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Atif Mian  
Amir Sufi  
Nasim Khoshkhoh

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**ABSTRACT**

We examine how consumption responds to changes in sentiment regarding government economic policy using cross-sectional variation across counties in the ideological predisposition of constituents. When the incumbent party loses a presidential election, individuals in counties more ideologically predisposed toward the losing party experience a dramatic and discontinuous relative decrease in optimism on government economic policy. Using the interaction of constituent ideology in a county with election timing as an instrument, we estimate the impact of government policy sentiment shocks on consumer spending, and we find a very small effect that cannot be statistically distinguished from zero. The small magnitude of the effect is estimated precisely. For example, we can reject the hypothesis that pessimism regarding government economic policy effectiveness during the Great Recession had as large an effect on consumption as the negative shock to household net worth coming from the collapse in house prices.

Atif Mian  
Princeton University  
Bendheim Center For Finance  
26 Prospect Avenue  
Princeton, NJ 08540  
and NBER  
atif@princeton.edu

Nasim Khoshkhou  
Argus Information & Advisory Services  
1 North Lexington Avenue  
White Plains, NY 10601  
NKhoshkhou@argusinformation.com

Amir Sufi  
University of Chicago  
Booth School of Business  
5807 South Woodlawn Avenue  
Chicago, IL 60637  
and NBER  
amir.sufi@chicagobooth.edu

# 1 Introduction

Theory suggests that sentiment shocks, or shocks to consumer beliefs that are orthogonal to economic fundamentals, could at times impact spending and output independently.<sup>1</sup> However, estimating the effect of sentiment shocks on consumer spending has proven difficult because sentiment shocks are often correlated with changes in fundamentals such as revised expectations of income growth.

This paper introduces a new empirical methodology to estimate how consumption responds to a specific type of sentiment shock: a shock to sentiments regarding government economic policy. We exploit variation across U.S. counties in the constituent response to the outcome of presidential elections. We show that ideological predisposition of residents in a county is a strong predictor of changes in sentiments regarding government policy whenever a new party wins the presidency. Specifically, partisans become very pessimistic about economic policy when their party loses the White House.

The idea that views on government economic policy might affect economic activity has been proposed by academics and policy-makers alike. For example, in January 2015, the incoming Senate majority leader Mitch McConnell suggested that rising strength in the U.S. economy toward the end of 2014 was related to the expectation of a new Republican Congress. Nobel laureate Edward Prescott is reported to have attributed the Great Recession to the election of Barack Obama in 2008 and the expectation of higher future taxes. Consumer confidence dropped sharply during the “fiscal cliff” standoff in December of 2012, sparking worries of an effect on spending.<sup>2</sup>

Figure 1 uses data measuring optimism on government economic policy from the University of Michigan survey of consumers, and shows that there is indeed a strong correlation between government economic policy optimism and consumption growth in quarterly data (correlation coefficient of 0.57). However, it is not clear from Figure 1 whether government economic policy views have a causal impact on growth in consumption, or whether the growth in consumption and views about government economic policy are jointly determined by some common factors such as productivity

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<sup>1</sup>See, for example, Azariadis (1981), Benhabib and Farmer (1994), Lorenzoni (2009), and Angeletos and La’O (2013)

<sup>2</sup>See Lucy McCalmont of Politico, “Is Mitch McConnell Right About the Economy?”, January 9, 2015; Stephen Williamson on his blog New Monetarist Economics “SED Report,” July 8, 2010; and Richard Leong of Reuters, “Consumer Confidence Plunges on “Fiscal Cliff” fears,” December 7, 2012.

shocks.

In order to estimate the causal effect of government economic policy views on consumption, we begin with the observation that a change in the party with control of the White House affects people's sentiments very differently depending on their ideological predisposition. For example, the defeat of the incumbent Republican party in the presidential election of 2008 leads to an increase in optimism regarding government economic policy among liberal voters but worsens the outlook among conservatives. We use this variation across U.S. counties to test whether a change in sentiments about government economic policy has an effect on spending.

We implement our methodology by matching each individual in the University of Michigan Survey of Consumers to county-level data on presidential voting, a voter ideology score developed by Tausanovitch and Warshaw (2013) [TW score henceforth], and consumer spending. Our final data set covers the period from 2000 to 2013, and includes four presidential elections.

A change in party control of the White House results in a huge relative increase in pessimism about government economic policy for individuals who are predisposed against the winning party. Views on whether the government is doing a good job or not in controlling inflation and unemployment fall by 1.4 standard deviations for a county voting against the winning party with probability 0 relative to a county voting with probability 1 for the winning party.

A concern with our finding may be that the shift in sentiment about government policy is not driven by the interaction of ideological differences and the change in control of the White House, but some unobserved economic shock that happens to be correlated with constituent ideology and emerges at the same time as the elections. However, this concern is unlikely given that the shift in government economic policy sentiment occurs precisely around the news of election results. Moreover, the relative shift in sentiment occurs only around the 2000 and 2008 elections that resulted in a change in the party controlling the White House. There is no significant relative shift in sentiment around the 2004 and 2012 elections that resulted in incumbent victories.

The impact of party-changing elections on government economic policy sentiment is robust to demographic controls, county-level industry exposure, and state fixed effects. We also examine income, tax, and transfer growth around 2000 and 2008 elections, and we find no significant differences in Republican-leaning counties versus Democrat-leaning counties. These facts justify our interpretation of the relative movement in views on government economic policy as a sentiment

shock that is orthogonal to fundamentals.

We then estimate the effect of ideology-driven change in sentiment regarding government policy on consumer spending using both self-reported spending plans in the Michigan survey, as well as actual county-level consumer spending data. For actual spending, we utilize a new data set that tracks credit card purchases, and a separate dataset on new auto purchases – both at the county level.

Across all measures, we find no effect of government economic policy sentiment shocks on consumer spending around the Bush 2000 elections, and the estimates are reasonably precise. There is no significant effect of the sentiment shock on either self-reported spending plans, or actual spending as measured by the purchase of new automobiles. The IV estimate rejects at the 5% level that the effect of a one standard deviation increase in sentiment about government economic policy is greater than a seven percentage point increase in new automobile spending growth.

There is a significant effect of the sentiment shock on survey-reported spending plans on automobiles after the Obama 2008 election. However, there is no significant effect of sentiment on *actual* spending on the purchase of new automobiles. Similarly, there is no significant effect of sentiment on credit card spending. The IV estimates can reject at the 5% level that the effect of a one standard deviation increase in sentiments is greater than seven percentage points increase in new automobile sales, or 3.4 percentage point increase in credit card spending. We contrast the small magnitude of the impact of government policy sentiment on spending during the 2008 Obama-McCain election with the magnitude of the impact of falling house prices on spending estimated in Mian, Rao, and Sufi (2013). We can easily reject the equality of the two effects. The housing net worth shock has a dramatic effect on all measures of spending, whereas the change in sentiment about government policy has close to a zero effect.

It is useful to put our empirical approach in the context of the extant literature on sentiments and consumer spending. A large empirical literature posits that sentiments, noise, or animal spirits shocks matter for consumption.<sup>3</sup> But the literature has struggled to find instruments that move sentiment independently of fundamentals. In the absence of such shifters, the empirical work has adopted two approaches: (i) control for as many of the fundamental shocks as possible treating the

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<sup>3</sup>See, for example, the studies by Blanchard (1993) and Hall (1993) which were in part motivated by the 1990-1991 recession. A related literature measures the effect of news about economic fundamentals on business cycle fluctuations. See for example, Cochrane (1994), Beaudry and Portier (2006), and Jaimovich and Rebelo (2009).

residual variation in measures of confidence as sentiment shocks or (ii) use a structural model to separate the effect of news or fundamentals from the direct effect of sentiments.<sup>4</sup>

Methodologically, our paper differs from the existing empirical literature on sentiments and consumer spending in two ways. First, instead of using aggregate time-series data to tease out the effect of sentiments on spending, we use county-level panel data. This allows us to absorb unobserved economy-wide supply and demand shocks that jointly affect both sentiments and consumer spending. The granularity of county-level data also enables us to control for possibly spurious shocks at the industry or state level. For example, sentiments and spending may be jointly affected by a boom in the oil industry, or certain counties may be more exposed to swings in the construction sector. Further, we use independent measures of actual spending at a microeconomic level instead of only using survey responses to measure spending.<sup>5</sup>

Second, our methodology does not rely on residual variation after controlling for fundamental shocks to identify sentiment shocks. Instead we specify an exact channel, namely the interaction of ideological predisposition with election news, to identify the effect of sentiments regarding government policy on consumer spending.

The results of our paper are similar in spirit to the recent paper by Barsky and Sims (2012), who use a structural decomposition of the innovation in sentiments into a “news” and an “animal spirits” component to argue that the forecasting power of consumer confidence is mostly driven by news, not sentiments. Our paper differs from Barsky and Sims (2012) in that we use cross-sectional variation driven by ideological predisposition as an instrument for change in sentiments. A second difference is that our focus is on sentiments regarding government policy, and not the broader consumer sentiments index.<sup>6</sup>

The rest of the paper is organized as follows. The next section presents the empirical framework we use to estimate the effect of sentiment shocks on consumption. Section 3 presents the data and

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<sup>4</sup>Carroll, Fuhrer, and Wilcox (1994) control for as many of the observable news shocks as possible (e.g. labor income growth, productivity), and assume that the residual variation in sentiments is driven by non-fundamental factors.

<sup>5</sup>A blossoming recent literature uses microeconomic data from the Michigan survey to explain inflation expectations. See for example, Bachmann, Berg, and Sims (2012), Burke and Ozdagli (2013), Malmendier and Nagel (2009). We are unaware of any research using microeconomic data on consumer confidence from the Michigan data to explain household consumption. A recent FEDS Note from Aladangady and Sahm (2015) use the micro-data from the Michigan survey to examine how views on gasoline prices affect views on spending.

<sup>6</sup>There is also a growing literature on policy uncertainty and its potential effect on investment and GDP (e.g. Baker, Bloom, and Davis (2015)). However, “uncertainty” is often associated with second moments of the data such as stock market volatility and as such is different from the measure of sentiments used in this paper.

summary statistics, including a discussion of the Michigan survey question on government economic policy view. Sections 4 through 6 present results, and Section 7 concludes.

## 2 Empirical Framework

### 2.1 Fundamentals and Sentiment Shocks

We motivate the empirical analysis with the framework in Lorenzoni (2009). In his model, a representative consumer maximizes expected utility over consumption and labor, and the technology of the economy evolves over time. More specifically, the representative consumer maximizes:

$$E \sum_{t=0}^{\infty} \beta^t * U(C_t, N_t)$$

Technology allows consumers to convert labor into income according to a linear production function:

$$Y_t = A_t * N_t$$

where  $a_t = \ln(A_t)$ . The only source of uncertainty is the evolution of productivity. Productivity has a permanent component  $x_t$  and a temporary component  $\eta_t$ :

$$a_t = x_t + \eta_t$$

where  $\eta_t$  is an i.i.d. shock, normal, with zero mean and variance  $\sigma_\eta^2$ . The permanent component of productivity is a random walk process given by:

$$x_t = x_{t-1} + \epsilon_t$$

where  $\epsilon_t$  is also i.i.d., normal, with zero mean and variance  $\sigma_\epsilon^2$ . Agents observe current productivity  $a_t$  each period in addition to a noisy signal  $w_t$  regarding the permanent component of the productivity process, given by:

$$w_t = x_t + \psi_t$$

where  $\psi_t$  is i.i.d., normal, with zero mean and variance  $\sigma_\psi^2$ .

The shock  $\psi$  plays a crucial role in our framework, because it represents noise that affects signals on the permanent component of productivity. What exactly does  $\psi_t$  capture? Lorenzoni (2009) refers to realizations of  $\psi_t$  as “noise shocks” which distort the true information from public signals and “induce consumers to temporarily overestimate or underestimate the productive capacity of the economy.” We refer to  $\psi_t$  as *sentiment shocks* in the rest of this study.

Consumers update their beliefs on productivity using both  $a_t$  and  $w_t$ . Using a Kalman filter, the expected value of  $x_t$  at time  $t$  follows:

$$x_{t|t} = \rho * x_{t-1|t-1} + (1 - \rho) * (\delta w_t + (1 - \delta)a_t) \quad (1)$$

As this equation shows, consumer beliefs on the evolution of productivity depends on  $w_t$ , which is itself a function of the sentiment shock  $\psi_t$ . Fundamental shocks  $\eta_t$  and  $\epsilon_t$  also affect beliefs about productivity through their effect on  $a_t$ , but the consumer cannot delineate whether sentiment or fundamentals move  $x_t$  in any period.

## 2.2 Effect on Consumption

Our goal in this study is to estimate the effect of sentiment shocks on consumption. Equation 1 represents household beliefs on the evolution of productivity. Whether or not revised beliefs about productivity affect consumption and output is a function of many other factors, such as preferences, nominal rigidities, adjustment costs, and the stochastic properties of the shocks. Our setting is more reduced form, and as such it is better to view equation 1 as describing household beliefs about the evolution of *permanent income* rather than productivity. Under this alternative interpretation, sentiment shocks  $\psi_t$  affect  $w_t$  which in turn informs households about their permanent income. Our approach is to estimate the direct effect of sentiment shocks on consumption, allowing for a flexible functional form to capture the timing and magnitude of the effect.

Using aggregate data, a natural test would be a regression of change in log consumption ( $c_t$ ) on the shocks. Let  $\Theta$  be a  $t \times 2$  matrix of fundamental shocks:

$$\Theta_t = \begin{bmatrix} \eta_t & \epsilon_t \end{bmatrix}$$

We could then estimate the following time-series regression:

$$\Delta c_t = \psi_t \gamma + \Theta_t \Lambda + \zeta_t$$

The problem with such an approach is that we don't observe  $\psi_t$  or  $\Theta_t$  in the data. Instead, the most common measure used in the literature is survey-based answers to consumer confidence questions, what we call  $\Delta S_t$ . As has long been recognized in the literature, answers to consumer confidence questions likely reflect both sentiment shocks and fundamental shocks, neither of which can be separately observed by the econometrician:

$$\Delta S_t = f(\psi_t, \Theta_t)$$

The core identification problem in estimating the effect of sentiment shocks on consumption growth is separating out shocks to sentiments ( $\psi_t$ ) from shocks to fundamentals ( $\Theta_t$ ).

### 2.3 Cross-Sectional Variation

Previous research has used either structural methods (Barsky and Sims (2012)) or control variables (Carroll, Fuhrer, and Wilcox (1994)) to tease out the independent effects of  $\psi_t$  and  $\Theta_t$  on consumption. Our approach differs by focusing on the cross-sectional variation in sentiment shocks across U.S. counties.

Formally, let each U.S. county be an island  $i$  that consumes its own income and has no communication with other islands. Each island receives shocks  $\psi_i$  and  $\Theta_i$  at period 1. The consumption impulse response function between period 0 and  $\tau \geq 1$  can be written down as:

$$\Delta c_{i\tau} = \gamma_\tau * \psi_i + \Theta_i \Lambda_\tau + \nu_{i\tau} \tag{2}$$

where  $\gamma_\tau$  allows for a flexible response of consumption to sentiment shocks over time, and exploits cross-sectional variation across islands in sentiment shocks at  $t = 1$  to identify the effect of sentiment shock on consumption.

Let  $\Delta S_i$  be the change in consumer sentiment as measured in consumer surveys between  $t = 0$  to  $t = \tau$  on island  $i$ . The key problem is that  $\Delta S_i$  reflects both sentiment shock  $\psi_i$  and fundamental

shocks  $\Theta_i$ . The cross-sectional approach does not solve the core identification problem of separating sentiment shocks from fundamental shocks, unless we can find an instrument  $z_i$  that is correlated with sentiment shock but is uncorrelated with the fundamental shocks, i.e.  $\psi_i = f(z_i)$ , and  $\Theta_i \perp z_i$ .

Such an instrument  $z_i$  moves  $\Delta S_i$  but is orthogonal to fundamental shocks occurring on island  $i$ . With such an instrument, two-stage least squares provides a consistent estimate of  $\gamma_\tau$ , or the effect of sentiment shocks on consumption growth:

$$\Delta S_{i\tau} = \delta_\tau * z_i + X_i \Pi_\tau + u_{i\tau} \quad (3)$$

$$\Delta c_{i\tau} = \gamma_\tau * \widehat{\Delta S}_{i\tau} + X_i \Lambda_\tau + \omega_{i\tau} \quad (4)$$

where  $X_i$  represents a set of variables that proxy for possible fundamental shocks, such as industry employment share in county  $i$ , state fixed effects, demographics, or income level. There are a number of advantages to this approach. First, given control variables  $X_i$ , the orthogonality condition can be weakened to say that the instrument is orthogonal to fundamental shocks after partialling out the variation due to observable control variables. Second, using a specific instrument  $z_i$  takes an explicit stand on the source of variation being used to isolate sentiment shocks. This is a more transparent approach than relying on residual variation that may still be driven by fundamental shocks.

However, the use of an instrument comes at the usual cost that the consumption response estimated in equation 4 is a *local average treatment effect*. This implies that our estimates refer to the effect of sentiments on consumption that is driven by a change in sentiments through the instrument  $z_i$ . The next section explains the appropriate interpretation of the sentiment shock isolated by our instrument.

## 2.4 IV Strategy: Isolating Sentiment Regarding Government Economic Policy

Our instrument  $z_i$  is county-level *ideology*, where we use two measures for ideology. The first is the share of the population in a county voting for the Republican candidate in the election being

examined. The second is from Tausanovitch and Warshaw (2013) which we refer to as the *TW score*. The latter variable is meant to capture the policy preferences of constituents in a county, and is extracted from a large number of surveys with 275,000 participants in total.<sup>7</sup> We use the ideological predisposition instrument to isolate sentiment shocks coming from presidential elections that result in a change in party in control of the White House in 2000 and 2008.

As we will show below, the instrument has a very strong first stage. Constituent ideology in a county has an enormously powerful and statistically robust effect on views on government economic policy right after presidential elections where the party in control of the White House changes. We refer to the predicted effect of constituent ideology on government economic policy views in equation 3 above) as *government policy sentiment shocks*, and the coefficient  $\gamma_\tau$  in equation 4 capture the effect of government policy sentiment shocks on consumer spending.

### 3 Data and Summary Statistics

The analysis employs individual level data and county level data. The individual level data on consumer confidence comes from the Thomson Reuters University of Michigan Survey of Consumers. The county-level data set includes data from a variety of sources. Below, we provide more details and summary statistics.

#### 3.1 Data

The individual level survey of consumer confidence is from Thomson Reuters University of Michigan Survey of Consumers. This survey is a nationally representative survey of about 500 individuals every month. On average two-thirds of the individuals surveyed in a month are interviewed a second time after six months. The remaining third are only surveyed once. An important advantage of the Michigan survey is that we can match individuals to the counties they live in. The county match is possible in the survey for data after the year 2000 and as such we focus on the period 2000 to 2013 in this study. There are 81,691 individual survey responses in the Michigan Survey of Consumers

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<sup>7</sup>In a robustness test reported in the appendix, we also use the fraction of the population who are members of Evangelical, Latter-day Saints, or mainline Protestant churches. As we will show, church membership among these groups strongly predicts changes in views on government economic policy around elections.

data between January 2001 and September 2013.<sup>8</sup>

The counties in our final sample are a subset of all U.S. counties, where the main sample restriction is the availability of Michigan survey data. We impose the restriction that respondents to the survey in counties both before and after each election in order to estimate the effect of sentiment shocks on consumer spending.<sup>9</sup> For the four elections in our sample, we have on average about 1,000 counties which represent on average about 80% of the population. The number of survey responses per county is highly correlated with the population of the county, with a univariate regression giving an R-squared of 0.90. Given the highly skewed distribution of population - and hence survey counts - across counties, we weight regressions by total number of survey respondents behind each observation.

We merge a number of additional county-level variables to our data set from various sources. Our main measure of ideology in a county is the fraction of total votes going to the Republican candidate in the four presidential elections that fall during our sample period: 2000, 2004, 2008 and 2012. However, as mentioned above, we also employ the *TW score* as a measure of constituent ideology. Both measures are increasing in conservatism.

To measure shocks to economic fundamentals  $X_i$ , we use income and wage data from the IRS and employment data from the County Business Patterns data set published by the U.S. Census Bureau. The CBP data are used to construct county-level share of employment in each 2-digit NAICS industry. We use these variables to control for possible industry specific shocks hitting a county at a point in time.

To measure spending at the county-level, we utilize three data sets. First, we use new auto purchases from R.L. Polk. These data are derived from new car registrations and are based on the county where the buyer lives. The data are described in detail in Mian and Sufi (2012), and are available over our entire sample period. Second, we use a previously unused data set on credit card spending from Argus Information and Advisory Services, a Verisk Analytics company. Argus specializes in credit card and deposit benchmarking. The benchmarking data is collected from individual issuers at the account and transaction level, and then aggregated at the county level

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<sup>8</sup>This data is restricted to individuals with information on the county that they live in, so we can match the individual level data to county level data.

<sup>9</sup>Since the underlying individual level data is a nationally representative random sample, restricting attention to counties that have responses in both pre and post election year does not introduce any particular bias. The only cost of this restriction is the loss of some statistical power.

to construct an annual measure of spending through credit cards. The Argus spending data is available from 2006 onwards, so we can only use it for the 2008 election. Third, we use answers to questions in the Michigan survey, which asks respondents whether it is a good time to spend on household items or autos.

In addition to these variables, we add county-level information on demographics from the U.S. decennial census. We also utilize house price data from CoreLogic, and the housing net worth shock variable from Mian and Sufi (2014). The latter variable represents the percentage decline in total household net worth coming from the decline in house prices from 2006 to 2009.

The income and spending variables are constructed in per capita terms. Income is normalized by dividing total income in a county by the number of returns, while spending is normalized by dividing by total population in a county. There is a secular trend in relative population growth throughout the 1990s and the 2000s, with Republican leaning counties growing at a faster pace.

### **3.2 Summary Statistics**

Table 1 contains summary statistics for the two main presidential elections we examine. The consumer sentiment index from the Michigan survey is one of the most common consumer confidence measures used by academics and financial press alike. It is computed as the relative favorability score on five broad questions in the survey: current financial well-being, current buying attitude, expected financial well-being, expected business conditions, and expected broad economic conditions. The first two questions are also separately summarized by the sub-index of current economic conditions, whereas the last three questions are separately summarized by the sub-index of consumer expectations. We average these indices for all individuals within a county-year.

Views on government policy, which are the focus of our analysis, are measured with the response to the question: “As to the economic policy of the government – I mean steps taken to fight inflation or unemployment – would you say the government is doing a good job, only fair, or a poor job?” We code the variable as 0 if the response is poor job, 0.5 for only fair, and 1 for good job.

In Table 1, all measures from the Michigan survey are normalized to be mean zero and standard deviation one, and counties are weighted by the average number of survey respondents during the time period examined. On average, there is a decline in measures of consumer confidence from 2000 to 2001, which likely reflects economic weakness and the terrorist attacks of September 2001. New

auto purchases also fell from 2000 to 2001.

On average, there is a rise in consumer confidence measures from 2008 to 2009, which partially reflects the very low levels reached in 2008. There is a decline in both new auto purchases and credit card spending from 2008 to 2009, which reflects the severity of the recession and the weak recovery at the end of 2009. The three main measures of ideology are the Republican vote share fractions in 2000 (48%) and 2008 (45%) along with the TW ideology score.

The last panel provides county-level summary statistics on variables we use as controls. It also shows the housing net worth shock is on average 10%. In other words, the decline in household net worth driven by the decline in house prices from 2006 to 2009 is on average 10% across U.S. counties in the sample.

## 4 First Stage: Government Policy Sentiment Shock

We can estimate equation 3 around presidential elections in 2000 and 2008, that resulted in a change in party in the White House, to test if ideology predicts a change in sentiments regarding government economic policy. We do so by first estimating equation 3 in levels instead of first-differences because this allows us to estimate the entire pre- and post-election trajectory of relative sentiments in counties that are ideologically aligned with the winning party. In particular, we estimate the equation:

$$S_{i\tau} = \sum_{\tau=-T}^{\tau=T} \alpha^{\tau} * d_{\tau} + \gamma^0 * z_i + \sum_{\tau=-T, \tau \neq 0}^{\tau=T} \gamma^{\tau} * (d_{\tau} * z_i) + \nu_{i\tau} \quad (5)$$

where  $d_{\tau}$  is an indicator variable for quarter  $\tau$ ,  $\tau = 0$  is the “omitted” quarter and refers to the quarter of the election (e.g., 2000Q4 or 2008Q4),  $\alpha^{\tau}$  represents quarter fixed effects, and  $\gamma^{\tau}$  are the coefficients of interest that tell us about the relative shift in government economic policy view among counties that lean conservative.

## 4.1 Ideology and Views on Government Economic Policy

Figure 2 presents estimates from equation 5 for both the Bush-Gore 2000 election and the Obama-McCain 2008 election.<sup>10</sup> The measure of county-level ideology is the share voting for the Republicans in each respective election, and the outcome variable is views on government economic policy, normalized to be mean zero and standard deviation one. The coefficient estimates of  $\gamma^r$  tell us the relative shift in government economic policy view among counties with a higher vote share for Republicans.

Both panels show a dramatic relative shift in government economic policy view that occurs in the quarter after the election. There is almost no pre-trend prior to the quarter of the election, and the response is immediate. This helps to ensure that the change in views on government economic policy are not due to some other factor. Given that the left hand side variable is normalized, magnitudes are easy to interpret. Moving from a county with zero share voting for the Republican to everyone voting for the Republican moves views on government economic policy by about 1.5 standard deviations. The magnitude is similar across both elections. Republicans become much more optimistic about government policy after the Bush victory in 2000, and much more pessimistic after the Obama victory in 2008.

The first column of panels A and B of Table 2 show the first difference regression version of this result, where we explicitly estimate the first stage equation 3 from Section 2. We use the change in views over two years in the regression, but the full time series of the effect can be seen in Figure 2. Both estimates show a strong effect of the Republican vote share on the change in government economic policy view. The magnitudes show that moving from 0 to 1 Republican vote share moves views on government economic policy by 1.3 and 1.5 standard deviations for the Bush and Obama election, respectively. Column 4 uses the alternative definition of ideology based on the TW-score, and we find the same result.

Sentiment is measured at the individual level, so in principal we could have run equation 5 at the individual level if we could observe an individual's ideology or the party for which she voted. While we do not have this information at the individual level, we can use race as a proxy for ideology. It is well-known that whites are significantly more likely to vote Republican. For example, whites were

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<sup>10</sup>We do not include any control variables in the figures; we add controls in the first difference specifications reported in the tables.

13 percentage points more likely to vote for Bush in the 2000 election, and 12 percentage points more likely to vote for McCain in the 2008 election.

Appendix Figure 1 uses an indicator variable for white as  $z_i$  in equation 5 at the individual level. It shows a very similar pattern when estimating the differential views on government economic policy among whites and non-whites. In relative terms, whites become more optimistic after the Bush 2000 election in terms of their views regarding government economic policy, and more pessimistic after the Obama 2008 election.

The results in this section strongly indicate that ideological predisposition moves sentiments regarding government economic policy depending on election outcomes. One of our instruments was the TW-score that is directly based on survey evidence regarding constituents' ideological preferences. As additional evidence, we use church attendance as an instrument for the sentiment shock. We use data from the Association of Religion Data Archives on church membership, and calculate the share of the population that are members of Evangelical, Latter-day Saints, or mainstream Protestant churches.<sup>11</sup>

Appendix Tables 1 shows the first stage of regressing the change in sentiments regarding government economic policy around elections on the fraction of the population that is a member of one of these churches. Counties with higher church membership see a large relative increase in optimism on government economic policy after the Bush election and decrease in optimism after the Obama election. It is less likely that people in counties with higher membership in these churches vote Republican because of pure economic interests, and yet these counties see optimism on government economic policy move strongly after elections.

## 4.2 Do Shifting Views Reflect Fundamental Shocks?

Figure 2 and columns 1 and 4 of Table 2 show that the ideological pre-disposition of a county has very strong predictive power for the change in views regarding economic policy. However, could the relationship between ideology and the change in sentiments around elections be driven by unobserved spurious factors? In the language of the model presented earlier, there is a concern that the shift in government policy view may be driven by some unobserved fundamental shocks  $\Theta_i$  as opposed to sentiment shocks  $\psi_i$ .

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<sup>11</sup>The data were downloaded from the Association of Religion Data Archives, [www.TheARDA.com](http://www.TheARDA.com).

The ideological pre-disposition of a county is correlated with a number of factors, and one may be concerned that some of these factors - and not ideology per se - are responsible for the shift in sentiments. Table 3 explores the factors that are correlated with ideology. The first row shows that the Republican vote shares in both 2000 and 2008 are highly correlated with the TW ideology score, which suggests that vote shares do a good job capturing ideological differences across counties in the perception of what good policy is. However, Table 3 also shows that ideology is not randomly distributed. Republican leaning counties tend to be more white and have higher homeownership rates. While median income is not strongly correlated with ideology, there is a larger fraction of the population in poverty or unemployed in Democrat leaning counties. There also are important differences in industry employment shares in Republican versus Democrat leaning counties. Republican leaning counties have more jobs in the manufacturing, retail trade, and construction industries. Democrat leaning counties have higher employment shares in finance, education, and other professional services. The housing net worth shock, which Mian, Rao, and Sufi (2013) show has a strong effect on consumption growth from 2006 to 2009, is uncorrelated with the Republican vote share in 2008 after controlling for state fixed effects.

Could one of the factors correlated with ideology be driving the key result shown in Figure 2? Columns 2, 3, 5, and 6 of Table 2 show that this is unlikely to be the case. The inclusion of control variables based on correlations in Table 3 has almost no effect on the responsiveness of government economic policy view to ideology. Column 2 controls for demographics and employment shares in 2-digit NAICS codes. The demographic controls include fraction of population that is white, log of median household income, homeownership rate, fraction less than high school education, fraction with exactly high school education, unemployment rate, poverty rate and fraction urban. All values are as of year 2000. The 2-digit employment share controls include the fraction of total county employment that is employed in each of the 23 2-digit NAICS industries. The industry share controls thus account for changes in sentiments that might be driven by conservative counties differing in their industry mix.

The results in column 2 show that while the  $R^2$  increases by 0.05, the coefficient on the Republican vote share is almost identical. This is true for both the Bush 2000 victory (Panel A) and the Obama 2008 victory (Panel B). Adding state fixed effects in column 3 increases  $R^2$  further but has almost no effect on the coefficient estimate for Republican vote share. The results are similar

using the TW ideology score instead of the Republican vote share in columns 5 and 6.

The absence of a pre-trend in relative sentiment shift and the sharp rise in relative sentiment at the news of election results in Figure 2, coupled with the robustness to extensive controls in Table 2 make it unlikely that ideology affects views on government economic policy for some reason other than the change in the Presidency. We perform one additional placebo test to confirm this result. If the relative shift in sentiments is driven by a change in party in the White House, then we should not find this effect around the 2004 and 2012 presidential elections that resulted in incumbent victories.

Figure 3 and Table 4 conduct this placebo experiment and find no significant shift in sentiment around the election news. In both the Bush victory in 2004 and the Obama victory in 2012, we see no relative shift in views on government policy among conservatives. There is a slight negative reaction by Democrat leaning counties in 2004 that is seen in Figure 3, which may reflect dashed hopes of a possible Kerry victory. However, as Table 4 shows, the change is not statistically significant and is estimated close to zero with the inclusion of control variables. Moreover, the coefficient on Republican vote share also switches signs depending on which control variables are included. The placebo tests help ensure that there is nothing spurious about presidential elections and changes in views on government economic policy across the ideological spectrum.

### **4.3 Do Elections Directly Affect Fundamentals in a Partisan Fashion?**

So far we have addressed the concern that fundamental shocks - such as shocks to permanent income - that independently move sentiments may be spuriously correlated with ideological predisposition of counties exactly around the timing of presidential elections. The placebo tests, evidence on timing, and the statistical robustness of the government policy view shift makes this unlikely. An alternative concern is that the election result *directly* affects fundamentals, and does so differentially for supporters versus opponents of the winning candidate. For example, if policies implemented by President Obama after his inauguration disproportionately hurt Republican-leaning counties, then the shift in views on government economic policy in Republican-leaning counties may be a response to a fundamental shock.

We evaluate this concern in Tables 5 and 6. Table 5 examines income growth at the county level from before to after the 2000 (Panel A) and 2008 (Panel B) elections. Income is measured at

the county level using data from IRS returns. Columns 1 through 3 use growth in adjusted gross income from tax returns as the dependent variable, while columns 4 through 6 use growth in wages and salaries alone as the dependent variable. There is no evidence of a differential income shock in counties that lean Republican in either of the elections. There is some slight evidence that wage growth falls disproportionately in Republican leaning counties following the Bush 2000 election, but this goes in the opposite direction and cannot explain our key finding that Republicans become much more optimistic regarding government economic policy. In summary, there is no evidence that a switch in White House control hurts income growth in the counties that voted for the losing party.<sup>12</sup>

While Table 5 looks at income, there may be a concern that transfer payments to and from the government are affected differently for Republicans versus Democrats depending on election outcomes. Table 6 tests for this particular concern using state-level data on taxes, the tax rate, and government transfer payments. These data come from the IRS and the Consolidated Federal Funds Report reported by the Census. For both elections that result in a change in party at the White House, we look for any evidence that taxes paid, tax rates, or transfer payments change differentially for counties that lean Republican. There is no such evidence. The coefficient estimates are typically small and insignificant.

As a final note, our results in the next section suggest that government policy sentiment shocks have almost no effect on household spending. If one believes that shift in views on government economic policy are partially capturing a shock to fundamentals, our null result becomes even more notable.

## 5 Second Stage: Consumption Response to Sentiment Shocks

Armed with a strong first stage effect across U.S. counties of ideological predisposition on views of government economic policy, we are now ready to estimate whether government policy sentiment shocks affect spending. The results overall suggest that the shocks have almost no effect on consumption. Despite partisans reacting strongly in their views toward government policy, they do not seem to adjust actual household spending in response to their updated views.

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<sup>12</sup>Picking a wider window around election times, for example using 2-year income growth, does not change the result in Table 5.

## 5.1 Consumption Response after Bush 2000 Victory

We begin by evaluating the Bush 2000 election victory. Figure 4 presents results from the reduced form equation 5 where the outcome variables are consumer responses to the Michigan survey question of whether it is a good time to buy household items (left panel) or a car (right panel). The outcome variables are normalized to be mean zero and standard deviation one. Given this normalization, we have kept the y-axis scale of Figure 4 the same as that for Figures 2 and 3, so the magnitude of the reduced form equation can be visually compared with the magnitude of the first stage. As Figure 4 shows, there is almost no effect whatsoever on consumer attitudes towards spending. Republican-leaning counties are no more likely to answer that it is a good time to buy household items or cars despite the strong first-stage effect of becoming more optimistic on government economic policy.

Figure 5 presents results from the same specification but with the logarithm of new auto purchases as the outcome variable. These are actual new auto purchases, not a response to a survey question. As before, we normalize the left hand side variable to be mean zero and standard deviation one in order to make the coefficient magnitudes comparable. We examine new auto purchases at an annual frequency because quarterly auto purchases are extremely noisy given differential seasonality patterns across counties. The coefficient estimates of  $\gamma^T$  reveal a negligible effect of the Republican vote share on new auto purchases. There looks to be some differential effect of the Republican vote share on new auto purchases in 2000 relative to 1999 and 2001. We will take this into account by using the change from 1999 to 2001 when running first difference specifications below.

Table 7 presents the reduced form specification relating views on spending with ideology. As in Figure 4, the outcome variable is based on consumer responses to the Michigan survey question of whether it is a good time to buy household items (left panel) or a car (right panel). For each county, we calculate the difference in the answer to these questions from 2000 to 2001 or 2000 to 2002, and we relate this difference to the Republican vote share in the county as of 2000. The left hand side variables are normalized to be mean zero and standard deviation one. The results are consistent with the pattern shown in Figure 4: we find no significant effect of ideology on whether it is a good time to spend on household items or cars.

Table 8 evaluates the growth in purchases of new autos. Panel A presents reduced form estimates and panel B presents instrumental variables estimates from estimation of equation 4 from Section 2. The reduced form estimates in columns 1 and 2 of panel A show some evidence of an increase in new auto purchases in counties leaning Republican following the Bush 2000 election. However, as mentioned above, there appears to be a temporary downward blip in 2000 that drives this result. If we examine 1999 to 2001 or 1999 to 2002, we see no effect of the 2000 Republican vote share on growth in new auto purchases.

The instrumental variables estimates in panel B generally show no strong effect of the government policy sentiment shock on new auto purchases. As is the norm when using instrumental variables, the standard errors are larger than in the reduced form. However, despite the larger standard errors, we can reject at the 5% level of confidence that a one standard deviation increase in the government policy sentiment shock leads to a 7 percentage point or larger increase in new auto sales.

## 5.2 Consumption Response after Obama 2008 Victory

Figure 6 shows the analogous coefficient estimates as in Figure 4 but for the Obama 2008 victory. The left hand side variable is the answer to survey questions on whether now is a good time to spend on household items (left panel) or a car (right panel). Here is the only setting in which we see an effect of government policy sentiment shocks. Respondents in Republican leaning counties become relatively more pessimistic about spending after the Obama election victory at exactly the same time they report becoming relatively more pessimistic on government economic policy. Table 9 shows that the survey-reported pessimism on car purchase plans is robust to control variables and state fixed effects, but the result on household items is not.

However, when we examine *actual* spending, we cannot replicate this finding. In Figure 7, we use new auto purchases and credit card spending, and we see almost no differential effect for counties with a high 2008 Republican vote share. Following the Obama victory in 2008, respondents in Republican leaning counties say in surveys that it is a bad time to purchase autos. But actual measures of household spending do not decline disproportionately in Republican leaning counties. There appears to be a gap between what people say in survey responses relative to what they actually spend.

Tables 10 and 11 present the reduced form and second stage estimation relating household spending growth on government policy sentiment shocks. Consistent with Figure 7, we see no evidence that the powerful government policy sentiment shocks isolated in the first stage estimation affect household spending in a significant manner. The standard errors are small enough that we can be reasonably precise in estimating a null effect. For example, we can reject at the 5% level of confidence that a one standard deviation increase in government policy sentiment leads to a 7 percentage point or larger effect on auto purchases, or 3.4 percentage point increase or larger in credit card spending.

Another way we can evaluate the precision of the null result is to compare it with other shocks that we know from extant literature affect household spending. The shock we examine in comparison is the housing net worth shock in Mian, Rao, and Sufi (2013). Their study shows that counties experiencing a sharp decline in net worth coming from the collapse in house prices saw a dramatic decline in household spending form 2006 to 2009.

In Figure 7, we directly compare the two shocks. As already mentioned, we measure the effect of the government policy sentiment shock by examining how spending differentially evolves in Republican leaning counties after 2008. Year 0 is 2008 for the reduced form sentiment shock. The housing net worth shock is the decline in household net worth coming from the collapse in house prices from 2006 to 2009; therefore, year 0 is 2006 when evaluating the housing net worth shock. In order to directly compare magnitudes, both the 2008 Republican vote share and the housing net worth shock from 2006 to 2009 are normalized to be mean zero and standard deviation one.

Figure 7 replicates the Mian, Rao, and Sufi (2013) result that counties experiencing a more negative housing net worth shock from 2006 to 2009 see a much bigger drop in spending. A negative housing net worth shock of one standard deviation leads to a 12 percentage point decline in new auto purchases and a 6 percentage point decline in credit card spending.

Recall from above that we can reject at the 5% level of confidence that a one standard deviation change in government policy sentiment shocks leads to a 7 percentage point or larger effect on auto purchases or a 3.4 percentage point or larger effect on credit card purchases. These magnitudes together with the results from Figure 7 imply that we can reject at the 5% confidence level that a one standard deviation change in government policy sentiment shocks has as large an effect as the housing net worth channel identified in previous research.

## 6 Discussion of Null Result

The cross-sectional variation across counties in ideology strongly predicts shifts in opinion on the effectiveness of government economic policy, and yet these shifts have almost no effect on household spending. How do we interpret this null result? We started with the assumption that the change in views regarding government economic policy is a function of both sentiment and fundamental shocks, i.e.  $\Delta S_i = f(\psi_i, \Theta_i)$ . Let  $\widehat{\Delta S}_i$  be the part of  $\Delta S_i$  driven by sentiment shocks ( $\psi_i$ ) alone. Then our central result is that  $\Delta c_i \neq f(\widehat{\Delta S}_i)$ : consumption is not affected by changes in government economic policy views that are orthogonal to fundamentals.

One potential worry with this interpretation is that there is something wrong with the cross-sectional specification we run. For example, perhaps there is not enough power in county-level analysis or perhaps variables from the Michigan survey are too noisily measured. We address this concern in the first three columns of Table 12. In particular, we examine cross-sectional variation across U.S. counties in a *fundamental* shock: the shock to housing net worth from 2006 to 2009. Column 1 shows that the Michigan index of consumer sentiment reacts strongly to the shock, with areas seeing a decline in housing net worth also reporting pessimism about future economic conditions. Further, measures of consumption are correlated with the change in consumer sentiment from 2006 to 2009 in the expected direction. The first three columns show that a fundamental shock moves the index of consumer sentiment in the expected direction, and has the expected effect on consumption growth. County-level regressions can detect the effect of a fundamental shock.

We believe that we find no effect of changes in government economic policy views on consumption because most of the variation in answers to this question reflect sentiments that do not affect permanent income directly. We present two results to support this view. First, in columns 4 through 6 of Table 12, we report OLS estimates of the change in consumption directly on the change in views regarding government economic policy, and find that there is a zero effect *even in the OLS specification*. This suggests that observed changes in government economic policy views, even in the absence of an instrument, purely reflects shifts in sentiment, not shifts in fundamentals. That is,  $\Delta S_i = f(\psi_i)$ .

In cross-sectional analysis, variation in views on government economic policy are not even correlated with changes in consumption growth, which suggests that survey respondents are not changing

their views on government economic policy because of fundamental changes in their economic well-being.

We can provide further support to this view by examining aggregate correlations. In Table 13, we provide correlations between aggregate real consumption growth, government policy views, and the index of consumer sentiment.<sup>13</sup> The latter two variables come from the same Michigan survey.

The first column shows that both government policy views and the index of consumer sentiment are strongly correlated with consumption growth. The aggregate correlation between the index of consumer sentiment and consumption growth explains why a large amount of research focuses on consumer confidence and economic fluctuations. We already know from Figure 1 that there is a strong correlation between government policy views and consumption in the aggregate. Further, the index of consumer sentiment and government economic policy views are highly correlated with each other: when survey respondents are pessimistic about the overall economy, they are also pessimistic about government economic policy.

However, the correlation of government economic policy views with aggregate consumption growth is not robust. To show this, we first regress government economic policy views on the wider index of consumer sentiment to obtain the predicted residuals. By construction, the residuals are the time series component of shifts in government economic policy views that are orthogonal to the index of consumer sentiment. As we show, there is almost *zero* correlation between consumption growth and the residual variation in government economic policy views that is orthogonal to the broader index of consumer sentiment. This is consistent with the argument above that the pure sentiment part of government economic policy views does not affect consumption.

For the last row, we do the converse: we regress the index of consumer sentiment on government economic policy views and use the predicted residuals. The part of the index of consumer sentiment that is orthogonal to government economic policy views remains strongly correlated with consumption growth. In other words, aggregate changes in government economic policy views add very little power to understanding changes in consumption growth. Aggregate consumption growth is largely independent of views on government economic policy once general consumer confidence is taken into account. This aggregate finding is very much consistent with our cross-sectional analysis.

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<sup>13</sup>We thank Claudia Sahm for leading us toward this test.

## 7 Conclusion

We highlight a novel empirical methodology for estimating the effect of sentiment shocks, or shocks that are orthogonal to economic fundamentals, on household spending. Our methodology uses cross-sectional variation across U.S. counties in government economic policy sentiment shocks to estimate the elasticity of spending with respect to such shocks. Our specific setting is the reaction to presidential elections in the United States in 2000 and 2008 which led to a different political party controlling the White House.

We show that individuals in counties predisposed against the winning party see an immediate and large decline in views on government economic policy when the election outcome is realized. Our central result is that government policy sentiment shocks have small and reasonably precisely estimated effects on household spending. Despite individuals becoming quite pessimistic on government economic policy when their party loses the White House, it does not appear to affect household spending in a significant manner. We interpret this null result as showing that the variation in views on government economic policy that is orthogonal to fundamentals has a limited effect on consumption.

One example to show the importance of these findings is the 2012/2013 fiscal cliff impasse. There was a dramatic decline in views on government economic policy in December 2012 when the impasse materialized. The financial press pointed to the decline driven by the fiscal cliff as particularly worrisome.<sup>14</sup> Our findings suggest caution in interpreting changes in views on government economic policy as reflecting beliefs about the future of the economy that lead consumers to cut spending.

Our results *do not* imply that sentiment shocks more broadly defined are unimportant for overall economic activity. Our focus in this paper is limited to sentiments regarding government economic policy and its impact on consumer spending. The fact that we do not find a significant effect of government economic policy sentiment on consumer spending does not imply that other types of consumer sentiment shocks are irrelevant for consumer spending. For example, using high frequency spending data, Taylor (2009) documents a sharp decline in consumer spending in the last week of September 2008 that accelerates into October. It may be possible to use a cross-sectional empirical

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<sup>14</sup>For example, Business Insider reported on December 31, 2012 that “the consumer confidence report shows that the fiscal cliff is hurting the consumer’s assessment of economic conditions.” See “Hard evidence that the fiscal cliff negotiations are hurting consumer confidence,” Walter Kurtz, 2012.

strategy to see whether this very sharp decline was caused at least in part due to sentiment shocks regarding the financial crisis.

Alternatively, Blanchard (1993) in his discussion of the 1990-1991 recession points out that “the first large decline in confidence in August 1990 was associated with an important but largely noneconomic event, the invasion of Kuwait by Iraq.” A potential empirical strategy could use cross-sectional variation across individuals or geographic units in exposure to news about this event to see if it affects household spending. More generally, it might be the case that sentiments associated with a boom in asset prices are associated with a rise in consumer spending. We look forward to research on other settings, and are open to findings that show sentiment shocks matter in alternative environments.

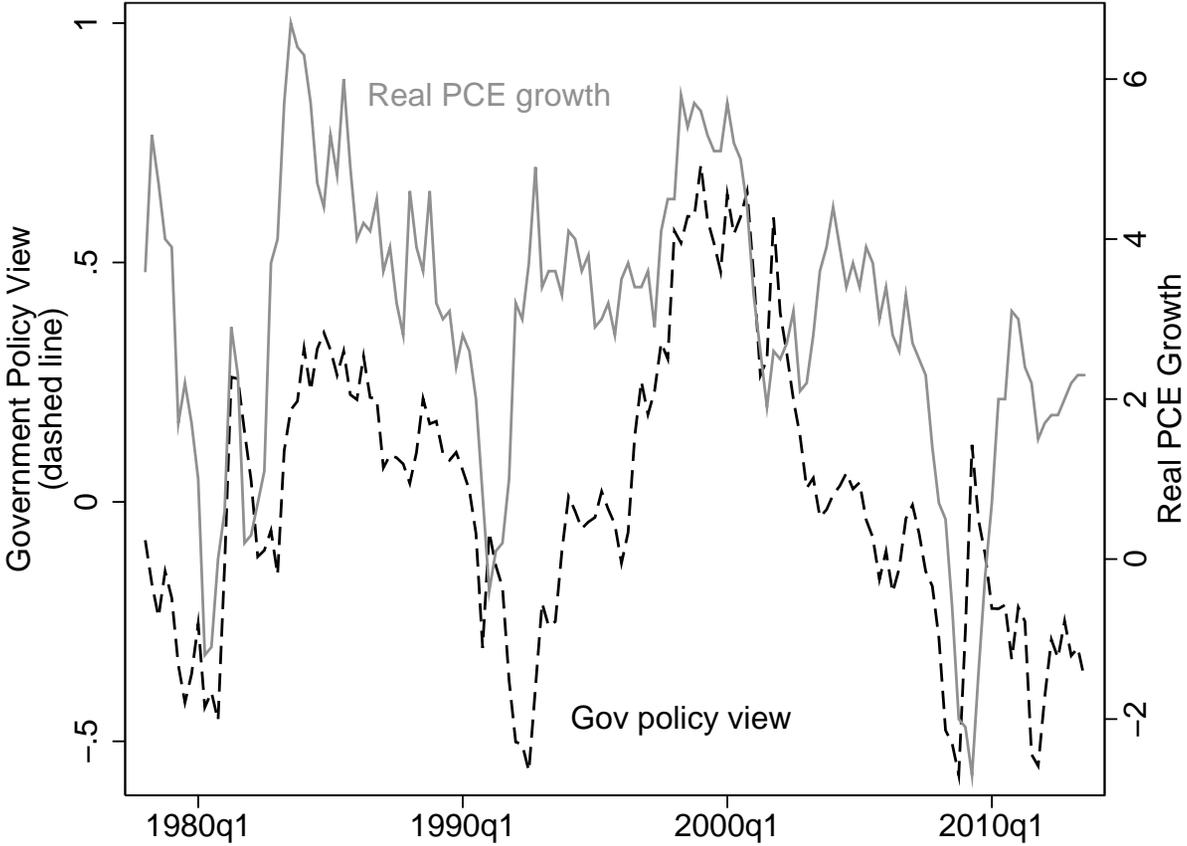
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**Figure 1: Views on Government Economic Policy and Consumption Growth**

This figure plots year over year growth in real personal consumption expenditures and views on government economic policy. Government economic policy view is normalized to be mean zero and standard deviation one.

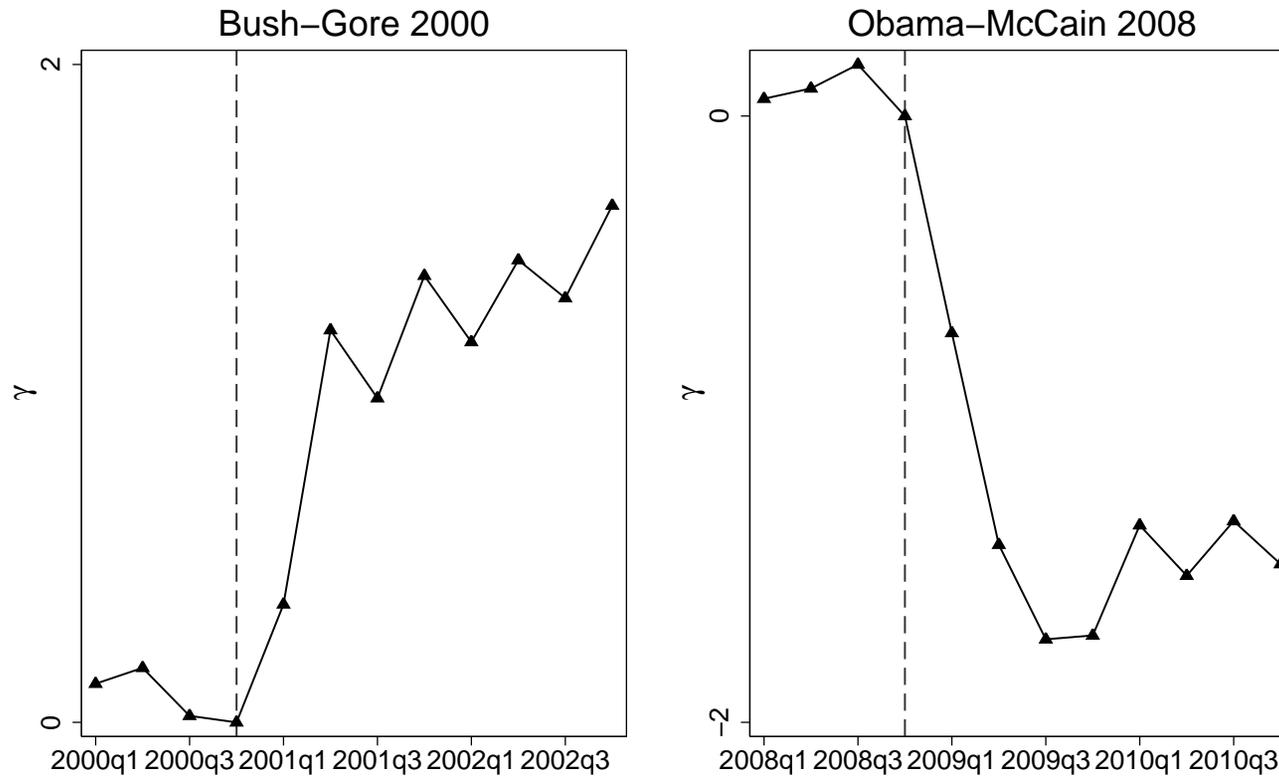


**Figure 2: Effect of Ideology on Government Economic Policy View around Elections**

This figure plots coefficient estimates of  $\gamma^\tau$  for the following regression specification:

$$GovPolicyView_{i\tau} = \sum_{\tau=-3}^{\tau=8} \alpha^\tau * d_\tau + \gamma^0 * RepubVoteShare_{i0} + \sum_{\tau=-3, \tau \neq 0}^{\tau=8} \gamma^\tau * (d_\tau * RepubVoteShare_{i0}) + \nu_{i\tau}$$

The left panel is focused on the Bush-Gore election of 2000 ( $\tau = 0$  is 2000q4) and the right panel is focused on the Obama-McCain election of 2008 ( $\tau = 0$  is 2008q4). Government economic policy view is normalized to be mean zero and standard deviation one.

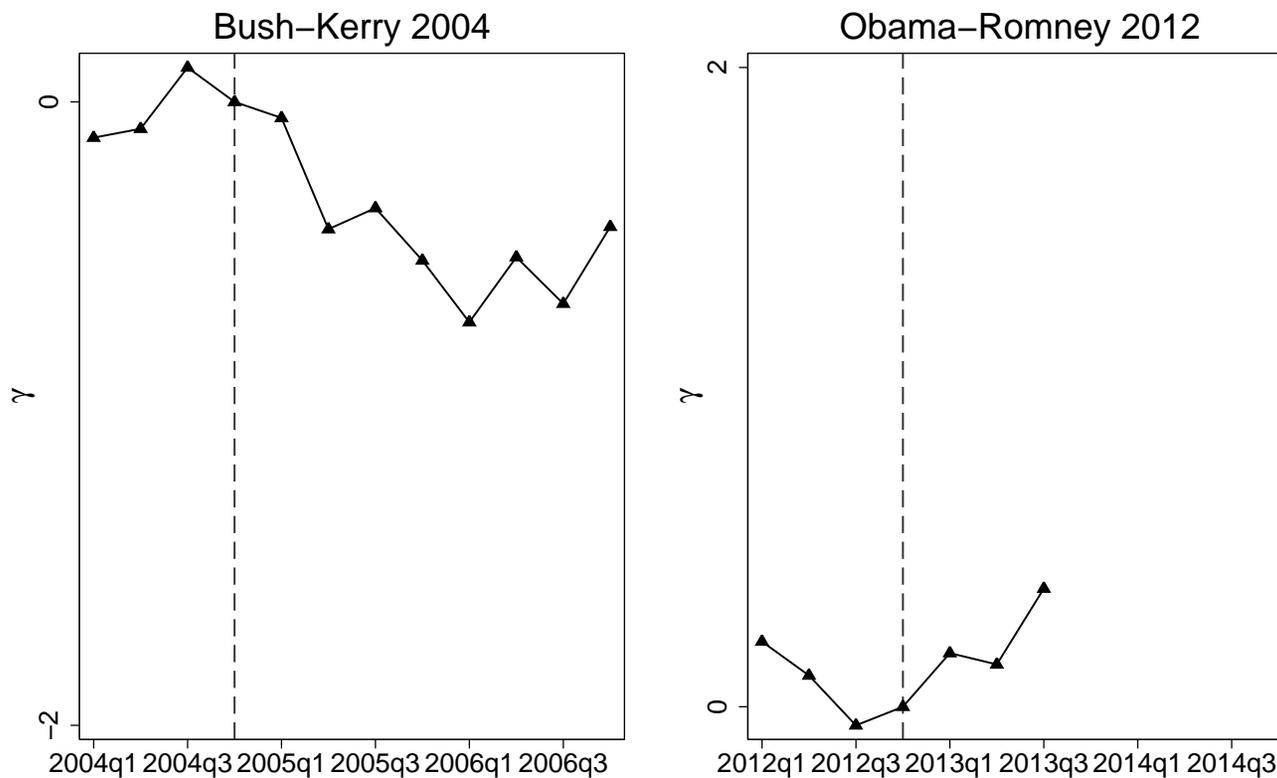


**Figure 3: Effect of Ideology on Government Economic Policy View Around Elections: Placebo Tests**

This figure plots coefficient estimates of  $\gamma^\tau$  for the following regression specification:

$$GovPolicyView_{i\tau} = \sum_{\tau=-3}^{\tau=8} \alpha^\tau * d_\tau + \gamma^0 * ReputVoteShare_{i0} + \sum_{\tau=-3, \tau \neq 0}^{\tau=8} \gamma^\tau * (d_\tau * ReputVoteShare_{i0}) + \nu_{i\tau}$$

The left panel is focused on the Bush-Kerry election of 2004 ( $\tau = 0$  is 2004q4) and the right panel is focused on the Obama-Romney election of 2012 ( $\tau = 0$  is 2012q4). Government policy view is normalized to be mean zero and standard deviation one.

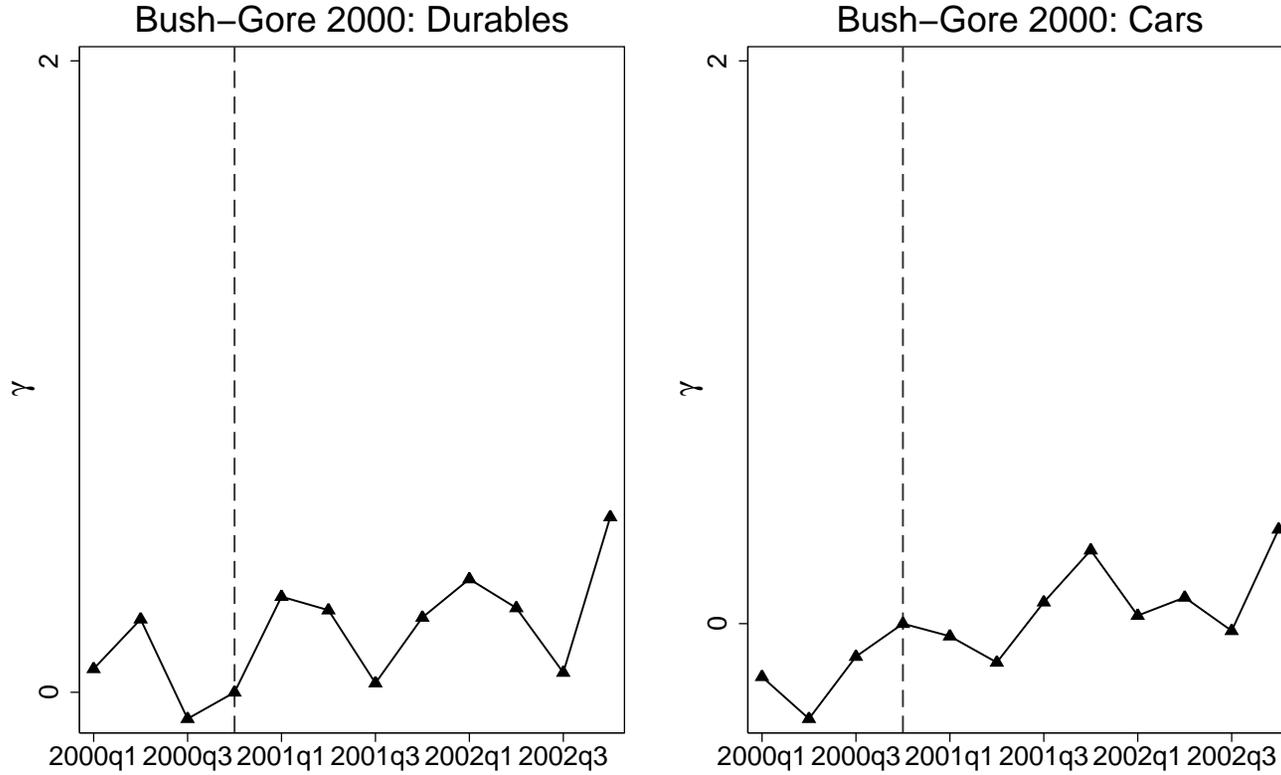


**Figure 4: Effect of Government Economic Policy View Shock on Good Time to Spend: Bush 2000 Election**

This figure plots coefficient estimates of  $\gamma^\tau$  for the following regression specification:

$$GoodTimeToSpend_{i\tau} = \sum_{\tau=-3}^{\tau=8} \alpha^\tau * d_\tau + \gamma^0 * RepubVoteShare_{i0} + \sum_{\tau=-3, \tau \neq 0}^{\tau=8} \gamma^\tau * (d_\tau * RepubVoteShare_{i0}) + \nu_{i\tau}$$

Both panels focus on the Bush-Gore election of 2000 ( $\tau = 0$  is 2000q4). The left panel focuses on household items, and the right panel focuses on cars. Government policy view is normalized to be mean zero and standard deviation one.

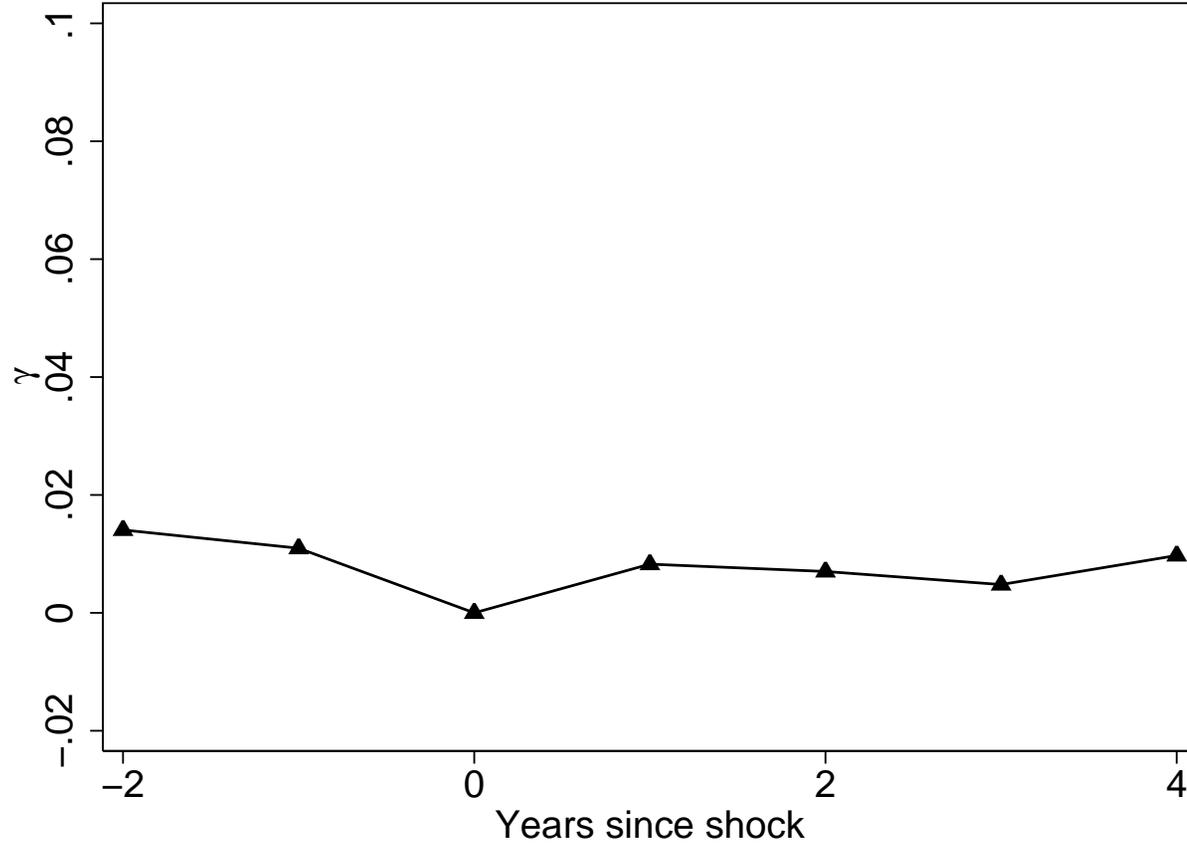


**Figure 5: Effect of Government Economic Policy View Shock on New Auto Purchases: Bush 2000 Election**

This figure plots coefficient estimates of  $\gamma^y$  for the following regression specification:

$$\ln(\text{NewAutoPurchases}_{iy}) = \sum_{y=-2}^{y=4} \alpha^y * d_y + \gamma^0 * \text{RepubVoteShare}_{i0} + \sum_{y=-2, y \neq 0}^{y=4} \gamma^y * (d_\tau * \text{RepubVoteShare}_{i0}) + \nu_{iy}$$

The figure focuses on the Bush-Gore election of 2000 ( $y = 0$  is 2000). Republican vote share in 2000 is normalized to be mean zero and standard deviation one.

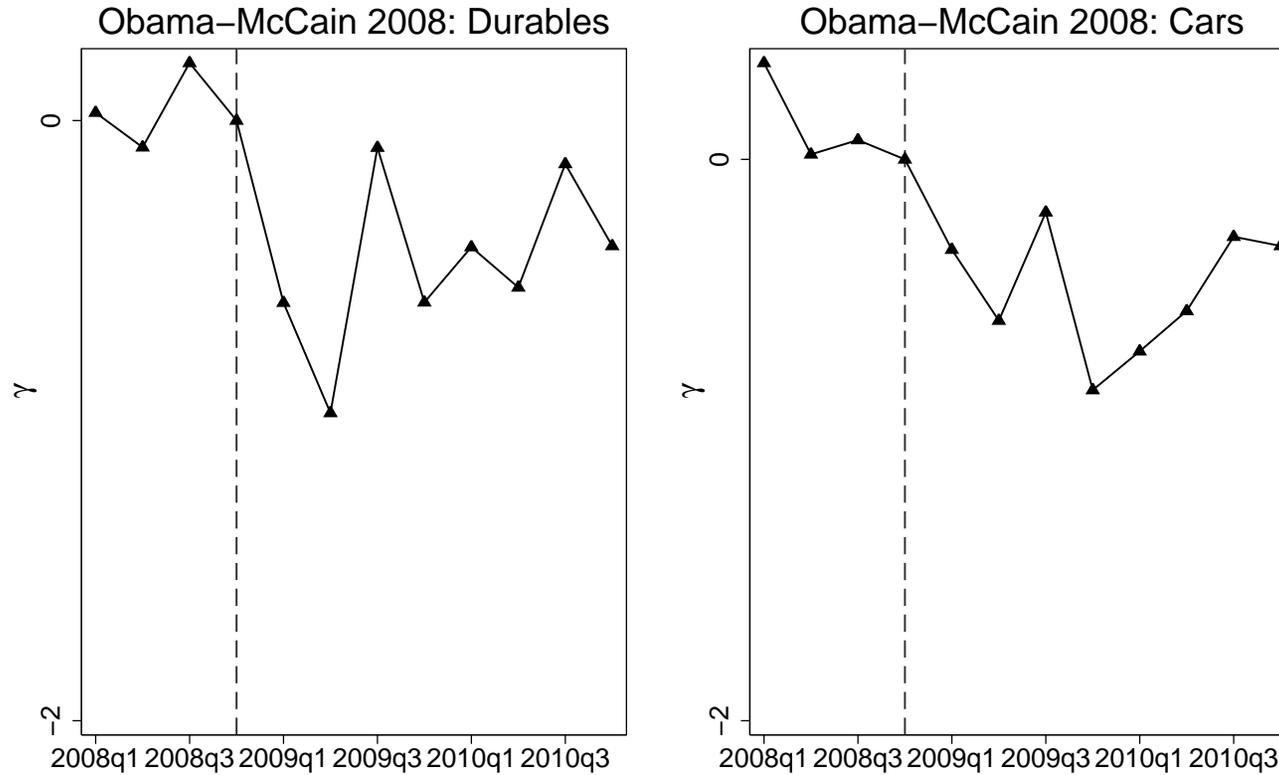


**Figure 6: Effect of Government Economic Policy View Shock on Good Time to Spend: Obama 2008 Election**

This figure plots coefficient estimates of  $\gamma^\tau$  for the following regression specification:

$$GoodTimeToSpend_{i\tau} = \sum_{\tau=-3}^{\tau=8} \alpha^\tau * d_\tau + \gamma^0 * RepubVoteShare_{i0} + \sum_{\tau=-3, \tau \neq 0}^{\tau=8} \gamma^\tau * (d_\tau * RepubVoteShare_{i0}) + \nu_{i\tau}$$

Both panels focus on the Obama-McCain election of 2008 ( $\tau = 0$  is 2008q4). The left panel focuses on household items, and the right panel focuses on cars. Government policy view is normalized to be mean zero and standard deviation one.

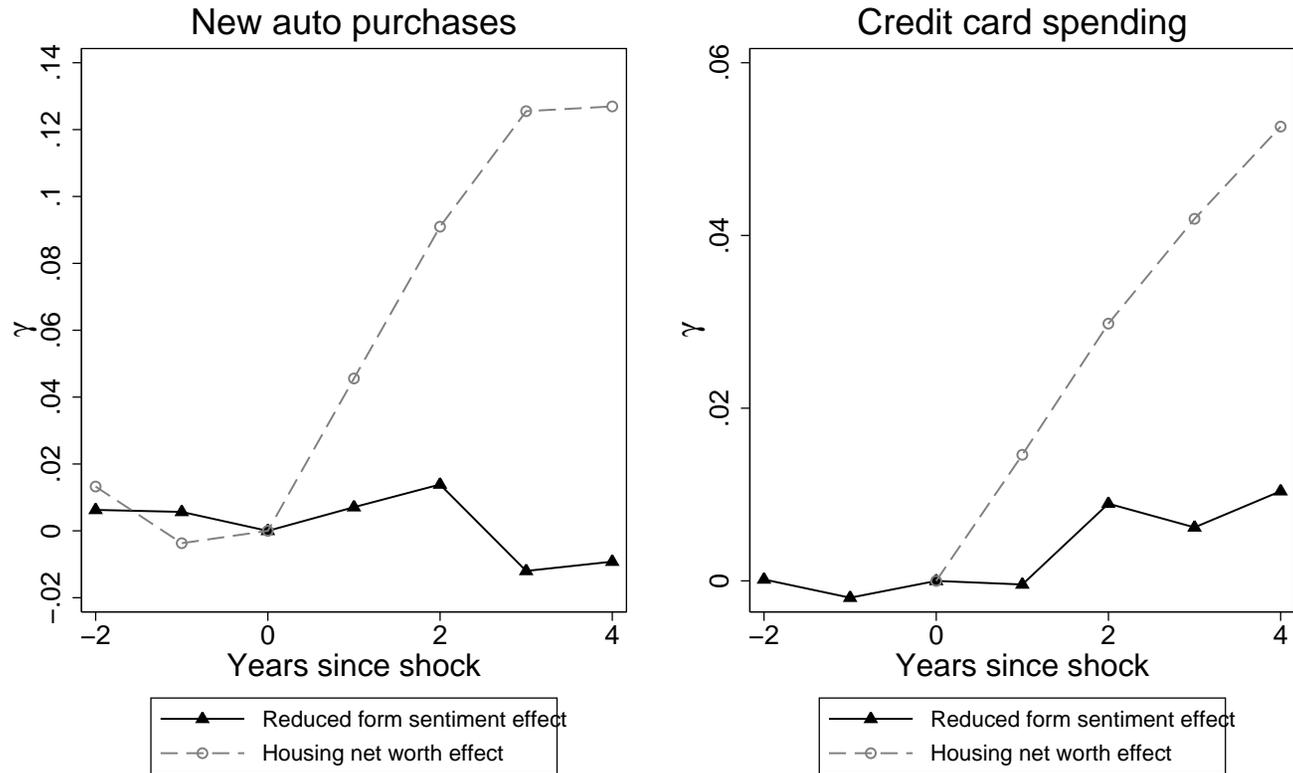


**Figure 7: Reduced Form Obama-McCain 2008 versus Housing Net Worth Shock**

This figure plots coefficient estimates of the effect of the Republican vote share in 2008 in a county and the housing net worth shock from 2006 to 2009 in a county on measures of household spending. For the housing net worth shock, the shock year is 2006. For the Republican vote share, the shock year is 2008. The specific regression is estimated separately for the housing net worth shock and for the Republican vote share, and takes the following form:

$$\ln(\text{SpendingMeasure}_{iy}) = \sum_{y=-2}^{y=4} \alpha^y * d_y + \gamma^0 * \text{CountyCharacteristic}_i + \sum_{y=-2, y \neq 0}^{y=4} \gamma^y * (d_\tau * \text{CountyCharacteristic}_i) + \nu_{iy}$$

Both the Republican vote share and the housing net worth shock are normalized to have zero mean and a standard deviation of one. The figures below plot  $\gamma^y$ . The left panel focuses on new auto purchases, and the right panel focuses on credit card spending.



**Table 1: Summary Statistics**

This table presents summary statistics for U.S. counties. The TW ideology score is from Tausanovitch and Warshaw (2013) and is an increasing measure of conservatism of the county. All measures from the Michigan survey are normalized to be mean zero and standard deviation one, and  $\Delta$  is raw difference in measure.

	N	Mean	SD	10 <sup>th</sup>	90 <sup>th</sup>
<b>Bush 2000 election</b>					
$\Delta$ gov't policy view, 2000-2001	946	-0.210	0.605	-0.796	0.531
$\Delta$ consumer sentiment, 2000-2001	970	-0.475	0.513	-1.025	0.125
$\Delta$ good time to buy household items, 2000-2001	929	-0.297	0.527	-0.834	0.328
$\Delta$ good time to buy car, 2000-2001	921	-0.030	0.616	-0.687	0.616
Republican vote share, 2000	3112	0.479	0.134	0.306	0.643
Wage growth, 1999-2001	3121	0.063	0.028	0.030	0.094
AGI growth, 1999-2001	3121	0.026	0.033	-0.009	0.062
Auto purchase growth, 2000-2001	3135	-0.023	0.081	-0.109	0.064
<b>Obama 2008 election</b>					
$\Delta$ gov't policy view, 2008-2009	1016	0.436	0.636	-0.294	1.145
$\Delta$ consumer sentiment, 2008-2009	1026	0.081	0.544	-0.524	0.700
$\Delta$ good time to buy household items, 2008-2009	992	0.043	0.701	-0.734	0.766
$\Delta$ good time to buy car, 2008-2009	1008	0.262	0.645	-0.457	0.926
Republican vote share, 2008	3113	0.453	0.145	0.261	0.643
Wage growth, 2008-2009	3143	-0.034	0.024	-0.059	-0.004
AGI growth, 2008-2009	3143	-0.050	0.037	-0.083	-0.016
Auto purchase growth, 2008-2009	3135	-0.261	0.118	-0.405	-0.128
Credit card spending growth, 2008-2009	3135	-0.024	0.074	-0.086	0.043
<b>County-level variables</b>					
TW ideology score	3098	-0.023	0.332	-0.483	0.382
Housing net worth shock, 2006-2009	944	-0.097	0.102	-0.213	-0.006
Fraction white, 2000	3133	0.791	0.153	0.556	0.968
Median HH income, 2000, thousands	3133	44.901	11.450	31.724	61.455
Homeownership rate, 2000	3133	0.662	0.115	0.525	0.791
Fraction less than HS education, 2000	3133	0.195	0.072	0.112	0.291
Fraction with exactly HS education, 2000	3133	0.284	0.072	0.190	0.380
Unemployment rate, 2000	3133	0.059	0.023	0.035	0.087
Poverty rate, 2000	3133	0.123	0.054	0.060	0.187
Fraction urban, 2000	3133	0.790	0.256	0.378	0.997

**Table 2: First Stage: Republican Vote Share and Government Economic Policy View Shock**

This table presents the first stage regressions relating the change in views on government economic policy to the Republican share of votes in a county. Panel A examines the 2000 presidential election and Panel B examines the 2008 presidential election. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government economic policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

Panel A: Bush 2000						
$\Delta$ government policy view, 2000-2002						
	(1)	(2)	(3)	(4)	(5)	(6)
Republican vote share, 2000	1.273** (0.156)	1.158** (0.231)	0.973** (0.329)			
TW ideology score				0.566** (0.070)	0.516** (0.097)	0.363** (0.104)
Industry Controls	No	Yes	Yes	No	Yes	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	828	828	828	828	828	828
R <sup>2</sup>	0.063	0.117	0.171	0.072	0.120	0.171
Panel B: Obama 2008						
$\Delta$ government policy view, 2008-2010						
	(1)	(2)	(3)	(4)	(5)	(6)
Republican vote share, 2008	-1.462** (0.108)	-1.967** (0.198)	-2.155** (0.302)			
TW ideology score				-0.619** (0.049)	-0.703** (0.091)	-0.625** (0.116)
Industry Controls	Yes	Yes	Yes	No	Yes	Yes
Census Controls	Yes	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	900	900	900	900	900	900
R <sup>2</sup>	0.087	0.129	0.173	0.083	0.114	0.157

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 3: Republican Vote Share Correlations**

This table presents correlations between the Republican vote share in a county and county-level characteristics. The first two columns use the Republican vote share in the 2000 presidential election and the second two columns use the Republican vote share in the 2008 presidential election. The industry variables reflect the share of total employment in the industry in the county. Standard errors used to calculate significance are clustered by state.

	Republican Vote Share, 2000		Republican Vote Share, 2008	
	(1)	(2)	(3)	(4)
TW ideology score	0.838**	0.779**	0.854**	0.815**
Housing net worth shock, 2006-2009			0.175**	0.007
Fraction white, 2000	0.566**	0.733**	0.601**	0.759**
Ln(medhhinc, 2000)	-0.114	0.123	-0.222**	-0.001
Homeownership rate, 2000	0.616**	0.627**	0.646**	0.675**
Fraction less than HS education, 2000	-0.116	-0.230**	0.002	-0.099
Fraction with exactly HS education, 2000	0.311**	0.385**	0.436**	0.526**
Unemployment rate, 2000	-0.400**	-0.427**	-0.347**	-0.370**
Poverty rate, 2000	-0.251**	-0.441**	-0.175*	-0.370**
Fraction urban, 2000	-0.457**	-0.416**	-0.545**	-0.526**
Industry: Educational Services, Health Care	-0.339**	-0.266**	-0.271**	-0.250**
Industry: Manufacturing	0.259**	0.252**	0.275**	0.308**
Industry: Retail Trade	0.303**	0.243**	0.313**	0.253**
Industry: Professional Services	-0.463**	-0.398**	-0.533**	-0.495**
Industry: Arts and Entertainment	-0.126**	-0.195**	-0.174**	-0.230**
Industry: Construction	0.520**	0.427**	0.527**	0.459**
Industry: Finance and Insurance	-0.401**	-0.300**	-0.427**	-0.378**
Industry: Transportation and Warehousing	0.049	-0.046	0.088	-0.004
State Fixed Effects	No	Yes	No	Yes

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 4: First Stage: Placebo Elections**

This table presents the first stage regressions relating the change in views on government economic policy to the Republican share of votes in a county. Panel A examines the 2004 presidential election and Panel B examines the 2012 presidential election. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

Panel A: Bush 2004						
$\Delta$ government policy view, 2004-2005						
	(1)	(2)	(3)	(4)	(5)	
Republican vote share, 2004	-0.216 (0.174)	0.045 (0.251)	0.420 (0.340)			
TW ideology score				-0.087 (0.067)	-0.026 (0.098)	
Industry Controls	No	Yes	Yes	No	Yes	
Census Controls	No	Yes	Yes	No	Yes	
State Fixed Effects	No	No	Yes	No	No	
Observations	1029	1029	1029	1029	1029	
R <sup>2</sup>	0.002	0.035	0.095	0.002	0.035	
Panel B: Obama 2012						
$\Delta$ government policy view, 2012-2013						
	(1)	(2)	(3)	(4)	(5)	
Republican vote share, 2012	0.133 (0.126)	0.111 (0.232)	-0.039 (0.344)			
TW ideology score				0.014 (0.062)	0.001 (0.107)	
Industry Controls	No	Yes	Yes	No	Yes	
Census Controls	No	Yes	Yes	No	Yes	
State Fixed Effects	No	No	Yes	No	No	
Observations	920	920	920	920	920	
R <sup>2</sup>	0.001	0.042	0.108	0.000	0.042	

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 5: Income Shock around Elections?**

This table examines whether counties voting Republican experience differential income shocks around the election year. Panel A focuses on the 2000 presidential election and Panel B focuses on the 2008 presidential election. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	Panel A: Bush 2000					
	AGI growth, 1999-2001			Wage growth, 1999-2001		
	(1)	(2)	(3)	(4)	(5)	(6)
Republican vote share, 2000	0.012 (0.013)	0.011 (0.014)	0.005 (0.010)	-0.034* (0.015)	-0.015 (0.016)	-0.021 (0.015)
Industry Controls	No	Yes	Yes	No	Yes	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	3097	3091	3091	3097	3091	3091
R <sup>2</sup>	0.002	0.281	0.429	0.026	0.306	0.512
	Panel B: Obama 2008					
	AGI growth, 2008-2009			Wage growth, 2008-2009		
	(1)	(2)	(3)	(4)	(5)	(6)
Republican vote share, 2008	0.002 (0.015)	-0.014 (0.019)	0.002 (0.020)	0.011 (0.008)	0.013 (0.012)	0.015 (0.011)
Industry Controls	No	Yes	Yes	No	Yes	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	3113	3107	3107	3113	3107	3107
R <sup>2</sup>	0.000	0.162	0.260	0.005	0.329	0.519

\*\*, \* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 6: Changes in Taxes or Transfers after Elections?**

This table examines whether counties voting Republican experience differential tax or transfer shocks around the election year. Panel A focuses on the 2000 presidential election and Panel B focuses on the 2008 presidential election. Taxes paid in a state are total individual income taxes paid as reported by the IRS. Transfers are measured using Census data from the Consolidated Federal Funds Report.

	Panel A: Bush 2000					
	(1)	(2)	(3)	(4)	(5)	(6)
	Taxes paid growth 00 to 01	Taxes paid growth 00 to 02	Change in tax rate 00 to 01	Change in tax rate 00 to 02	Growth in transfers 00 to 01	Growth in transfers 00 to 02
Republican vote share, 2000	0.003 (0.100)	0.071 (0.107)	-0.012 (0.016)	0.015 (0.017)	0.046 (0.051)	-0.014 (0.047)
Constant	0.042 (0.049)	-0.045 (0.053)	0.006 (0.008)	-0.022* (0.009)	0.069* (0.027)	0.177** (0.025)
Observations	47	47	47	47	49	49
R <sup>2</sup>	0.000	0.005	0.016	0.008	0.024	0.002
	Panel B: Obama 2008					
	(1)	(2)	(3)	(4)	(5)	(6)
	Taxes paid growth 08 to 09	Taxes paid growth 08 to 10	Change in tax rate 08 to 09	Change in tax rate 08 to 10	Growth in transfers 08 to 09	Growth in transfers 08 to 10
Republican vote share, 2008	-0.002 (0.133)	-0.081 (0.136)	0.004 (0.027)	0.017 (0.018)	-0.070 (0.100)	-0.088 (0.108)
Constant	-0.111 (0.063)	-0.104 (0.064)	-0.013 (0.013)	-0.030** (0.009)	0.186** (0.047)	0.211** (0.050)
Observations	49	49	49	49	49	49
R <sup>2</sup>	0.000	0.009	0.001	0.014	0.014	0.015

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 7: Government Economic Policy View Shock and Good Time to Spend, Bush 2000**

This table examines whether people living in counties voting Republican in 2000 increasingly say it is a good time to spend on either durables or cars. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. All measures from the Michigan survey are normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	$\Delta$ durables, 00-01		$\Delta$ car, 00-01		$\Delta$ durables, 00-02		$\Delta$ car, 00-02	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Republican vote share, 2000	0.156 (0.136)	0.538 (0.353)	0.163 (0.145)	0.455 (0.285)	0.146 (0.189)	0.216 (0.435)	0.123 (0.149)	-0.124 (0.266)
Industry Controls	No	Yes	No	Yes	No	Yes	No	Yes
Census Controls	No	Yes	No	Yes	No	Yes	No	Yes
State Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	929	929	921	921	801	801	805	805
R <sup>2</sup>	0.001	0.094	0.001	0.085	0.001	0.111	0.001	0.087

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 8: Government Economic Policy View Shock and New Auto Purchases, Bush 2000**

This table examines the effect of the shift in views on government economic policy on new auto purchases after the 2000 presidential election. Panel A presents reduced form estimates and Panel B instrumental variables estimates where the change in views on government policy is instrumented with the 2000 Republican vote share in a county. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	Panel A: Reduced form					
	Auto sales growth, 00-01		Auto sales growth, 99-01		Auto sales growth, 99-02	
	(1)	(2)	(3)	(4)	(5)	(6)
Republican vote share, 2000	0.062 (0.032)	0.062 (0.049)	-0.021 (0.045)	0.042 (0.046)	-0.028 (0.040)	0.010 (0.058)
Industry Controls	No	Yes	No	Yes	No	Yes
Census Controls	No	Yes	No	Yes	No	Yes
State Fixed Effects	No	No	No	No	No	No
Observations	3110	3106	3109	3105	3109	3105
R <sup>2</sup>	0.011	0.115	0.001	0.157	0.001	0.147
	Panel B: Instrumental variables					
	Auto sales growth, 00-01		Auto sales growth, 99-01		Auto sales growth, 99-02	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ gov't policy view, 2000-2001	-0.013 (0.052)	0.021 (0.064)	0.057 (0.073)			
$\Delta$ gov't policy view, 2000-2002				-0.003 (0.036)	0.006 (0.059)	0.071 (0.050)
Industry Controls	No	Yes	Yes	No	Yes	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	946	946	946	828	828	828
R <sup>2</sup>	.	0.188	0.265	.	0.204	0.273

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 9: Government Economic Policy View Shock and Expenditure Plans, Obama 2008**

This table examines whether people living in counties voting Republican in 2000 increasingly say it is a good time to spend on either durables or cars. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. All measures from the Michigan survey are normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	$\Delta$ durables, 08-09		$\Delta$ car, 08-09		$\Delta$ durables, 08-10		$\Delta$ car, 08-10	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Republican vote share, 2008	-0.533** (0.153)	-0.024 (0.389)	-0.600** (0.143)	-0.594* (0.270)	-0.339 (0.194)	-0.025 (0.440)	-0.567** (0.164)	-0.530 (0.294)
Industry Controls	No	Yes	No	Yes	No	Yes	No	Yes
Census Controls	No	Yes	No	Yes	No	Yes	No	Yes
State Fixed Effects	No	Yes	No	Yes	No	Yes	No	Yes
Observations	992	992	1008	1008	885	885	891	891
R <sup>2</sup>	0.009	0.085	0.014	0.080	0.004	0.094	0.012	0.092

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 10: Government Economic Policy View Shock and New Auto Purchases, Obama 2008**

This table examines the effect of the shift in views on government economic policy on new auto purchases after the 2008 presidential election. The instrumental variables specifications use the 2008 Republican vote fraction as an instrument for changes in views on government policy following the election. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	Auto sales growth, 2008-2009				Auto sales growth, 2008-2010			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Republican vote share, 2008	-0.054 (0.048)				-0.102 (0.068)			
$\Delta$ gov't policy view, 2008-2009		0.039 (0.036)	0.025 (0.054)	-0.023 (0.043)				
$\Delta$ gov't policy view, 2008-2010						0.085 (0.054)	-0.020 (0.057)	-0.042 (0.042)
Industry Controls	No	No	Yes	Yes	No	No	Yes	Yes
Census Controls	No	No	Yes	Yes	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes	No	No	No	Yes
Estimation Method	OLS	IV	IV	IV	OLS	IV	IV	IV
Observations	3111	1016	1016	1016	3111	900	900	900
R <sup>2</sup>	0.004	.	0.397	0.592	0.008	.	0.197	0.352

\*\*, \* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 11: Government Economic Policy View Shock and Credit Card Spending, Obama 2008**

This table examines the effect of the shift in views on government policy on credit card spending after the 2008 presidential election. The instrumental variables specifications use the 2008 Republican vote fraction as an instrument for changes in views on government policy following the election. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	Credit card spending growth, 2008-2009				Credit card spending growth, 2008-2010			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Republican vote share, 2008	-0.000 (0.023)				-0.067 (0.035)			
$\Delta$ gov't policy view, 2008-2009		0.014 (0.017)	0.008 (0.036)	0.012 (0.034)				
$\Delta$ gov't policy view, 2008-2010						0.068* (0.027)	0.013 (0.024)	0.003 (0.021)
Industry Controls	No	No	Yes	Yes	No	No	Yes	Yes
Census Controls	No	No	Yes	Yes	No	No	Yes	Yes
State Fixed Effects	No	No	No	Yes	No	No	No	Yes
Estimation Method	OLS	IV	IV	IV	OLS	IV	IV	IV
Observations	3111	1016	1016	1016	3111	900	900	900
R <sup>2</sup>	0.000	.	0.140	0.457	0.007	.	0.182	0.310

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 12: Explaining the Null Result**

The first column of this table shows how the index of consumer sentiment responds to the housing net worth shock from 2006 to 2009. In columns 2 and 3, we examine how changes in the index of consumer sentiment from 2006 to 2009 in a county affect consumption. Columns 4 through 6 present the OLS regression of consumption growth on changes in government policy view. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	(1)	(2)	(3)	(4)	(5)	(6)
	$\Delta$ consumer sentiment 2006-2009	Auto purchase growth 2006-2009	Credit card spending growth 2006-2009	Auto purchase growth 2000-2001	Auto purchase growth 2008-2009	Credit card spending growth 2008-2009
Housing net worth shock, 2006-2009	0.826** (0.300)					
$\Delta$ consumer sentiment, 2006-2009		0.085* (0.034)	0.036** (0.011)			
$\Delta$ gov't policy view, 2000-2001				0.002 (0.007)		
$\Delta$ gov't policy view, 2008-2009					0.011 (0.009)	0.006 (0.004)
Estimation Method						
Observations	622	622	622	946	1016	1016
R <sup>2</sup>	0.021	0.054	0.052	0.000	0.003	0.004

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table 13: Correlations of Sentiment Measures**

This table shows the aggregate correlation between year over year real consumption growth, the index of consumer sentiment, and views on government economic policy. The last two rows of the correlation matrix examine the variation in the index of consumer sentiment and views on government economic policy that are orthogonal to one another. More specifically, orthogonal government policy view represents the residuals from a regression of government policy view on the index of consumer sentiment, and orthogonal index of consumer sentiment represents the residuals from a regression of the index of consumer sentiment on government policy view.

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	Year over year consumption growth	Government policy view	Index of consumer sentiment	Orthogonal government policy view	Orthogonal index of consumer sentiment
Year over year real consumption growth	1.000				
Government policy view	0.568	1.000			
Index of consumer sentiment	0.761	0.796	1.000		
Orthogonal government policy view	-0.063	0.605	0.000	1.000	
Orthogonal index of consumer sentiment	0.511	-0.000	0.605	-0.796	1.000

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## A Appendix Figures and Tables

In Figure A.1, we use individual level data from the Michigan survey to estimate how views on government economic policy change around the 2000 and 2008 election depending on the race of the survey respondent.

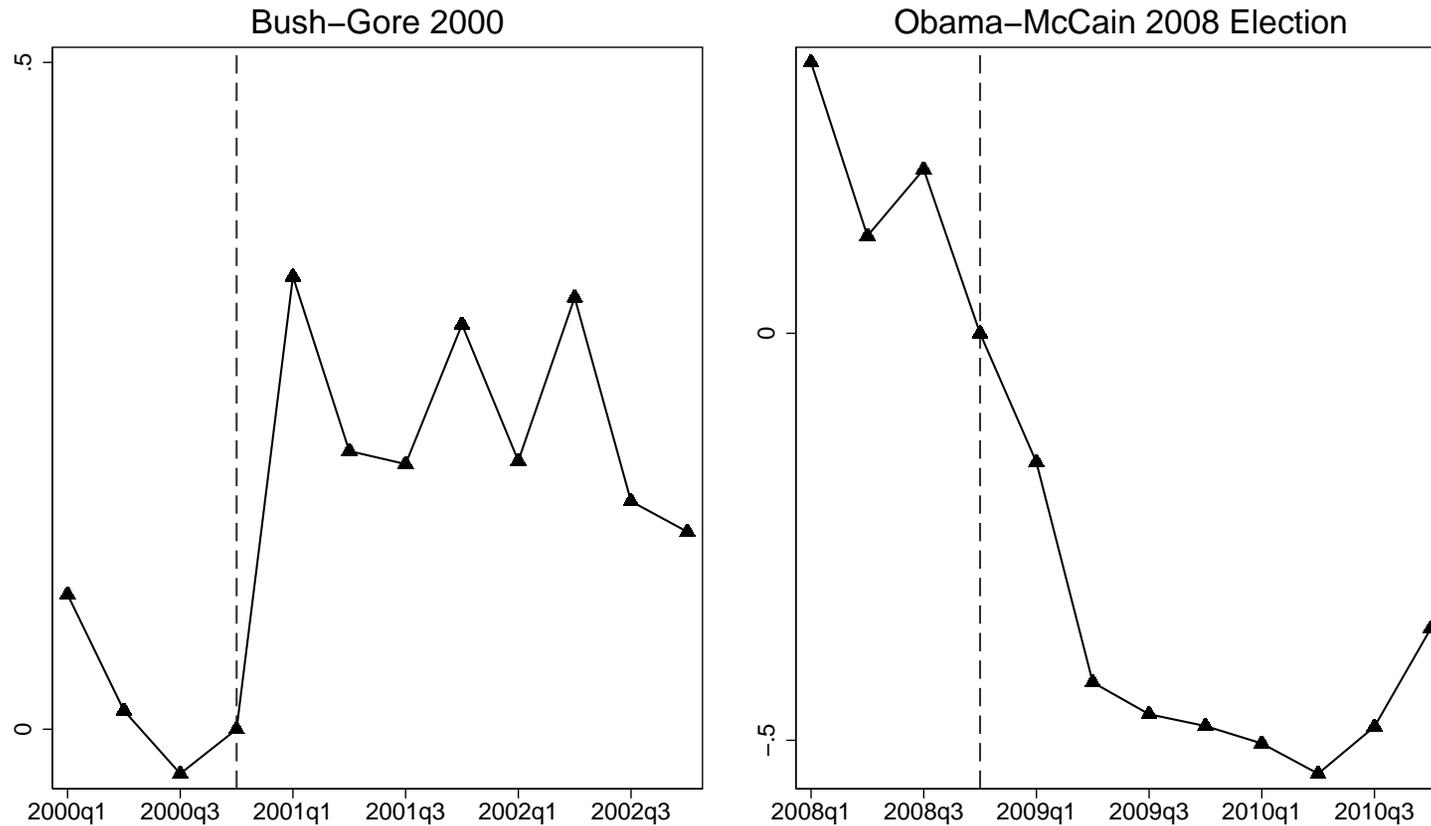
In Tables A.1 and A.2, we use the fraction of the population who are members of Evangelical, Latter-day Saints, or mainstream Protestant churches as an instrument for changes in government economic policy views around elections. The church membership data were downloaded from the Association of Religion Data Archives, [www.TheARDA.com](http://www.TheARDA.com).

**Figure A.1: Effect of Race on Government Economic Policy View around Elections**

This figure plots coefficient estimates of  $\gamma^t$  for the following regression specification:

$$GovPolicyView_{it} = \sum_{t=-3}^{t=8} \gamma^t * White_{i0} * QuarterDummy_t + \epsilon_t$$

This specification is based on individual data, where  $White_{i0}$  is an indicator for whether the survey respondent is white. The left panel is focused on the Bush-Gore election of 2000 ( $t = 0$  is 2000q4) and the right panel is focused on the Obama-McCain election of 2008 ( $t = 0$  is 2008q4). The omitted quarter in both figures is the quarter of the election. Government economic policy view is normalized to be mean zero and standard deviation one.



**Table A.1: Using Church Membership as Instrument for Change in Government Economic Policy Views**

This table presents the first stage of a specification using the fraction of the population in a county that are members of evangelical, Latter-day Saints, or mainline protestant churches. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	$\Delta$ gov't policy view, 00-02			$\Delta$ gov't policy view, 08-10		
	(1)	(2)	(3)	(4)	(5)	(6)
Church membership fraction, 2000	0.860** (0.181)	0.677** (0.230)	0.564 (0.327)			
Church membership fraction, 2010				-0.823** (0.186)	-0.921** (0.262)	-1.001* (0.457)
Industry Controls	No	Yes	Yes	No	Yes	Yes
Census Controls	No	Yes	Yes	No	Yes	Yes
State Fixed Effects	No	No	Yes	No	No	Yes
Observations	828	828	828	790	790	790
R <sup>2</sup>	0.035	0.107	0.165	0.028	0.093	0.157

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.

**Table A.2: Using Church Membership as Instrument, Obama 2008**

This table presents the IV specification using the fraction of the population in a county that are members of evangelical, Latter-day Saints, or mainline protestant churches as instrument for the change in views regarding government economic policy. The industry controls are employment shares in 2-digit NAICS industries, the census controls are fraction white, natural log of median household income, fraction with less than a high school education, fraction with exactly a high school education, the unemployment rate in 2000, the poverty rate in 2000, and the fraction of the county that is urban. Government policy view is normalized to be mean zero and standard deviation one. Standard errors are clustered by state, and regressions are weighted by the number of respondents to the Michigan survey in the county.

	Auto purchase growth, 00-02		Auto purchase growth, 08-10		Credit card spending growth, 08-10	
	(1)	(2)	(3)	(4)	(5)	(6)
$\Delta$ gov't policy view, 2000-2002	-0.114 (0.108)	0.030 (0.084)				
$\Delta$ gov't policy view, 2008-2010			-0.055 (0.117)	-0.056 (0.127)	-0.029 (0.076)	-0.109 (0.100)
Industry Controls	Yes	Yes	Yes	Yes	Yes	Yes
Census Controls	Yes	Yes	Yes	Yes	Yes	Yes
State Fixed Effects	No	Yes	No	Yes	No	Yes
Observations	828	828	790	790	790	790
R <sup>2</sup>	.	0.345	0.169	0.348	0.167	.

\*\*,\* Coefficient statistically different than zero at the 1% and 5% confidence level, respectively.