the national economy to punish and reward the party of the federal executive at all levels of government.
- (4) Eschew the use of economic information to evaluate state officials.

We posit that the strategy employed by voters will be shaped in predictable ways by the nature of the political and economic system. Of course, the idea that voters consider subnational economic conditions in *any* way (the first two strategies) is only plausible (and measurable) in countries where economic outcomes actually vary substantially across regions. For this reason, we might expect local elections in Liechtenstein to follow the third or fourth pattern, while the first two patterns might be present in India, Brazil, or the United States.

The usefulness of information about the regional economy might also be affected by the fiscal and policy autonomy of the subnational government sector. Consider a range of subnational sectors around the world. At one end of a continuum one might place the municipal government sector in Norway, where the taxing, spending, and regulatory activities of local governments are strictly regulated by the central government (Rattsø 2003). It would be surprising to find that voters employ either of the first two strategies in Norway. One might place the German *Länder* (states) in the middle of such a continuum. On the one hand, they have considerable expenditure autonomy and at least some state governments do attempt to claim

credit for economic development policies. But on the other hand, they have very little autonomy in setting the tax rate or base, and much of their revenue is dedicated to the implementation of federal legislation. Empirical work by Lohmann, Brady, and Rivers (1997) shows that voters in the German states employ the third strategy – using national-level economic information to punish and reward the party of the federal chancellor in state elections.³

At the opposite end of a “subnational autonomy” continuum one might place the U.S. states, along with the Canadian provinces and Swiss Cantons—arguably the most fiscally and politically autonomous subnational entities in the world. In each case, many of the constituent units predate the federal constitution that subsequently provided strong legal and institutional protections of the units’ autonomy. In each case, subnational governments engage in significant autonomous economic development activities, and while they do not control monetary policy, they have wide-ranging control over fiscal and regulatory policy.

Recognition that subnational governmental units throughout the world vary in their economic autonomy is evident from assessments made by credit rating agencies. In most decentralized public sectors, intergovernmental transfers blur the link between central and local government accountability. As a result, local credit ratings often merely reflect assessments of the creditworthiness of the public sector as a whole. In contrast, the constituent units in the American, Canadian, and Swiss federations rely primarily on taxes that they legislate and collect themselves. Consequently, credit rating agencies clearly make *independent* assessments of the fiscal performance of each constituent unit in the American, Canadian, and Swiss federations. In other words, creditors view the subnationals as fiscal “sovereigns.”

While the average voter may not be as informed as a Standard and Poor’s analyst, there is no reason why voters should not also view subnational governments as “sovereigns” in these systems. In other words, the first two strategies, both of which involve assessment of local-level officials through the use of local economic information, seem to make sense in highly

³ German voters also have incentives to view *Land* elections through a federal lens because *Land* elections determine the make-up of the upper house of parliament.

autonomous federated states. Yet for many years the accepted scholarly wisdom in the United States has suggested otherwise. In their studies of aggregate gubernatorial election results from the 1940s to the early 1980s, Kenney (1983), Peltzman (1987), and Chubb (1988) all find strong support for the notion that national economic conditions affect gubernatorial candidates' electoral fortunes, but little evidence of an effect from state-level economic conditions. Moreover, the national effect is directly tied to the president: gubernatorial candidates of the president's political party benefit when the national economy is strong and suffer when it is weak (gubernatorial candidates of the party opposite the president's experience the reverse).⁴ In terms of the voting strategies outlined above, these studies find little evidence for strategies one or two, while – as in the German states – they report strong support for strategy three.

The standard post-analysis explanation for these findings is that the state of the economy is a national matter that is the responsibility of national officials. According to Peltzman, for instance, the lack of a gubernatorial electoral effect from state economic conditions indicates that voters act “as if they understand that national rather than local politics have the dominant effect on their income” (1987, 296). In other words, these previous studies interpret the economic-electoral connection at subnational levels as the product of a relatively sophisticated electorate that sees the economy as a national issue but treats subnational politicians as representatives of the national parties that direct it.

We find these results and this conclusion surprising. Given the autonomy and strength of the U.S. states in comparative perspective, it seems likely that voters do indeed face incentives to use state-level economic information to evaluate the performance of state officials. In order to distinguish local performance from nation-wide shocks and trends or the effects of federal policy, strategy two seems especially attractive for voters in the U.S. states. State governors preside over large, sophisticated bureaucracies that they use in attempts to lure mobile domestic

⁴ Using 1982 survey data on *individual* vote choice, Robert Stein (1990) reaches the similar conclusion that voters generally hold the president (and by extension, the president's party) responsible for state economic conditions, and that governors are rewarded or penalized according to their partisan connection to the president.

and international investment capital to their states. Many of the states are very active in courting international investors, and have opened permanent offices abroad. Attempts to claim credit for the concomitant job and economic growth seem to dominate state-level electoral politics,⁵ and governors often trumpet the success of their state vis-à-vis others. Governors certainly appear to *believe* that their electoral fortunes are determined by state-level economic growth even if the empirical evidence from academic studies has not always supported this conclusion.

The puzzling failure to detect electoral effects from state economic conditions and the dissatisfying “national dominance” explanation of economic factors in subnational elections advanced by Peltzman and others has partly motivated several more recent analyses of the gubernatorial vote. Leyden and Borrelli (1995), using unemployment data as an indicator of economic conditions, argue that state economic conditions impact gubernatorial elections more dramatically when the governor’s party also controls the state legislature. Besley and Case (1995) contend that voters’ evaluations of state-level tax policy appear to be made through “benchmark” comparisons with neighboring states. Niemi, et al. (1995), and Atkeson and Partin (1995) find evidence that state economic conditions are an important determinant of the *individual* vote choice. Viewed as a whole, these and other studies (e.g., Lowry, et al. 1998) suggest that earlier conclusions that the state economy plays little role in state elections may have been too hasty. Furthermore, they imply that voters are relatively sophisticated users of economic information, and that the economic-election connection – at least at the subnational level – must be understood in more subtle and qualified terms than previously thought. Our study adds to the skepticism about the findings of initial studies of economics and gubernatorial elections. Specifically, we identify a simple but strikingly important mediating factor that

⁵ For instance, Grady reports that in 33 of 46 state-of-the-state addresses delivered in 1988, governors “mentioned economic development as one of their top three priorities” (1991, 106). And while this type of credit-claiming seems to have grown more prevalent in recent years, by no means is it an entirely new phenomenon. Southern economic historians (e.g. Cobb 1982, Wright 1986) have shown that aggressive investment promotion has been central to gubernatorial reelection strategies since at least the 1940s.

qualifies the connection between state economic conditions and gubernatorial election outcomes—the structure of the state economy.

II. Economic Structure and Economic Voting

Voters' incentives to use local economic information to assess the performance of incumbents might vary as much within as across countries. The economic geography literature (e.g. Krugman 1991; Fujita, Krugman, and Venables 1999) documents a natural pattern of economic development whereby because of transportation costs and agglomeration economies, manufacturing and industrialization are concentrated in one or two regions within countries, leaving the rest of the country as a sparsely populated, largely agricultural hinterland. This phenomenon, when combined with a federal system of government, often means that industrialization is concentrated in a handful of states, while the economy of the median state is dominated by agriculture, natural resource extraction, and related services. Prominent examples include the rest of Brazil in relation to the Sao Paulo region and the Argentine hinterlands vis-à-vis Buenos Aires.

While less extreme, the United States has experienced a pronounced regional pattern of industrialization, first concentrated in the Northeastern manufacturing belt and then to a lesser extent along the Pacific Coast, and later spreading to parts of the South and Midwest as transportation costs fell. Perloff et al. (1960) estimated that the manufacturing belt—a parallelogram bounded roughly by Green Bay, St. Louis, Baltimore, and Portland, Maine—accounted for 74 percent of U.S. manufacturing employment around the turn of the century, a figure that had only decreased to 64 percent by 1957. Manufacturing and (non-agricultural) services have spread more evenly throughout the country ever since, and the economies of some states, especially in the Midwest and South, have undergone major transformations.

[FIGURE 1 ABOUT HERE]

Using the classifications of the Bureau of Economic Analysis, Figure 1 displays the portion of each state's yearly total earnings that was derived from farming, agricultural services, and mining in the 1940s, then again in the 1970s and at the end of the century.⁶ Lighter shades indicate greater dependence on the sale of "primary products." The difference between the Northeastern manufacturing belt and the rest of the country is clearly visible in the 1940s and 1970s maps, but by the end of the century, the sale of primary products represented only a minuscule portion of the state economy in the far West and in every state east of the Mississippi save West Virginia. Yet even today a large swath of the country has experienced relatively little industrialization, and the economies of several states are still dominated by agricultural products and natural resources. In fact, the importance of farming and natural resources to the economy in the middle section of the country is probably underestimated by the index presented in Figure 1, given the exposure of banks and other service industries to fluctuations in income from primary products. In a state like North or South Dakota, if an entire year's crop is destroyed by disease, drought, or flooding, the state's overall growth rate takes a dramatic dive.⁷

Such cross-state and diachronic differences in economic structure have potentially important implications for political accountability at the state level. For example, in the late 19th and early 20th centuries, many farmers in the American periphery realized that their economic prosperity was largely shaped by events and political decisions well beyond the control of state governments. Not only were farmers dependent upon the weather, but they were price-takers in national and international markets who relied on railroad and other transportation networks that tended to be owned and controlled by out-of-state firms. As such, the most important political issues in the periphery usually required the action of the federal government rather than the states; favorable tariffs and farm prices topped the agenda, along with policies that would rein in the bankers and railroad owners of the Eastern capitalist establishment (Sanders 1999).

⁶ State-level industry data is compiled by the Bureau of Economic Analysis (<http://www.bea.doc.gov>). The data we used comes from the BEA's "Series SA05."

⁷ For example, North Dakota's real per capita income fell by 15 percent in 1980, a year in which the state suffered a severe drought.

In a context like this – where the state economy is largely driven by weather and commodity markets – indicators of state economic conditions such as unemployment, gross state product, or personal income would seem to transmit very little information about the performance of state-level officials. We hypothesize that voters in such states have great difficulty distinguishing the performance signal from the noise in regional economic data. When agriculture, mining, and other primary product exports dominate a state's economy, even a rather poorly informed voter is likely to understand that marginal changes in growth and unemployment rates – even relative to national rates – are not easily traced to the performance of the state's governor. Rather, the government policy decisions that most plausibly affect income levels are in the hands of federal officials – tariffs, price supports, subsidies, energy policy, and in some cases land use. If most productive activity in the state is associated with fixed assets like agricultural or grazing land, mines, or oil reserves, an incumbent governor may expect to be held accountable by voters as much for her ability to attract subsidies or price supports from the federal government as her ability to manage the local economy and create an attractive business environment.

In short, while the rationality of conditioning one's vote choice in subnational elections on raw or relative economic aggregates is debatable even in the industrialized core, it is extremely suspect in the dependent, price-taking periphery. This condition would explain why a link between the state economy and the success of gubernatorial incumbents could not be established in previous studies using panels of state elections that assigned each state equal weight regardless of economic structure. If state-level economic voting is contingent on economic geography, the downward bias on the coefficients for state-level macroeconomic variables would be even more severe in samples dominated by earlier years, when manufacturing was still relatively concentrated in the northeastern belt and a much larger group of states was dominated by agriculture and primary products.

The next section estimates a simple model of gubernatorial incumbent vote share in accordance with existing literature. The following section then interacts macroeconomic

indicators with variables capturing the economic structures of states, demonstrating very clearly that economic voting is contingent on economic geography.

III. A Simple Model of Economic Conditions and the Gubernatorial Vote

Following previous research, we have constructed a simple model of the aggregate gubernatorial vote that puts potential economic influences at center stage.⁸ Our dependent variable is the incumbent party's share of the two-party vote. Like other scholars before us, we expect voters to associate economic policies and outcomes not merely with the particular *individual* in the governor's office, but with his or her *party* as well. Accordingly, when an incumbent governor does not run for reelection, the governor's party likely will shoulder responsibility for the governor's performance over the prior term. When an incumbent does run, he typically enjoys well-known advantages that make races with an incumbent notably different from open races. Therefore, we include in the model a dummy variable to indicate the presence of an incumbent candidate.

Because states vary in their general tendencies to support Democratic versus Republican candidates, we also include a variable for the incumbent party's "normal vote." A party's normal vote in a state serves as a measure of the partisan predisposition of the state, and indicates the degree of support a party candidate can typically expect to receive in the state. We operationalize the normal vote variable as the average share of the two-party vote received by the incumbent party in the immediately prior gubernatorial, senatorial, and presidential elections. The year in which a gubernatorial election occurs relative to the presidential election cycle is also likely to affect candidates' vote shares. Most states currently conduct gubernatorial elections in non-presidential election years. Such races may reflect the much discussed "midterm punishment" phenomenon whereby candidates from the president's party typically

⁸ Both our model and the statistical technique we use to estimate it are similar to those used by Peltzman (1987).

suffer because of voter weariness or displeasure with the president. In contrast, gubernatorial elections held in presidential election years may be affected by “presidential coattails.” When a party’s presidential candidate wins, other candidates on the same party ticket usually benefit. To control for these influences, we have added midterm punishment and presidential coattails variables to our model.

As discussed above, there are a variety of ways voters might use economic information to assess the performance of state officials. We have therefore developed two distinct specifications of the basic model. The first and most simple specification tests the possibility that state economic conditions *alone* affect incumbent success (strategy one), while the second specification tests the possibilities that economic conditions affect gubernatorial elections according to the *relative* strength of the state economy vis-a-vis the national economy (strategy two) and/or that it is the president’s management of the national economy that matters (strategy three).

Following previous studies, we use two separate measures of national and state economic conditions—one-year growth rates of real per capita income (RPCI) and unemployment. Reliable data for RPCI are available since World War II, while state-level unemployment data are only available since 1977.⁹ Given this discrepancy in available data, we have decided not to use both economic indicators in the same model specification but, rather, estimate two versions of each specification: one in which economic conditions are measured by RPCI, and one in which economic conditions are measured by unemployment. Including economic indicators in the first specification is straightforward: a variable for one-year state economic growth (either RPCI or unemployment) enters the model directly. Estimation of the second specification is more complex. To test the proposition that the relative strength of the state economy affects election outcomes, we use the difference between the state growth rate and the national growth

⁹ We have also estimated models using real gross state product per capita, which is available since 1977. However, we do not report these results, which are very similar to the results reported below for real per capita income, because the two variables are correlated at above .9.

rate (either RPCI or unemployment). Again, the reasoning here is that voters may be inclined to evaluate governors not simply on the raw state growth rate (strategy one and the first specification), but instead on whether the governor brings about better or worse economic conditions than are present at the national level. To test the proposition that the president's management of the national economy affects election outcomes requires an interaction specification of the effects of the national economy. Accordingly, the national growth rate enters the model directly (to test for possible direct national economic effects on the gubernatorial vote), and interacted with a dummy variable that indicates whether the incumbent gubernatorial party is the same as the sitting president's party. A positive coefficient on the interaction term in the RPCI specifications, or a negative coefficient in the unemployment specifications, suggests that the electorate does indeed hold representatives of the president's party responsible for the president's management of the national economy.

To estimate these models, we use the least squares dummy variables technique (fixed effects estimation), which is a common approach for analysis of panel data (i.e., cross-sectionally dominant pooled data). With this approach, the regression equation includes not only the substantive variables already described but also a set of dummy variables to represent each state (i.e., the cross-sections). These variables control for unit effects (that can contaminate the error term) by moving them from the error term into the coefficients for the dummy variables.¹⁰ The actual estimates of the unit effects are of little theoretical interest, so we do not report them. Our dataset covers competitive gubernatorial elections¹¹ in 47 states¹² from 1950 to 1998.¹³ Table 1 summarizes all of the variables used in the analysis.

¹⁰ See Stimson (1985) or Sayrs (1989) for general descriptions of the unit effects problem and the LSDV solution, or Greene (1997) for a more technical explication.

¹¹ We define an election as "competitive" if both the major parties received at least 20 percent of the two party vote. In practice, this requirement serves to eliminate from the dataset several elections of the mid-century "solid south" period when Democratic candidates in many southern states routinely won by landslide margins.

¹² We exclude Alaska and Hawaii. Also, the peculiarities of Louisiana's nonpartisan primaries and runoff elections make its electoral results difficult to compare to other states.

¹³ The voting and incumbency data for 1950 to 1990 come from four ICPSR studies: *State-Level Congressional, Gubernatorial and Senatorial Election Data for the United States, 1824-1972* (ICPSR 0075), *State-Level*

[TABLE 1 ABOUT HERE]

Full equations for the specifications are as follows:

Specification 1 (Absolute State Conditions), Version A (RPCI)

$$\text{INCUMBENT VOTE} = \alpha + \beta_1 \text{NORMAL VOTE} + \beta_2 \text{INCUMBENT CANDIDATE} + \beta_3 \text{COATTAILS} + \beta_4 \text{MIDTERM PUNISH} + \beta_5 \text{STATE ECONOMY_RPCI} + [\text{state dummy variables}] + \varepsilon.$$

Specification 2 (Relative State Conditions), Version A (RPCI)

$$\text{INCUMBENT VOTE} = \alpha + \beta_1 \text{NORMAL VOTE} + \beta_2 \text{INCUMBENT CANDIDATE} + \beta_3 \text{COATTAILS} + \beta_4 \text{MIDTERM PUNISH} + \beta_5 \text{NATIONAL ECONOMY_RPCI} + \beta_6 (\text{NATIONAL ECONOMY_RPCI} \times \text{SAME PARTY}) + \beta_7 \text{RELATIVE STATE ECONOMY_RPCI} + [\text{state dummy variables}] + \varepsilon.$$

Specification 1 (Absolute State Conditions), Version B (Unemployment)

$$\text{INCUMBENT VOTE} = \alpha + \beta_1 \text{NORMAL VOTE} + \beta_2 \text{INCUMBENT CANDIDATE} + \beta_3 \text{COATTAILS} + \beta_4 \text{MIDTERM PUNISH} + \beta_5 \text{STATE ECONOMY_UNEMP} + [\text{state dummy variables}] + \varepsilon.$$

Specification 2 (Relative State Conditions), Version B (Unemployment)

$$\text{INCUMBENT VOTE} = \alpha + \beta_1 \text{NORMAL VOTE} + \beta_2 \text{INCUMBENT CANDIDATE} + \beta_3 \text{COATTAILS} + \beta_4 \text{MIDTERM PUNISH} + \beta_5 \text{NATIONAL ECONOMY_UNEMP} + \beta_6 (\text{NATIONAL ECONOMY_UNEMP} \times \text{SAME PARTY}) + \beta_7 \text{RELATIVE STATE ECONOMY_UNEMP} + [\text{state dummy variables}] + \varepsilon.$$

The results for these specifications of the basic model are reported in Table 2.

[TABLE 2 ABOUT HERE]

As indicated by the r-squared values ranging from .30 to .37, each specification has a respectable overall fit – a fit similar to previous economic models of the gubernatorial vote. Moreover, in each specification the non-economic variables mostly perform as expected. A party's normal vote gives potential gubernatorial candidates an idea of how they may fare: the higher an

Presidential Election Returns, 1824-1972 (ICPSR 0019), *General Election Data for the United States, 1950-1990* (ICPSR 0013), and *Candidate and Constituency Statistics of Elections in the United States, 1788-1990* (ICPSR 7757). Election and incumbency data for the 1990s was obtained from *America Votes*. Income data comes from the U.S. Department of Commerce's Bureau of Economic Analysis (available online at <http://www.bea.doc.gov>), and unemployment data from the U.S. Department of Labor's Bureau of Labor Statistics (available online at <http://www.bls.gov>).

incumbent party's normal vote in a state, the greater the percentage of the two-party vote an incumbent party candidate can expect to receive.¹⁴ Also unsurprising is the substantial incumbency advantage sitting governors enjoy. A governor who runs for reelection typically gets a boost of at least six percentage points of the vote. In addition, the timing of a state's gubernatorial election relative to the presidential election cycle proves important. When an election is held in a non-presidential year, candidates who share the president's party affiliation will typically suffer a midterm punishment of between two and three percentage points of the vote. Gubernatorial elections do not, however, appear to be strongly affected by the presidential coattails phenomenon.

Neither are gubernatorial elections greatly impacted by state economic conditions – at least according to the results in Table 2. In specification 1 (both version A and B), the “absolute” state economy does not register a statistically significant effect (at the ten percent level or lower) on incumbent vote share. In specification 2 (both version A and B), the estimate for state economic growth relative to national growth also fails to reach statistical significance. These results are consistent with strategy four, and with previous conclusions by Peltzman and others that voters do not appear to evaluate state officials based on absolute state economic conditions.

Furthermore, Table 2 tells a mixed story about the earlier conclusions that the president's management of the national economy “dominates” gubernatorial elections (i.e., voters use strategy three). For the period from 1950 to 1998, voters in the U.S. states do not appear to punish and reward governors for the president's economic performance. These results are at odds with those separately reported by Peltzman and Chubb. One possible explanation for this discrepancy is difference in the datasets: Peltzman and Chubb cover different time periods – 1949 to 1984, and 1940 to 1982, respectively – and analyze a more limited selection of

¹⁴ In all specifications, estimation of the model without an intercept (i.e., the regression line is forced through the origin) produces a coefficient of at least .90 for the normal vote. This suggests that a candidate for the incumbent party can expect to receive at least 90 percent of the party's normal vote.

gubernatorial elections (they both exclude odd-year elections, and Peltzman further omits all races in which the governor was elected to a two-year term). However, when unemployment data are used in specification 2, version B, the result is consistent with the Peltzman hypothesis. It appears that other things equal, governors who share the president's party label are punished for increases in unemployment; a one point increase in the national unemployment rate costs the president's co-partisan gubernatorial candidates around one tenth of a percentage point in the vote share.

IV. The Conditional Effect of Economic Structure

To test our economic geography hypothesis, we return to the "primary product" index displayed in Figure 1. For Rhode Island, for example, the primary product index was quite stable throughout the period under analysis, hovering around one percent. For North Dakota, on the other hand, the index rises over 50 percent in some years and averages about 25 percent for the entire period. Moreover, because of the volatility of weather and agricultural prices there are sizable fluctuations in the index for states like North Dakota that have the highest reliance on primary products. For instance, during drought or flood years in North Dakota, the primary product index falls to around zero, making it indistinguishable from Rhode Island. Since the use of a primary product index that fluctuates from year-to-year can lead to occasional perverse (and facially invalid) classifications, we use a five-year moving average.

We expect that the impact of state RPCI and unemployment on incumbent gubernatorial vote share will be conditioned by the state's economic structure. Specifically, we hypothesize that the strength of the connection between income or unemployment and incumbent support is highest in states that are *least* dependent on farming, agricultural services, and mining. Therefore, we add to each specification of our basic model a multiplicative interaction term. In specification 3, version A the absolute growth rate of state RPCI is interacted with the (moving average) primary product index, and in specification 4, version A the growth in state RPCI

relative to national RPCI is interacted with the (moving average) primary product index. Specification 3, version B and specification 4, version B do the same for unemployment.

[TABLE 3 ABOUT HERE]

The results are presented in Table 3. Again, there is little evidence that *absolute* state economic conditions play a role in gubernatorial elections. In Specification 3, version A, neither the state economy nor the interaction of the state economy and the primary product index are remotely close to statistical significance. However, in Specification 4, version A, there is strong indication that *relative* state economic conditions impact election outcomes. The point estimates for the relative state economy and the interaction between the relative state economy and the primary product index are .64 and -.02 respectively, and are statistically significant at the five percent level, both alone and jointly. Substantively, the magnitude of the relative state economy effect can be interpreted as follows. For every point increase in the percent of the state economy attributable to primary products, the slope of the state economy on the incumbent vote decreases by .02. The conditional effects of state economic structure on economic voting are displayed visually in Figure 2, which plots on the horizontal axis the primary product index throughout the sample range, and on the vertical axis the effect on incumbent vote share of state RCPI growth one point greater than national RCPI growth. The solid line is the conditional effect estimated in specification 4, version A, while the dotted lines depict lower and upper bounds of the 95 percent confidence interval. The effect of relative income growth on incumbent vote share is positive and significant when states do not rely heavily on primary products. In a state with minimal reliance on primary products – say Rhode Island today at 1 percent – a state RPCI one point greater than the national RPCI will give the incumbent about six tenths of an additional percentage point of the two-party vote. The effect weakens as states become more dependent on primary products. Once around 20 percent of the state’s economy is directly related to primary products – like Nebraska or Iowa in the 1960s or North and South Dakota in the early 80s – the conditional coefficient can no longer be distinguished from zero. Note that the national average was around 20 percent in the 1950s and several states were well above 40 percent, while by 1998

the national average was down to around 3 percent, with only three states above 10 percent, and only one (Wyoming) approaching 20. The results suggest that for the vast majority of states since the 1970s, a state growth rate two or three percentage points above the national average was easily enough to swing a close election in favor of the incumbent.

[FIGURES 2 AND 3 ABOUT HERE]

The unemployment regressions tell a similar albeit less striking story using a much smaller sample. In specification 3, version B, the absolute state unemployment rate interacted with the primary product index does not have a strong effect on incumbent success. The coefficient for unemployment (alone) is only significant at the 10 percent level, and unemployment and the interaction term do not achieve joint significance. However, the result in specification 4, version B is similar to that in specification 4, version A. Only states that have made the transition away from primary products demonstrate pronounced relative economic voting. Figure 3 plots out the conditional coefficients. Note that since the unemployment data were only available since 1977, the sample range displayed for the primary product index has a maximum of 20 (with a mean around 5). Figure 3 shows that using relative unemployment data, state-level economic voting can only be discerned in the states with very little—in fact less than 3 percent—of the economy devoted to primary products. However, by the 1980s this encompasses over half of the states—every state in the northeast and along the pacific coast, most southern states, and even a good number of Midwestern and Western states. In Rhode Island (or virtually any other Northeastern state), an increase in the unemployment rate that is one percentage point greater than the national average increase will cost an incumbent party around one tenth of a percent of the two-party vote.

V. Discussion and Conclusion

Our results indicate that the relationship between economics and elections at the state level is mediated by the state's economic structure. Specifically, signs of economic voting are

most clearly discernable in states that rely least on farming and natural resources. This suggests that state-level economic voting only becomes common as states develop modern, diverse economies. Previous studies reporting no relationship between state economic conditions and gubernatorial election results were likely driven in part by a handful of sparsely populated states. This finding should raise considerable doubt about previous notions that state-level economic prosperity does not impact state election outcomes. Like other recent studies focusing on partisanship, institutions, and the clarity of responsibility, our study demonstrates that the economic-electoral connection is subtle and conditional. Economic voting is not a universal phenomenon. As such, studies of the economic-electoral connection – especially in multi-tiered governmental systems – need to take care in identifying the conditions under which voters might use economic and other types of information to evaluate the performance of incumbent politicians.

Voters who wish to assess the competence of incumbent politicians face a difficult task – namely, finding objective, trustworthy information about government performance. Although it is noisy and difficult to interpret, economic information may under some conditions be the best alternative. Under other conditions, however, economic information is likely to prove less helpful. A low growth rate vis-à-vis other states might convey useful information about governmental performance to voters in Connecticut or Michigan, but similar data are probably of little use to voters in North Dakota or Montana.

A goal for future research might be to examine other aspects of economic and political geography that would explain similar patterns. Since governors do not control monetary or trade policy, their efforts to claim credit for economic expansion focus primarily on attracting trade and investment. A key insight of the economic geography literature is that because of transportation costs and agglomeration economies, their ability to do so depends heavily on the state's proximity to major markets and ports (though perhaps decreasingly so as transportation costs fall). In other words, our “primary product” index might be a function not only of abundant natural resources and fertile soil, but also transportation costs and a state's distance

from the major urban markets of North America and the world. Perhaps economic voting is only a reasonable strategy for voters in states that have geographic features allowing them to compete in the game of competitive federalism. Future work might examine such a hypothesis using data on inter-state and inter-national trade and investment patterns. It might also be useful to disaggregate further and use counties or metropolitan areas as units of analysis. In any case, the basic explanation for different patterns of economic voting across states would remain the same: economic geography shapes the meaning and usefulness of macroeconomic data in holding subnational government officials accountable for their actions.

While suggesting that the link between economics and accountability might vary over time and space, the results presented in this paper do not prove that governors are less accountable to the electorate in primary product-dependent states, or even that voters in such states ignore the economy when evaluating their leaders. Perhaps voters in such states have developed context-dependent strategies for filtering signals from noise. Future studies might focus on these states and examine whether state-level macroeconomic variables are indeed associated with incumbent success in models that control for factors like commodity prices, weather, and crop yields. It would also be useful to examine the apportionment of credit and blame across levels of government for fluctuations in farm subsidies and price supports, given the importance of these in determining income levels in some regions.

Our results can also be interpreted in light of ongoing debates about the naïveté or rationality of voters. We find little evidence that voters base their decisions on raw state-level macroeconomic aggregates. Rather, they appear to filter out the potential noise introduced by nation-wide shocks and federal policy by comparing state-level unemployment and growth rates to the national average.¹⁵ More importantly, economic information is most tightly linked to incumbent success in the states where such information most plausibly contains useful performance signals

¹⁵ Wolfers (2002) presents a similar finding, which he asserts is evidence that voters collect and process information in rational ways. He goes on to show, however, that voters nonetheless make systematic attribution errors, for instance when they improperly blame or reward incumbents in the aftermath of oil shocks.

In addition to further study of economic geography and accountability in the United States, our approach also points the way towards an intriguing research agenda in comparative politics. First, future cross-national studies of economic voting might take into account the structure of national economies. Second, studies of economic voting might shed light on vexing questions about the accountability of government to citizens, especially in federal and multi-tiered political systems. If voters use economic information to hold subnational officials accountable, they may do so either by implicitly – and exclusively – tying them to the performance of the national executive, as in Germany; or, as in the U.S. manufacturing core, they may view subnational governments as relatively “sovereign” and hold elected officials separately accountable for local outcomes. This paper has introduced the possibility that voters develop different accountability strategies in different regions within the same country. Future research might attempt to establish the political, economic, and fiscal conditions under which these strategies are compatible with voters’ incentives and information.

References

- Anderson, Christopher. 2000. "Economic Voting and Political Context: A Comparative Perspective." *Electoral Studies* 19: 151-171.
- Atkeson, Lonna Rae, and Randall W. Partin. 1995. "Economic and Referendum Voting: A Comparison of Gubernatorial and Senatorial Elections." *American Political Science Review* 89: 99-107.
- Besley, Timothy, and Ann Case. 1995. "Incumbent Behavior: Vote-Seeking, Tax-Setting, and Yardstick Competition." *American Economic Review* 85: 25-45.
- Burnham, W. Dean, Jerome M. Clubb, and William Flanigan. *State-Level Presidential Election Returns, 1824-1972*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (ICPSR 0019).
- . *State-Level Congressional, Gubernatorial and Senatorial Election Data for the United States, 1824-1972*. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (ICPSR 0075).
- Cheibub, Jose Antonio and Adam Przeworski. 1999. "Democracy, Elections, and Accountability for Economic Outcomes," in Adam Przeworski, Susan Stokes, and Bernard Manin, eds., *Democracy, Accountability, and Representation*. Cambridge: Cambridge University Press.
- Chubb, John E. 1988. "Institutions, the Economy, and the Dynamics of State Elections." *American Political Science Review* 82: 133-154.
- Cobb, James C. 1982. *The Selling of the South: The Southern Crusade for Industrial Development, 1936-1980*. Baton Rouge: Louisiana State University Press.
- Erikson, Robert S. 1989. "Economic Conditions and the Presidential Vote." *American Political Science Review* 83:567-573.
- Fair, Ray. 1978. "The Effect of Economic Events on Votes for President." *Review of Economics and Statistics* 60: 159-172.
- Fearon, James. 1999. "Electoral Accountability and the Control of Politicians: Selecting Good Types versus Sanctioning Poor Performance," in Adam Przeworski, Susan Stokes, and Bernard Manin, eds., *Democracy, Accountability, and Representation*. Cambridge: Cambridge University Press.
- Fujita, Masahisa, Paul Krugman, and Anthony Venables. 1999. *The Spatial Economy: Cities, Regions, and International Trade*. Cambridge, MA: MIT Press.
- Grady, Dennis. 1991. "Managing the State Economy: The Governor's Role in Policymaking," pp.105-120 in Eric B. Herzik and Brent W. Brown (eds.) *Gubernatorial Leadership and State Policy*. New York: Greenwood Press.

- Greene, William H. 1997. *Econometric Analysis*. 3rd Edition. Upper Saddle River: Prentice Hall.
- Hibbs, Douglas A. 1987. *The American Political Economy*. Cambridge: Harvard University Press.
- Holbrook, Thomas M. 1991. "Presidential Elections in Space and Time." *American Journal of Political Science* 35: 91-109.
- Inter-university Consortium for Political and Social Research. 1995. *General Election Data for the United States, 1950-1990*. ICSPR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (ICPSR 0013).
- Inter-university Consortium for Political and Social Research. 1995. *Candidate and Constituency Statistics of Elections in the United States, 1788-1990*. 5th ICSPR ed. Ann Arbor, MI: Inter-university Consortium for Political and Social Research (ICPSR 7757).
- Johnston, J. 1984. *Econometric Methods*, Third Edition. New York: McGraw-Hill.
- Krugman, Paul. 1991. *Geography and Trade*. Cambridge, MA: MIT Press.
- Kenney, Patrick J. 1983. "The Effects of State Economic Conditions on the Vote for Governor." *Social Science Quarterly* 64: 154-162.
- Kramer, Gerald H. 1971. "Short-Term Fluctuations in U.S. Voting Behavior." *American Political Science Review* 65: 131-143.
- Lewis-Beck, Michael, and Richard Nadeau. 2000. "French Electoral Institutions and the Economic Vote." *Electoral Studies* 19: 171-173.
- Leyden, Kevin M., and Stephen A. Borrelli. 1995. "The Effect of State Economic Conditions on Gubernatorial Elections: Does Unified Government Make A Difference?" *Political Research Quarterly* 48: 275-290.
- Lohmann, Susanne, David Brady and Douglas Rivers. 1997. "Party Identification, Retrospective Voting, and Moderating Elections in a Federal System: West Germany, 1961-1989." *Comparative Political Studies* 30: 420-449.
- Lowry, Robert C., and James E. Alt, and Karen E. Ferree. 1998. "Fiscal Policy Outcomes and Electoral Accountability in American States." *American Political Science Review* 92: 759-774.
- Manin, Bernard, Adam Przeworski, and Susan Stokes. 1999. "Elections and Representation," in Adam Przeworski, Susan Stokes, and Bernard Manin, eds., *Democracy, Accountability, and Representation*. Cambridge: Cambridge University Press.

- Niemi, Richard G., Harold W. Stanley, and Ronald J. Vogel. 1995. "State Economies and State Taxes: Do Voters Hold Governors Accountable?" *American Journal of Political Science* 39: 936-957.
- Peltzman, Sam. 1987. "Economic Conditions and Gubernatorial Elections." *AEA Papers and Proceedings* 7: 293-297.
- Perloff, H. E. Dunn, E. Lampard, and R. Muth. 1960. *Regions, Resources, and Economic Growth*. Baltimore: Johns Hopkins University Press.
- _____. 1992. "Voters as Fiscal Conservatives." *Quarterly Journal of Economics* 107: 327-61.
- Powell, G. Bingham, Jr. and Guy D. Whitten. 1993. "A Cross-National Analysis of Economic Voting: Taking Account of the Political Context." *American Journal of Political Science* 37: 391-414.
- Rattsø, Jørn. 2003. "Vertical Fiscal Imbalance and Fiscal Behavior in a Welfare State: Norway," in Jonathan Rodden, Gunnar Eskeland, and Jennie Litvack, eds., *Decentralization and the Challenge of Hard Constraints*. Cambridge, MA: MIT Press.
- Rosenstone, Steve J. 1983. *Forecasting Presidential Elections*. New Haven: Yale University Press.
- Sanders, Elizabeth. 1999. *Roots of Reform: Farmers, Workers, and the American State 1877-1917*. Chicago: University of Chicago Press.
- Sayrs, Lois W. 1989. *Pooled Time Series Analysis*. Newbury Park: Sage Publications.
- Scammon, Richard. Various editions. *America Votes*. Washington, D.C.: Congressional Quarterly.
- Stein, Robert M. 1990. "Economic Voting for Governor and U. S. Senator: The Electoral Consequences of Federalism." *Journal of Politics* 52: 29-53
- Stimson, James A. 1985. "Regression in Time and Space." *American Journal of Political Science* 29: 914-947.
- Tufte, Edward R. 1978. *Political Control of the Economy*. Princeton: Princeton University Press.
- Wolfers, Justin. 2002. "Are Voters Rational? Evidence from Gubernatorial Elections." Stanford Graduate School of Business Research Paper No. 1730.
- Wright, Gavin. 1986. *Old South, New South: Revolutions in the Southern Economy Since the Civil War*. Baton Rouge: Louisiana State University Press.

Table 1.
Description of Variables

Variable	Description
INCUMBENT VOTE	= the incumbent gubernatorial party's percentage share of the two-party vote
NORMAL VOTE	= the average share of the two-party vote received by the incumbent party in the immediately prior gubernatorial, senatorial, and presidential elections
INCUMBENT CANDIDATE	= 1 if the incumbent party fields an incumbent candidate = 0 otherwise
COATTAILS	= 1 in presidential election years when the incumbent party candidate shares a party affiliation with the winner of the concurrent presidential = -1 in presidential election years when the incumbent party candidate does NOT share party affiliation with the winner of the concurrent presidential election = 0 in non-presidential election years
MIDTERM PUNISH	= 1 in non-presidential election years when the incumbent party candidate shares party affiliation with the sitting president = -1 in non-presidential election years when the incumbent party candidate does NOT share party affiliation with the sitting president = 0 in presidential election years
SAME PARTY	= 1 if the incumbent gubernatorial party is the same as the president's party = -1 if different
NATIONAL ECONOMY_RPCI	= the percentage growth in national real per capita income
STATE ECONOMY_RPCI	= the percentage growth in state real per capita income
RELATIVE STATE ECONOMY_RPCI	= the percentage growth in state real per capita income minus the percentage growth in national real per capita income
NATIONAL ECONOMY_UNEMP	= the percentage increase in the national unemployment rate
STATE ECONOMY_UNEMP	= the percentage increase in the state unemployment rate
RELATIVE STATE ECONOMY_UNEMP	= the percentage increase in the state unemployment rate minus the percentage increase in the national unemployment rate
PRIMARY PRODUCT INDEX	= the proportion of the state's yearly total industry earnings derived from farming, agricultural services, and mining (5 year moving average)
[state dummy variables]	= 1 when the Republicans are the incumbent gubernatorial party in the state = -1 when the Democrats are the incumbent gubernatorial party in the state

Table 2.
Gubernatorial Election Outcomes

Independent Variables	Dependent variable: Incumbent party's share of the two-party vote							
	<i>Specification 1, Version A</i>		<i>Specification 2, Version A</i>		<i>Specification 1, Version B</i>		<i>Specification 2, Version B</i>	
	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values
Constant	32.4		32.5		38.4		38.7	
NORMAL VOTE	0.32	6.2 ***	0.32	6.2 ***	0.20	1.9 *	0.19	1.9 *
INCUMBENT CANDIDATE	6.48	10.0 ***	6.47	10.0 ***	9.22	8.3 ***	9.26	8.4 ***
MIDTERM-PUNISH	-3.02	-7.7 ***	-3.04	-6.8 ***	-2.32	-3.7 ***	-2.39	-3.9 ***
COATTAILS	0.79	1.5	0.81	1.4	1.12	1.0	-0.57	-0.4
STATE ECONOMY_RPCI	0.04	0.5	—		—		—	
NATIONAL ECONOMY_RPCI	—		-0.02	-0.2	—		—	
NATIONAL ECONOMY_RPCI × SAME PARTY	—		0.001	0.0	—		—	
RELATIVE STATE ECONOMY_RPCI	—		0.08	0.8	—		—	
STATE ECONOMY_UNEMP	—		—		-0.03	-1.0	—	
NATIONAL ECONOMY_UNEMP	—		—		—		-0.02	-0.5
NATIONAL ECONOMY_UNEMP × SAME PARTY	—		—		—		-0.12	-2.2 **
RELATIVE STATE ECONOMY_UNEMP	—		—		—		-0.04	-0.8
	<i>Years: 1950-1998</i>		<i>Years: 1950-1998</i>		<i>Years: 1977-1998</i>		<i>Years: 1977-1998</i>	
	<i>R-squared=.30</i>		<i>R-squared=.30</i>		<i>R-squared=.37</i>		<i>R-squared=.38</i>	
	<i>N=673</i>		<i>N=673</i>		<i>N=283</i>		<i>N=283</i>	

*** significant at .01; ** significant at .05; * significant at .10.

Note: The model also includes 47 state dummy variables (estimates not reported).

Table 3.
Gubernatorial Election Outcomes: The Impact of State Economic Structure

Independent Variables	Dependent variable: Incumbent party's share of the two-party vote							
	<i>Specification 3, Version A</i>		<i>Specification 4, Version A</i>		<i>Specification 3, Version B</i>		<i>Specification 4, Version B</i>	
	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values	Coefficients	t-values
Constant	32.4		32.6		37.6		37.6	
NORMAL VOTE	0.33	6.2 ***	0.33	6.2 ***	0.21	2.0 **	0.21	2.0 **
INCUMBENT CANDIDATE	6.47	10.0 ***	6.43	9.9 ***	9.08	8.2 ***	9.27	8.4 ***
MIDTERM-PUNISH	-3.04	-7.7 ***	-3.01	-6.7 ***	-2.23	-3.6 ***	-2.21	-3.6 ***
COATTAILS	0.77	1.4	0.75	1.4	1.19	1.1	-0.33	-0.2
STATE ECONOMY_RPCI	0.12	0.9	—		—		—	
STATE ECONOMY_RPCI × PRIMARY PRODUCT INDEX	-0.004	-0.8	—		—		—	
NATIONAL ECONOMY_RPCI	—		-0.04	-0.3	—		—	
NATIONAL ECONOMY_RPCI × SAME PARTY	—		-0.04	-0.3	—		—	
RELATIVE STATE ECONOMY_RPCI	—		0.64	2.7 ***	—		—	
RELATIVE STATE ECONOMY_RPCI × PRIMARY PRODUCT INDEX	—		-0.02	-2.7 ***	—		—	
STATE ECONOMY_UNEMP	—		—		-0.08	-1.8 *	—	
STATE ECONOMY_UNEMP × PRIMARY PRODUCT INDEX	—		—		0.009	1.6	—	
NATIONAL ECONOMY_UNEMP	—		—		—		-0.02	-0.4
NATIONAL ECONOMY_UNEMP × SAME PARTY	—		—		—		-0.12	-2.1 **
RELATIVE STATE ECONOMY_UNEMP	—		—		—		-0.13	-2.0 **
RELATIVE STATE ECONOMY_UNEMP × PRIMARY PRODUCT INDEX	—		—		—		0.02	2.1 **
	<i>Years: 1950-1998</i>		<i>Years: 1950-1998</i>		<i>Years: 1977-1998</i>		<i>Years: 1977-1998</i>	
	<i>R-squared=.30</i>		<i>R-squared=.31</i>		<i>R-squared=.38</i>		<i>R-squared=.40</i>	
	<i>N=673</i>		<i>N=673</i>		<i>N=283</i>		<i>N=283</i>	

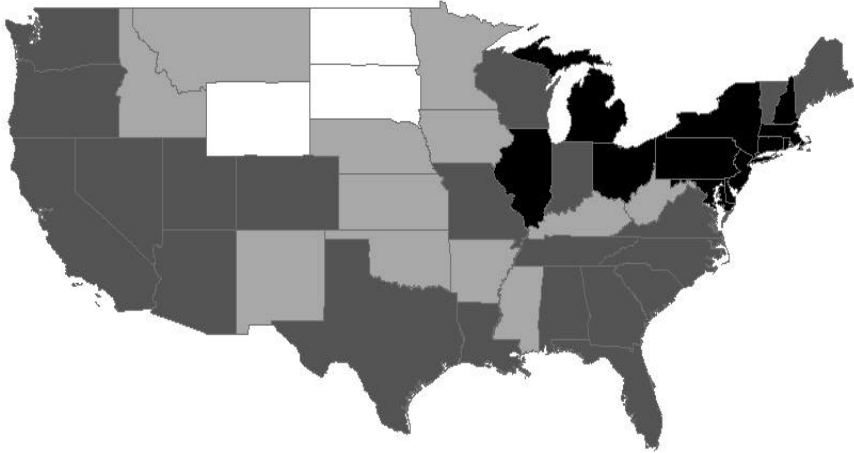
*** significant at .01; ** significant at .05; * significant at .10.

Note : The model also includes 47 state dummy variables (estimates not reported).

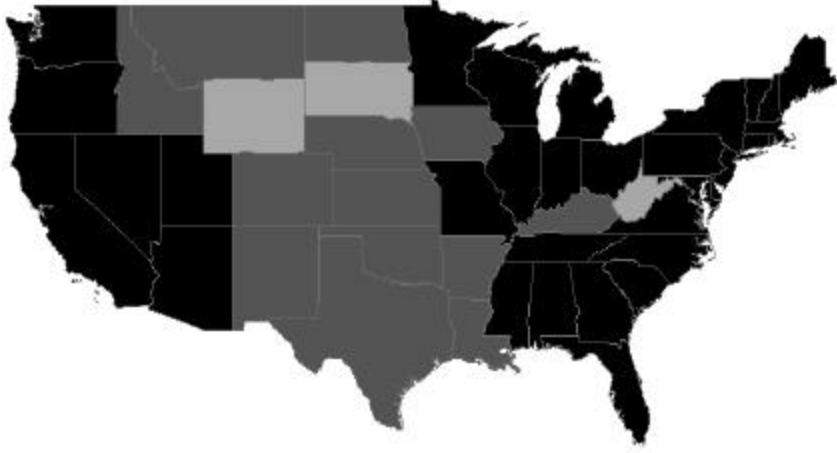
Figure 1: Average earnings from farming, agricultural services, and mining as share of total state earnings, selected years



1940-1944



1970-1974



1994-1998

Legend

- 0 - 4
- 4 - 10
- 10 - 20
- Above 20

Figure 2: Conditional effect of state per capita income growth (relative to national) on incumbent vote share

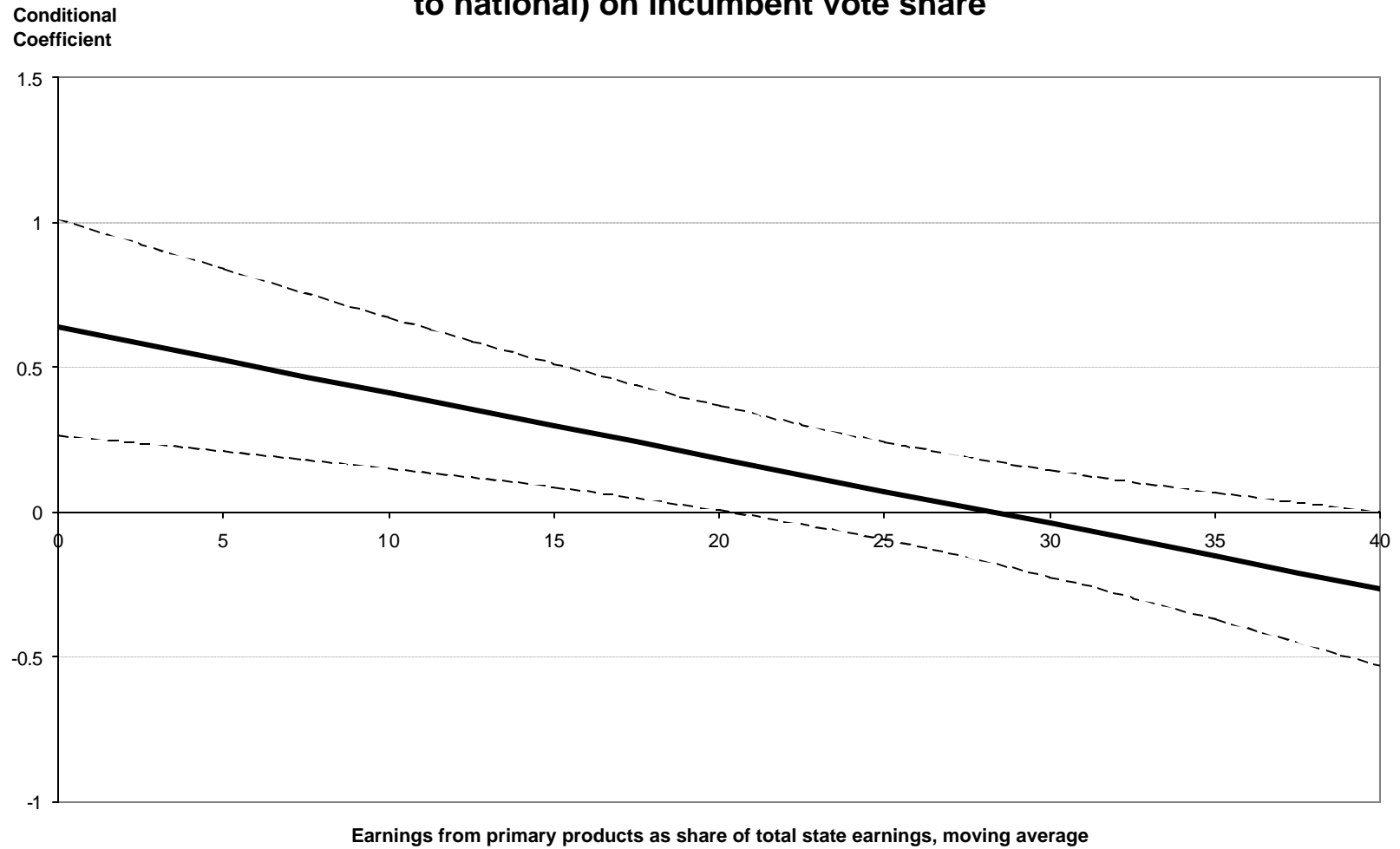


Figure 3: Conditional effect of state unemployment growth (relative to national) on incumbent vote share

Conditional
Coefficient

