TOO BIG TO FAIL: ECONOMIC VOTING AND THE 2008 ELECTION

by

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ABSTRACT

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The onset of the worst economic downturn since the Great Depression just months before the 2008 presidential election is thought to have played a significant role in voting behavior. Yet the extent to which voters followed traditional economic voting patterns in choosing between Barack Obama and John McCain is less clear. Using exit poll data merged with state-level aggregate economic data, we search for evidence that negative shifts in economic status made voters more likely to support Obama. After controlling for various demographic, partisan, and geographic variables, we find that voters who believed that the economy was the top issue in the election were more likely to support Obama unless their state experienced a sizeable increase in real personal income per capita in the 6-12 months prior to the election.

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CHAPTER 1

INTRODUCTION

Evidence of economic voting has been found in every U.S. presidential election going back nearly a century, yet the unique circumstances surrounding the 2008 presidential election make assessing whether voters' sense of economic well-being impacted their behavior at the polls more difficult. The 2008 race between John McCain and Barack Obama ended during a time of high economic stress for the country. The financial system was in crisis mode, the stock market had plummeted, and the U.S. government was spending hundreds of billions of dollars in response. In the nine weeks prior to Election Day, the federal government took over mortgage-lending giants Fannie Mae and Freddie Mac and insurer A.I.G., loaned more than $25 billion to the U.S. auto industry, and authorized the Treasury Department to spend $700 billion on economic stabilization efforts (Nankin, et. al., 2009). Such a dramatic turns of events made the economy a dominating issue in the final days of the presidential campaign season and turns the traditional economic voting inquiry on its head: In 2008, who wasn't an economic voter?

The backgrounds of the two major candidates on the ballot also suggest that the 2008 race was distinctive from the perspective of economic voting research, which normally searches for evidence that voters who see economic improvements are, ceteris paribus, more likely to support the incumbent. Neither President George W. Bush nor

Vice President Dick Cheney was running in 2008. The last time an incumbent president or vice president was not on the ballot was 56 years earlier. Past research suggests voters may have viewed McCain as the de facto incumbent by virtue of being from the same party as Bush, though the relevant data points are few and far between (Marcus, 1988; Nadeau and Lewis-Beck, 2001).

This paper investigates the evidence for economic voting in the 2008 election using the 2008 National Election Pool exit poll and state-level aggregate economic data from 2004 to 2008. We looked at two measures that have been commonly employed in the literature: the unemployment rate and real personal income per capita. Both measures provide a potential means of capturing a relationship between changing economic circumstances and presidential vote preference. Earlier research has made a distinction between "pocketbook" or "egocentric" voting, in which voters' evaluation of an incumbent are based in part on shifts in their own personal finances, and "sociotropic" voting, in which voters take a wide-angle view of the economy in judging the current office-holder (Kindler and Kiewiet, 1981; Kramer, 1983; Markus, 1988). Our approach does not distinguish between the two categories. However, given the broader turmoil in the U.S. economy immediately prior to Election Day, discerning either effect separate from the overall concerns of the economy can be challenging.

We regressed an indicator of voting for Obama as opposed to McCain on different state-level aggregate economic indicators, as well as other explanatory variables available in the exit poll dataset. This included an indicator for voters who believed the economy was the country's most pressing issue and indicators for how

worried voters were about the economy. Indeed, more than 50 percent of the sample cited the economy as the country's most important issue, well ahead of the four other options presented to them. Additionally, nearly three-quarters of the sample said they were at least somewhat worried about the economy. Both groups were more likely to have voted for Obama. However, as Obama was seen as having addressed economic concerns more forcefully in the final months of the campaign, while McCain was perceived as stronger on terrorism, those results could be the result of bias in which Obama supporters were more likely to report concerns about the economy and McCain supporters were more likely to focus more on other issues.

To ensure that we are not potentially overstating our economic voting effect, we added a number of other additional controls to our restricted regression model related to voter demographics and geography in order to address several traditional factors that are strong predictors of voter outcomes. We also added to our unrestricted model several other variables including partisan identifiers which allow us to account for voting behavior not directly related to personal economic assessments. We also controlled for family income level ensuring that our interpretation of our results do not confuse changes in income with levels of income. Additionally, we included indicators for when voters settled on a candidate, allowing us to distinguish between voters who made their decision before and after the financial crisis began in earnest in September.

Our results indicate that, even amid the biggest financial crisis since the Great Depression, economic voting did take place. Those who viewed the economy as the top

issue were more likely to vote for Obama assuming their state's real personal income per capita did not increase by a sizable amount in the year before the election.

CHAPTER 2

RELATED LITERATURE

The role of the economy in how voters choose among presidential candidates has been a source of study for more than 70 years (Downs, 1957; Kramer, 1971). A wide range of researchers – economists, political scientists, sociologists, psychologists – have tried to discern whether changes in voters' economic situation impacts their vote, irrespective of partisan leanings or feelings about the candidates on the ballot (Kinder and Kiewiet, 1981; Lewis-Beck and Paldam, 2000; Sigelman, Sigelman and Bullock, 1991).

At the heart of this inquiry is the mental state of the typical voter. Is he self-interested, only considering how his personal finances are affected by the happenings in the halls of power in Washington, D.C., or does he act more altruistically, voting for the candidate he believes will best serve the most people in the country? Or is he closer in character to more classical theories of voting behavior, in which voters analyze all the issues and the performance histories of the parties and their candidates and pick a slate that they believe is most likely to maximize their individual utility?

There is considerable consensus that measuring changes in some economic variables can explain some aspects of voting behavior, perhaps explaining as much as one-third of the change in the vote in some countries. However, which variables should be measured and what the results tell researchers, or even whether the phenomenon

takes place in every election or only under certain conditions, has served as a focus of debate that, while less contentious than 30 years ago, remains unresolved (Kramer, 1971; Stigler, 1973; Lewis-Beck and Paldam, 2000; Eisenberg and Ketcham, 2004).

Since the earliest studies going back to the early twentieth century, researchers looked for economic indicators that could serve as a proxy for individual economic fluctuations. Some indicators used frequently in the past include variations in real income per capita, the unemployment rate, the inflation rate, and the consumer price index (Kramer, 1971; Arcelus and Meltzer, 1975; Fair, 1978; Jordahl, 2006). Efforts to identify the time frame of economic activity that most impacts voter behavior has settled largely around the year prior to an election, though some research suggests that a longer time frame – possibly the full four-year term – is taken into account by the electorate (Kramer, 1971; Fair, 1978; Lewis-Beck, 1988; Markus, 1988; Peltzman, 1990; Eisenberg and Ketcham, 2004).

Efforts to assess different aggregate economic indicators have been muddled in part because some of the most commonly used indicators are highly correlated (Kinder and Kiewiet, 1979). Multicollinearity issues aside, individual survey data also has had its detractors. Among the complaints is that the data is biased, essentially showcasing partisan views of economic factors influenced by which party is in power. Another criticism is that individual survey data incorporates exogenous financial shifts reported by respondents that have nothing to do with national economic trends or political policy and that may not factor strongly into their vote. In aggregate-level data, these individual

localized factors presumably cancel themselves out, leaving only the broader economic shifts (Kramer, 1983; Eisenberg and Ketcham, 2004).

Despite some critiques, individual survey data has been used repeatedly in economic voting research, in part under the thinking that micro-level decision-making such as the kind a person undertakes in order to decide whom to support in an election cannot be inferred from macro-level time series data (Fiorina, 1978; Lewis-Beck, 1988). Survey questions asking voters how their financial situation has changed in recent years have proven to be a rich source of analysis for researchers interested in measuring economic voting (Fiorina, 1978; DeSimone and LaFountain, 2007).

One fertile area of disagreement among those that subscribe to the economic voting hypothesis is whether it is inwardly focused or sociotropic in nature (Kindler and Kiewiet, 1981; Kramer, 1983; Markus, 1988). More recent research has argued that the two effects work in tandem, with those who believe that their own economic standing is lagging behind the national average more likely to back a challenger than those who believe they are outperforming the overall populace (Killian, Schoen and Dusso, 2008).

Among the issues that have colored the research is whether voters are retrospective (basing their vote on past performance) or prospective (making a judgment on which candidate is likely to better improve their finances in the future). Some research suggests that there is actually little difference between the two approaches given that voters' expectations are fairly static. Though the notion of retrospective voting might make more intuitive sense, there is some support for the argument that voters are making a guess on future economic gains rather than past

performance. Under this line of thinking, an incumbent can be perceived as being a better manager of the economy in the future than his or her opponent, even if recent evidence doesn't directly support that thinking (Kramer, 1971; Fair, 1978; Lewis-Beck, 1988; Markus, 1988; Peltzman, 1990; Lewis-Beck and Paldam, 2000).

A notable case is the 1984 presidential election, in which the economy played a significant role and Ronald Reagan cruised to re-election against Walter Mondale on the slogan, "It's morning again in America." While some studies found evidence of retrospective voting, research involving survey data from the year of the election showed support for the notion that Reagan won based on perceived stewardship of the economy moving forward, even with voters who had suffered financially during Reagan's first term. Voters such as struggling farmers in Iowa were thus, in a sense, voting with their pocketbooks in mind but acting on "hope" rather than recent evidence (Lewis-Beck, 1988).

Several studies have found promising results exploring the theory that voters are more impacted by financial considerations during certain types of economic activity, namely downturns. This question of whether the pocketbook effect on voting is, in fact, not symmetrical fits well with more general political science research that has found that voters are more influenced by negative information than positive (Claggett, 1986, Lewis-Beck and Paldam, 2000; Singer, 2011).

There is also some evidence that a particularly robust economy is a powerful predictor of an incumbent's re-election. In the framework of U.S. presidential elections, the most recent example is Bill Clinton's victory over Bob Dole and Ross Perot in 1996,

though his image as a strong economic leader may have been dampened by his efforts working with a Congress controlled by Republicans. Some of the literature has questioned whether a divided government may weaken possible economic voting effects (Alvarez and Nagler, 1997; Lewis-Beck and Paldam, 2000; Gomez and Wilson, 2001; Nadeau and Lewis-Beck, 2001).

The 2008 election was historic in multiple ways but in terms of this study, the lack of an incumbent or even a quasi-incumbent is among the most significant. Both Barack Obama and John McCain were U.S. Senators. It marked the first election since 1952 in which neither an incumbent president nor incumbent vice president was on the general election ballot (Baker, 2008). That makes comparing the impact of economic variables in this election to other elections trickier. In the 13 previous presidential elections, some sort of incumbent effect could be evaluated. In seven of them, a sitting president was running for a second term. An incumbent vice president was on the ballot for the other six. In the 2008 election, factoring in an incumbent effect would mean assuming voters perceived McCain, the Republican candidate, as a proxy incumbent for Bush.

Previous research in economic voting has even questioned whether an incumbent vice president running for president should be viewed differently from a sitting president running for a second term. Many have chosen to treat any sitting vice president running for president as a de facto incumbent, but some have argued that any measurable economic voting effect is all but eliminated under those circumstances, suggesting that voters view candidates who are simply members of the incumbent party

quite differently from an actual incumbent. One theory is that economic voting switches from largely retrospective to mostly prospective in races lacking an incumbent (Marcus, 1988; Nadeau and Lewis-Beck, 2001, Eisenberg and Ketcham, 2004).

Research thus far into the results of the 2008 presidential election shows economists suggesting variations from the previous economic voting models. Lewis-Beck and Tien's model predicted that the economic crisis would lead to Obama winning by several more percentage points than he actually did. They argued afterward that the higher residual was because a portion of the electorate was unwilling to vote for an African-American candidate (Lewis-Beck and Tien, 2009). Other researchers have proposed that the widespread diffusion of responsibility for the crisis may have blunted the economic voting effect, or that the overall economic pessimism drowned out the typically seen economic voter coefficient (Lewis-Beck, 2009).

CHAPTER 3

DATA AND EMPIRICAL STRATEGY

We used 2008 exit poll data from the National Election Pool (National Election Pool, 2008). The poll was sponsored by ABC News, the Associated Press, CBS News, CNN, Fox News and NBC News, and the questions and the question order were decided by the six media outlets. The polling was conducted by Edison Media Research/Mitofsky International.

Voters were polled in 47 states and the District of Columbia as they left their polling place on Election Day, November 4, 2008. In Colorado, Oregon, and Washington, where all or nearly all voters cast ballots by phone or by mail, responses were collected solely through telephone interviews. Telephone interviews were also conducted to poll absentee voters in 15 states: Alaska, Arkansas, Arizona, California, Florida, Georgia, Iowa, Michigan, Montana, New Mexico, Nevada, North Carolina, Ohio, Tennessee, and Texas. Telephone interviews were conducted between Oct. 24 and Nov. 2. Households were selected via random-digit dialing with respondents randomly selected from within each household.

The datasets were accessed through the website of the University of Michigan's Inter-University Consortium for Political and Scientific Research. The dataset for Idaho was missing from the 2008 dataset. Efforts to obtain the missing data from ICPSR were unsuccessful. Idaho's population in 2009 was estimated at 1,545,801, or 0.5 percent of

the U.S. population (U.S. Census, 2010). The state has consistently backed the Republican nominee since 1968 (Associated Press, 2008). We do not expect this omission will have a significant impact on our results.

Within each state, pollsters selected voting precincts designed to represent that state's different geographic and partisan makeup. Precincts with large minority populations in certain states were sampled at a higher rate than other precincts, with the weights adjusted to compensate.

The results were weighted to correspond to the probabilities of selection and to reflect each state's demographic characteristics. There was no dataset available through ICPSR combining the datasets from all of the states and the District of Columbia and adjusting the weights to reflect a national sample. Such a combined dataset was made available for the 2004 exit poll dataset. Based in part on how the state-level weights in the 2004 data were adjusted to create a national dataset, we created a combined data set for the 2008 data by aggregating the state-level datasets and adjusting the weights to reflect a national sample. The weights were adjusted based on each state's population in 2008 as a proportion of the country's population and the number of respondents polled in each state in proportion to the entire 2008 dataset.

Our dataset initially had 82,239 observations. We dropped observations in which the original weight in the state-level dataset was zero as well as those in which respondents reported voting for a candidate other than Obama or McCain or declined to say which candidate received their vote. This left us with 79,719 observations.

Other researchers have deleted third-party votes from their datasets because of uncertainty of how to interpret them. There is not widespread agreement on whether those votes represent a vote against the dominance of the two-party system or just the incumbent. In most cases, the small number of third-party votes in U.S. elections has meant removing them does not have a significant impact on a given analysis (Bloom and Price, 1975; Markus, 1988; Gomez and Wilson, 2001).

Unlike previous presidential election years, including in 2004, the pollsters did not ask the majority of respondents how their financial situation had changed in the four years prior. In order to measure the presence of economic voting, we tested state-level changes in unemployment and real personal income per capita for several different time periods prior to the 2008 election: four years, two years and one year. We also tested state-level changes in unemployment for the 9-month, 6-month, and 3-month periods relative to October 2008, and corresponding changes in per capita real personal income for three quarters, two quarters and one quarter, relative to the third quarter of 2008. Unemployment data and inflation came from the Bureau of Labor Statistics. Data on per capita personal income came from the Bureau of Economic Analysis.

Real personal income per capita measurements for states were calculated in relation to the change from the third quarter of 2008, which concluded in September, and divided by 1,000 to create coefficients that were larger and easier to interpret. For every period except three quarters prior to Election Day, states, on average, experienced an increase in their real personal income on a per capita basis. According to the data, most states saw their real personal income rise on a per capita basis from the start of

Bush's second term to the fourth quarter of 2007, which was three quarters prior to our base period. Most states experienced declines in real personal income per capita during the first quarter of 2008 and then experienced rebounds of varying degrees over the second and third quarter of that year. Only one state, Michigan, experienced decreases in real personal income on a per capita basis during every period we tested.

State unemployment rate changes were calculated in relation to the rate for each state in October 2008. Over Bush's second term, unemployment rates rose in all but 12 states but they increased in all 50 states and the District of Columbia over the year prior to October 2008. The average state increase in the unemployment rate over the last year was 1.6 percentage points. The unemployment rate also rose in every state over the 9-month and 6-month periods prior to the election. In the 3-month period prior to the election, the unemployment rate rose in every state but Alaska, which experienced a 0.1 percentage point drop in its unemployment rate.

We tested our model under a restricted model (or "basic model") with an initial set of explanatory variables, and then as an unrestricted model (or "full model") with additional variables.

We analyzed economic voting using the following restricted model:

$$vote\_Obama = \beta_0 + \beta_1 Econ + X_1 \beta_2 + \mu.$$

The dependent variable, *vote_Obama,* is a binary variable indicative of whether the respondent voted for Obama. The *Econ* variable represents one of the several economic indicators we tested to locate an economic voting effect.

The vector X_1 contains additional variables from the dataset, all of which were converted into binary indicators in the model. Our basic model controlled for gender, age, race, highest level of education, city size and socioeconomic status, census region, and method by which respondent was polled.

Age was reported as one of four groups: 18-29, 30-44, 45-65 and 65 and older. Race was categorized as White, Black, Hispanic/Latino, Asian or other. Respondents' education levels were categorized into one of five groups based on the highest level of schooling they completed: did not complete high school, high school graduate, some college or associate degree, college graduate, and postgraduate study.

We incorporated multiple geographic variables to control for geographic variation in partisan voting patterns. We added a variable for city size based on the zip codes of respondents using Census Bureau definitions of Metropolitan Statistical Areas and principal cities. The respondents were categorized into one of five groups: Cities over 500,000, Cities 50,000-500,000, Suburbs, Cities 10,000-50,000, and Rural. A "Z-Code" variable grouped respondents by the socioeconomic status of each respondent's zip code, also based on Census Bureau data. The categories were very upscale, upscale, downscale, and very downscale. Finally, we added a variable for census region based on how the U.S. Census divides the country into four groups: East, Midwest, South and West.

We also controlled for whether respondents participated via an in-person exit poll on Election Day or a telephone poll. In our dataset, 86 percent of respondents were polled in person on Election Day.

In order to account for within-state correlation of the error term, we clustered by state and adjusted for arbitrary heteroskedasticity for all of our regressions. This insured us against underestimated standard errors.

We expanded our model using the following unrestricted model:

$$vote\_Obama = \beta_0 + \beta_1 Econ + \beta_2 top\_issue + X_1 \beta_3 + X_2 \beta_4 + \mu$$

The variable *top_issue* is a dummy variable that measures whether respondents reported the economy as the top issue facing the country. Respondents were asked to select the country's most pressing issue out of five options: energy policy, the war in Iraq, the economy, terrorism, or health care.

The full model includes the basic model indicators as well as additional exogenous variables converted into binary indicators and signified by the vector X_2. The additional variables are for respondent's political party, political philosophy, income level, level of worry about the economy, and the percentage of the vote Bush received in respondent's state in 2004.

In estimating the political impact of personal economic shifts, it is important that we address the possible confounding effects of partisan identification. Republicans or conservatives, on average, may view the economy as a whole or their own personal economic situation as having fared better than Democrats or liberals in part because they believe a Republican in the Oval Office is always better for the economy than a member of the Democratic Party. Conversely, Democrats or liberals may incorporate their dislike of Bush or Republicans in general in their economic assessments.

We added two exit poll variables to control for partisan leanings. Respondents were asked, regardless of how they voted in the 2008 election, if they view themselves as Democrats, Republicans, Independents, or "something else." They were also asked if they viewed themselves as liberal, conservative, or moderate regarding most political matters. Incorporating the two variables into our model allows us to control for both partisan identification as well as strength of partisan sentiment. An additional variable we incorporated into the model to address partisan trends is the percentage of the vote Bush received in each state in the 2004 presidential election. This allowed us to control at the state level for spurious correlation between time-persistent partisan preferences for McCain and cross-sectional variation in the depth of the early recession.

An additional exogenous variable that could impact voting is family income. The income variable allows us to control for respondents' level of family income at the time of voting, as defined by eight categories: Under $15,000, $15,000 - $29,999, $30,000 - $49,999, $50,000 - $74,999, $75,000 - $99,999, $100,000 - $149,999, $150,000 - $199,999, $200,000 or more.

The economic upheaval of the weeks immediately prior to the election created a need to factor the impact of this historical shift into our model. Three variables in the dataset served in this regard. One of those variables is *top_issue*, the dummy variable representing those who reported the economy as the country's top issue. The dataset included answers from 86 percent of respondents. Suggestive of how large it loomed in voters' minds, 60 percent of those who answered reported the economy as the most

important issue. The second most popular response, the war in Iraq, was only selected by 12 percent of respondents.

Voters' level of concern about the economy also provided a method of gauging the impact of the financial crisis. Eighty-three percent of respondents reported whether they were very worried, somewhat worried, not too worried or not all worried about the direction of the nation's economy in the next year. Of that group, 88 percent said they were at least somewhat worried about the nation's economy.

Voters who settled on a candidate closer to Election Day may have been strongly impacted by the economic crisis. We incorporated respondents' answers to the question of when they decided on a candidate, combining those who said they decided in September or later into one dummy variable and then controlling separately for those who said they decided at some point earlier. Of the 92 percent of our sample who answered the question, 40 percent reported deciding on a candidate on or after September 1.

The sample for our regressions included 72,239 respondents based on poll participants who provided information for all of the relevant variables.[1] The sample is disproportionately female, white and younger than the overall population. Conservatives outnumbered liberals, though Democrats outnumbered Republicans.

[1] There were also omissions due to unreported information on political philosophy (4,102 observations), race (1,436 observations), education (1,016 observations), party identification (965 observations), city size (694 observations), age (474 observations), and sex (265 observations).

We recoded the missing or omitted respondents as 0 on level of worry about the economy (13,491 observations), top issue (13,247 observations), income (7,872 observations), and the time the voter decided on a candidate (5,546 observations). A separate indicator for each missing value was incorporated into our full model regressions.

Most of the sample is made up of members of one of the two major parties. Independents make up only 23 percent of the sample. (Another 4 percent answered "something else.") Forty-five percent of respondents said they were moderates. There is a clear distinction between party identification and political ideology in the sample. More than one-third of conservatives do not consider themselves Republican, and 28 percent of liberals do not view themselves as Democrats.

Unweighted, 57 percent of our sample voted for Obama. When the sample weights are factored in, Obama's support in the sample drops to 53 percent. Obama led McCain in the popular vote 53 percent to 46 percent.

Table 1 outlines the means and standard deviations of the key variables used in the regressions for the weighted sample as well as for Obama and McCain voters separately. The corresponding summary statistics for additional variables from our model are in Appendix B. Table 2 provides the summary statistics for the different economic indicators we tested.

Respondents who reported the economy was the country's most pressing issue were 2 percent more likely to support Obama in our weighted sample. Respondents that did not report being at least somewhat worried about the economy were 15 percent more likely to have voted for McCain.

In our weighted sample, respondents with family income of less than $50,000 were more likely to vote for Obama. Respondents in every income category of $50,000 and above were more likely to vote for McCain.

CHAPTER 4

RESULTS

The main results of our analysis are in Tables 3-5. All of the OLS coefficients are from sample-weighted regressions of the binary "vote for Obama" with one aggregate economic variable and the parameters of the basic or full models as outlined in Chapter 3. The heteroskedasticity-adjusted *t* statistics are clustered by state and in parentheses below each coefficient.

Table 3 shows the results of our initial regressions, both in restricted and unrestricted models. Based on historic economic voting research, the expected outcomes were for the coefficients on unemployment to be positive and the coefficients on real personal income per capita to be negative. This would have suggested that as unemployment in a state rose or residents' average personal income decreased, voters were more likely to cast a ballot for Obama rather than McCain, the candidate belonging to the same party as the incumbent. In our original regressions, neither change in unemployment nor change in real personal income per capita turned out to show a consistent pattern in regards to voter outcomes.

Under the basic model, the state unemployment variables performed as expected. Row 1 of Table 2 shows that all of the coefficients are positive and the OLS coefficients for 4-year and 2-year change are significant at the 1 percent level.

Row 2 adds the results of the full model specifications. All of our unemployment coefficients are insignificant and the coefficients for 9-month and 6-month change in unemployment are negative.

Rows 3 and 4 reproduce the results with changes in state real personal income per capita replacing state unemployment rate shifts. None of the coefficients were statistically significant. Though we expected negative coefficients, all of the coefficients were positive in our basic model except for the variable that measured change in real personal income per capita over three quarters.

Results were more erratic in the full model with this indicator. The coefficients were negative for 4-year, 2-year, 3-quarter, and 2-quarter variables and positive for the 1-year and 1-quarter measurements.

For both the basic and full models, the most significant result was for 2-year change in unemployment, which yielded a *t*-statistic of 2.97 in the basic model and 1.22 in the full model. In all of our full model specifications, the percentage of a state's voters who supported Bush in 2004 was a highly significant indicator of support for McCain, with a coefficient of -.003.

Regardless of the economic indicator used, our unrestricted model raises R-squared by approximately 38 points. Our full model R-squared of .543 suggests that much of the voting patterns in the election are not explained by our model.

Table 4 considers alternative specifications to our unrestricted model. We reran the full model regressions and added an interaction between the economic variable and *top_issue*, the dummy variable for voters who selected the economy was the country's

most pressing issue of five options. The latter variable was positive in every case and significant in several cases, suggesting that respondents who believed the economy was the most important election issue were more likely to vote for Obama. The interaction was insignificant for every model involving change in unemployment rates. The interaction was significant in three cases at 10%, all involving change in real personal income per capita.

The interactions between economy as the top issue and change in real personal income per capita over one year, three quarters and two quarters were all significant at 10 percent. For the model that included one-year change in real personal income per capita, the coefficient for the change in income variable was small and positive, with a t-statistic of 1.26. However, the *top_issue* variable coefficient was .013 and had a *t-statistic* of 2.22 and the coefficient on the interaction variable was -.01 with a *t-statistic* of -1.64. Significant results were also found in the corresponding regression involving a 2-quarter change in real personal income per capita. The coefficient on *top_issue* was .032 and had a *t-statistic* of 3.43. The interaction variable had a coefficient of -.017 and a t-statistic of -1.88. These results suggest that voters were more likely to vote for Obama if the economy was their top issue, as long as their state's real personal income per capita did not increase by a sizable amount.[2]

[2] We conducted an additional regression (not shown) with our full model but without an economic indicator, and including congressional district indicators and an interaction between *top_issue* and the dummy variable for those voters who decided on a candidate in September or later. The *top_issue* coefficient was .015 with a *t-statistic* of 3.09. The interaction term had a coefficient of -.006 and a *t-statistic* of -.67.

Table 5 shows the results of our full model when holding constant with congressional district fixed effects. This regression did not include a state economic variable. The results provide a better sense of how different variables relate to the presidential vote. The most significant results were for party identification and political philosophy. Democrats were 26 percent more likely to vote for Obama compared to those that didn't belong to either major party. Republicans were 31 percent more likely to vote for McCain compared to those who weren't Republicans or Democrats. Self-described liberals were 12 percent more likely to vote for Obama compared to moderates, and conservatives were 19 percent more likely to vote for McCain compared to moderates.

Both voters who believed the economy was the top issue as well as those who said they were very worried about the economy (compared to those who were not worried) were more likely to vote for Obama. The two worry variables are jointly statistically significant with an F-statistic of 46.11, suggesting that both the respondents' level of fear about the economy as well as their belief that the economy was the top issue captured different aspects of voting behavior.

Even when controlling for partisan identifiers and economic concerns, African-Americans, Hispanics/Latinos, and Asians were more likely to support Obama.

CHAPTER 5

CONCLUSION

Our OLS regression with 2008 exit poll data has found that concern about the economy had a significant impact on the presidential race. After controlling for sex, age, race, education, whether the respondent was polled in person or via telephone, census region, city size, socioeconomic status, political party, political philosophy, income level, level of worry about the economy, and the percentage of the vote Bush received in respondent's state in 2004, we found significant results when regressing *vote_Obama* on change in real personal income per capita for two different time periods, *top_issue* and interacting the latter two variables. Voters who were concerned about the economy were more likely to support Obama except in cases where a state's real personal income per capita rose by a sizeable amount, either over a year or just the two quarters preceding the election.

According to the model, over the one-year period before the election, a state's increase in real personal income per capita needed to be more than $1,300 to mean an increased likelihood of support for McCain, assuming the voter believed the economy was the top issue. Over the two-quarter period, the corresponding required increase in a state's real personal income per capita was more than $1,882. Consistent with much of the research in this field, including Kramer's seminal 1971 study, our most significant

results came from measuring a shift in economic variables over a period of one year or less prior to the election.

Only three states – North Dakota, South Dakota, and Alaska – and the District of Columbia experienced increases in real personal income per capita large enough over the two relevant periods to suggest increased support for McCain based on our model. The District of Columbia supported Obama with 93 percent of the vote. A majority of voters in all three states voted for McCain.

The findings suggest that economic voting did occur for those voters who were focused on the economic crisis as they cast their vote. Yet even given those concerns, those voters still shifted support toward McCain if their state had prospered sufficiently enough prior to the election.

It is possible that the insignificance of portions of our results is a result of a substantial portion of the electorate not equating McCain with the incumbent. Another possibility is that, as suggested by other researchers, the overall concerns about the economy overwhelmed any variation across states in magnitude (Lewis-Beck, 2009).

Some potential limitations in our approach may have impacted our results. For instance, we only measured statewide economic conditions rather than at a more local level. In addition, we assumed that the participants in our dataset lived in the same state for the four years prior to Election Day. We also did not observe voter employment status. A dataset that asked voters about recent changes in their own financial situation may be a worthy avenue of future research as it could allow for better isolation of economic voting from other behaviors, as well as facilitate comparisons with similar

studies done on previous presidential elections. Another potentially helpful inquiry, given the abrupt shift in the economy in the weeks before Election Day, would be an analysis of voters who switched their intended vote from one candidate to another as well as when the switch occurred in relation to the economic crisis. Such information may be more illuminating than simply knowing what period voters decided on a candidate, as it could show that the economic downturn played a role in some voters changing their minds.

APPENDIX A

TABLES

Table 1: Summary statistics for key variables (n=72,239)

Variable	All	Obama voters	McCain voters
Voted for Obama	.535		
	(.499)		
Voted for McCain	.465		
	(.499)		
2004 Bush vote percentage by state	50.693	49.675	51.865
	(7.226)	(7.147)	(7.139)
Very worried about economy	.382	.416	.344
	(.486)	.493	.475
Somewhat worried about economy	.236	.197	.280
	(.424)	(.398)	(.449)
Not worried about economy	.089	.066	.115
	(.284)	(.248)	(.319)
Top issue: Economy	.479	.488	.468
	(.500)	(.500)	(.499)
Top issue: Energy policy	.070	.063	.079
	(.256)	(.242)	(.270)
Top issue: War in Iraq	.087	.103	.069
	(.282)	(.303)	(.254)
Top issue: Terrorism	.071	.015	.136
	(.257)	(.120)	(.342)
Top issue: Health care	.071	.092	.046
	(.256)	(.289)	(.210)
Decided September or later	.327	.323	.332
	(.469)	(.468)	(.471)
Decided before September	.524	.508	.542
	(.499)	(.500)	(.498)
Family income less than $15,000	.059	.079	.035
	(.235)	(.269)	(.185)
Family income $15,000-$29,000	.104	.123	.082
	(.305)	(.328)	(.275)
Family income $30,000-$49,999	.174	.184	.163
	(.379)	(.388)	(.369)
Family income $50,000-$74,999	.199	.189	.210
	(.399)	(.391)	(.407)
Family income $75,000-$99,000	.144	.134	.154
	(.351)	(.341)	(.361)
Family income $100,000-$149,000	.132	.120	.146
	(.339)	(.325)	(.353)
Family income $150,000-$199,000	.056	.051	.061
	(.229)	(.220)	(.239)
Family income $200,000 or more	.058	.052	.065
	(.233)	(.221)	(.246)

Table 2: Summary statistics for economic indicators (n=72,239)

Indicator	All	Obama voters	McCain voters
Unemployment rate - 4 years	1.135	1.169	1.096
	(1.011)	(.981)	(1.043)
Unemployment rate - 2 years	1.946	1.991	1.895
	(1.045)	(1.028)	(1.062)
Unemployment rate - 1 year	1.743	1.754	1.730
	(.685)	(.666)	(.705)
Unemployment rate - 9 months	1.593	1.596	1.589
	(.535)	(.523)	(.547)
Unemployment rate - 6 months	1.183	1.187	1.179
	(.421)	(.416)	(.427)
Unemployment rate - 3 months	.727	.727	.727
	(.288)	(.285)	(.291)
RPIPC[3] - 4 year	2.567	2.630	2.494
	(1.632)	(1.655)	(1.602)
RPIPC - 2 years	.973	1.015	.926
	(.998)	(.997)	(.996)
RPIPC - 1 year	-.006	.009	-.024
	(.789)	(.779)	(.799)
RPIPC - 3 quarters	-.454	-.449	-.460
	(.617)	(.599)	(.637)
RPIPC - 2 quarters	1.095	1.107	1.082
	(.590)	(.581)	(.599)
RPIPC - 1 quarter	.474	.502	.442
	(.628)	(.608)	(.649)

[3] Real personal income per capita, in thousands of dollars

Table 3: Economic voting effects[4] (n=72,239)

Variable	4 years	2 years	1 year	9 months/ 3 quarters	6 months/ 2 quarters	3 months/ 1 quarter
Unemployment rate (basic model)	.022	.02	.002	.021	.026	.041
	(3.44)	(2.97)	(1.32)	(1.25)	(1.14)	(1.45)
R-squared	.163	.162	.162	.162	.162	.162
Unemployment rate (full model)	.005	.006	.002	-.001	-.002	.001
	(1.14)	(1.22)	(.28)	(-.2)	(-.24)	(.1)
R-squared	.543	.543	.543	.543	.543	.543
RPIPC[5] (basic model)	.001	.001	.006	-.006	.002	.014
	(.12)	(.24)	(.57)	(-.4)	(.1)	(1.06)
R-squared	.161	.162	.161	.161	.161	.161
RPIPC (full model)	-.001	-.002	.001	-.001	-.002	.002
	(-.5)	(-.55)	(.23)	(-.23)	(-.26)	(.34)
R-squared	.543	.543	.543	.543	.543	.543

[4] Coefficients are from OLS regressions in which the dependent variable is a binary indicator of whether the respondent voted for Obama. Basic model includes indicators for sex, age, race, education, whether the respondent was polled in person or via telephone, census region, and city size and socio-economic status, both of which were based on respondent's zip code. Full model includes basic model indicators as well as additional indicators for respondent's political party, political philosophy, income level, whether they reported the economy as the top issue facing the country, level of worry about the economy, & the percentage of the vote Bush received in respondent's state in 2004. Parentheses contain absolute values of heteroskedasticity-adjusted t-statistics. All regressions calculated using sample weights and clustering by state.

[5] Real Personal Income per capita, in thousands of dollars

Table 4: Economic voting effects in alternative specifications[6] (n=72,239)

Variable	4 years	2 years	1 year	9 month/3 quarters	6 months/2 quarters	3 months/1 quarter
Unemployment and Top issue: economy[7]						
Unemployment	.004	.006	.003	.001	.001	.007
	(.91)	(1.09)	(.42)	(.09)	(.10)	(.41)
Top issue: economy	.013	.013	.018	.021	.021	.021
	(2.03)	(1.05)	(1.27)	(1.29)	(1.38)	(1.57)
Interaction	.001	4.57E-04	-.003	-.005	-.007	-.011
	(.09)	(.06)	(-.27)	(-.38)	(-.44)	(-.54)
R-squared	.543	.543	.543	.543	.543	.543
RPIPC and Top issue: economy[8]						
RPIPC	-.001	.001	.006	.005	.007	.007
	(-.55)	(.13)	(1.26)	(.70)	(.89)	(.98)
Top issue: economy	.011	.018	.013	.008	.032	.018
	(1.28)	(2.84)	(2.22)	(1.02)	(3.43)	(3.20)
Interaction	.001	-.005	-.01	-.012	-.017	-.011
	(0.23)	(-1.05)	(-1.64)	(-1.68)	(-1.88)	(-1.32)
R-squared	.543	.543	.543	.543	.543	.543

[6] Regressions based on full model. Parentheses contain absolute values of heteroskedasticity-adjusted t-statistics. All regressions calculated using sample weights and clustering by state.

[7] Regressions include the full model parameters, change in state unemployment rate, a binary indicator of respondents who said the economy was the country's top issue and an interaction between the latter two variables.

[8] Regressions include the full model parameters, change in state real personal income per capita (in thousands), a binary indicator of respondents who said the economy was the country's top issue and an interaction between the latter two variables.

Table 5: Full model with congressional fixed effects[9] (n=72,239)

Variable	OLS Coefficient (*t*-test score)
Top issue: Economy	.013
	(2.98)
Very worried about economy[10]	.062
	(8.73)
Somewhat worried about economy	-.030
	(4.17)
Not worried about economy	
Male	.005
	(1.37)
Female	
White	
Black	.240
	(34.44)
Hispanic/Latino	.076
	(7.29)
Asian	.065
	(4.08)
Other race	.055
	(4.19)
Age 18-29	
Age 30-44	-.034
	(-5.94)
Age 45-65	-.045
	(-8.19)
Age 65+	-.062
	(-8.19)

[9] Two sets of explanatory variables -- census regions and Bush's 2004 vote share by state -- dropped from model due to collinearity with congressional fixed effects. R-squared=.554. All regressions calculated using sample weights

[10] Very worried about the economy and Somewhat worried about the economy are jointly statistically significant at the 0.0001 level (F-stat=24.52).

Table 5 – *continued*

City with population over 500,000	
City with population 50-000-500,000	.023
	(1.45)
Suburb	.001
	(0.06)
City with population 10,000-50,000	.003
	(0.19)
Rural	-.004
	(-.25)
Telephone survey	
Election Day exit poll	-.029
	(-3.45)
Democrat	.264
	(42.82)
Republican	-.309
	(-47.86)
Not Democrat or Republican	
Liberal	.123
	(23.27)
Conservative	-.189
	(-34.77)
Moderate	
Family income less than $15,000	
Family income $15,000-$29,000	-.029
	(-3.15)
Family income $30,000-$49,999	-.045
	(-5.39)
Family income $50,000-$74,999	-.063
	(-7.46)
Family income $75,000-$99,000	-.056
	(-6.00)
Family income $100,000-$149,000	-.070
	(-6.99)
Family income $150,000-$199,000	-.059
	(-5.07)
Family income $200,000 or more	-.058
	(-4.76)

Table 5 – *continued*

Did not complete high school	
HS graduate	-.027
	(-2.42)
Some college	-.020
	(-1.83)
College graduate	-.009
	(-.078)
Zip code: Very upscale	
Zip code: Upscale	-.003
	(-.46)
Zip code: Downscale	-.018
	(-2.39)
Zip code: Very downscale	-.019
	(-2.34)
Decided on or after Sept. 1	-0.004
	(-0.91)
Decided before September	
Constant	.598
	(27.72)

APPENDIX B

SUMMARY STATISTICS FOR ADDITIONAL VARIABLES (n=72,239)

Variable	All	Obama	McCain
Democrat	.396	.666	.086
	(.489)	(.472)	(.281)
Republican	.328	.061	.636
	(.470)	(.239)	(.481)
Independent	.228	.228	.229
	(.420)	(.419)	(.420)
Other political party	.047	.045	.049
	(.211)	(.208)	(.215)
Liberal	.218	.367	.048
	(.413)	(.482)	(.214)
Moderate	.446	.509	.373
	(.497)	(.500)	(.484)
Conservative	.336	.124	.579
	(.472)	(.330)	(.494)
White	.759	.633	.903
	(.428)	(.482)	(.296)
Black	.123	.220	.012
	(.329)	(.414)	(.110)
Hispanic/Latino	.078	.098	.056
	(.269)	(.298)	(.229)
Asian	.019	.024	.013
	(.136)	(.153)	(.113)
Other race	.021	.025	.017
	(.144)	(.156)	(.128)
Male	.467	.440	.499
	(.499)	(.496)	(.500)
Female	.533	.560	.501
	(.499)	(.496)	(.500)
Age 18-29	.185	.223	.141
	(.388)	(.416)	(.348)
Age 30-44	.287	.287	.287
	(.452)	(.452)	(.452)
Age 45-65	.385	.368	.405
	(.487)	(.482)	(.491)
Age 65+	.143	.123	.167
	(.350)	(.328)	(.373)

Did not complete high school	.036	.044	.027
	(.186)	(.205)	(.162)
High school graduate	.197	.195	.199
	(.397)	(.396)	(.399)
Some college	.309	.302	.318
	(.462)	(.459)	(.466)
College graduate	.286	.271	.304
	(.452)	(.445)	(.460)
Postgraduate study	.172	.188	.153
	(.377)	(.391)	(.360)
Cities over 500,000	.112	.151	.067
	(.316)	(.358)	(.251)
Cities 50,000-500,000	.175	.195	.152
	(.380)	(.397)	(.359)
Suburbs	.491	.467	.519
	(.500)	(.499)	(.500)
Cities 10,000-50,000	.082	.070	.097
	(.275)	(.254)	(.295)
Rural	.139	.117	.164
	(.346)	(.321)	(.371)
Telephone survey	.269	.267	.272
	(.444)	(.442)	(.445)
Election Day exit poll	.731	.733	.728
	(.444)	(.442)	(.445)
Region: East	.219	.248	.186
	(.414)	(.432)	(.389)
Region: Midwest	.248	.251	.245
	(.432)	(.434)	(.430)
Region: South	.323	.277	.376
	(.468)	(.448)	(.484)
Region: West	.210	.223	.194
	(.407)	(.417)	(.395)

Zip code: Very upscale	.321	.321	.320
	(.467)	(.467)	(.467)
Zip code: Upscale	.262	.250	.275
	(.440)	(.433)	(.447)
Zip code: Downscale	.237	.237	.238
	(.425)	(.425)	(.426)
Zipcode: Very downscale	.181	.192	.167
	(.385)	(.394)	(.373)
Family income less than $15,000	.059	.079	.035
	(.235)	(.269)	(.185)
Family income $15,000-$29,000	.104	.123	.082
	(.305)	(.328)	(.275)
Family income $30,000-$49,999	.174	.184	.163
	(.379)	(.388)	(.369)
Family income $50,000-$74,999	.199	.189	.210
	(.399)	(.391)	(.407)
Family income $75,000-$99,000	.144	.134	.154
	(.351)	(.341)	(.361)
Family income $100,000-$149,000	.132	.120	.146
	(.339)	(.325)	(.353)
Family income $150,000-$199,000	.056	.051	.061
	(.229)	(.220)	(.239)
Family income $200,000 or more	.058	.052	.065
	(.233)	(.221)	(.246)

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